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CHANGES:  
FACTS, TRENDS, FORECAST**

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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.

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**Federal State Budgetary Institution of Science Vologda Research Center of the Russian Academy of Sciences (VoIRC 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 (ISED T RAS).

In 2017 the socio-economic research was supplemented by agricultural issues. ISED T 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 VoIRC 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).

### **MAIN RESEARCH DIRECTIONS**

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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VoIRC RAS is actively developing its international activities. It is involved in joint international grant projects and regularly holds international conferences and workshops. The Center has Cooperation agreements and Memoranda of understanding with research organizations:

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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 ISED T 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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## The President Called on the Officials of All Levels to “Stop Fooling Around”



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**Abstract.** February 2023 marks one year since the beginning of the special military operation (February 24, 2022). February 21, 2023, Russian President Vladimir Putin delivered his annual address to the Federal Assembly. The head of state noted: “This is not only a time of challenges but also a time of opportunities... And our future depends on the way we realize these opportunities. We must put an end – and I want to emphasize this – to all interagency conflicts, red tape, grievances, doublespeak, or any other nonsense. Everything we do must contribute to achieving our goals and delivering results. This is what we must strive to achieve”... And here the President is certainly right, since the principle of “everything must contribute to achieving our goals and delivering results” is hindered by the activities and managerial decisions of individual representatives of bureaucracy who are unable or unwilling to comply with the new conditions in which the country found itself after the start of the special military

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operation. In the article, we carry on analyzing the situation in Russia, key steps taken by the President in the face of increasing threats to national security, trends in public opinion and individual facts of real life that contradict the dominant national-patriotic trend of social sentiment and the tasks set by the President after February 24, 2022. The information base for our research includes assessments by experts from various fields, results of monitoring sociological surveys, and public speeches of the head of state since 2000. One of our main conclusions is that the future of Russia, the real formation of a new Social Contract, which is possible only after Russia’s victory in the special military operation and which consists in building a sovereign social state based on traditional spiritual and moral values and the principle of social justice, should begin with the mobilization of elites, elimination of “contradictions, formalities and other nonsense”; and the head of state can and should be the initiator of this process.

**Key words:** President of the Russian Federation, special military operation, public opinion, new Social Contract, 2024 presidential election.

Recently, it has become a frequent practice to broadcast live meetings of the President with members of the RF Government. Thus, people have an opportunity to see in an online format the joint work of the head of state and members of the Cabinet of Ministers: how prepared they are for a particular meeting, how they communicate, what questions are being asked, how clear the wording of the tasks is, what the situation regarding deadlines is, etc. On the other hand, people can see for themselves how officials behave and what level of responsibility they demonstrate when it comes to the fulfillment of the tasks set by the President.

January 11, 2023, one of such meetings of the President with members of the Government took place, and it was broadcast live by Rossiya 24 TV channel. The agenda of the meeting, as Vladimir Putin himself indicated, was “social support measures in the new regions – arranging the payment of all social benefits to the local population”. However, apparently, after a preliminary conversation with enterprises’ directors, the first question of the President was: “How the instructions are being carried out to implement long-term programs to upgrade the aircraft fleet

and the water transport fleet?”; the question was addressed to Deputy Prime Minister of the Russian Federation, Minister of Industry and Trade Denis V. Manturov.

Here is a direct excerpt from the conversation held between the President and the Deputy Prime Minister, which, in our opinion, shows all the inconsistency between the tasks clearly formulated by the head of state and the attempts the officials (of the highest rank) make to sidestep the question.

The above episode clearly shows how the President sometimes has to resist a “huge and suffocating wave of inertia”<sup>1</sup>. In the words and behavior of the head of state there was a sense of accumulated emotional dissatisfaction with the fact that throughout the entire power vertical there are officials who do not understand Russia’s current situation and are often “fooling around”, finding some excuses, showing a hidden unwillingness to adapt to the demands of the time, when in the context of aggravating external threats to national security the role of clarity and efficiency in fulfilling the tasks of the President is significantly increasing.

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<sup>1</sup> Dugin A. We have approached the year 2023 balancing on the brink of an abyss. Available at: <https://izborsk-club.ru/23744>

**An excerpt from the meeting of the President of the Russian Federation with Government members, January 11, 2023**

**Vladimir Putin:** “As for today’s agenda, we agreed to focus on social support measures in the new regions – arranging the payment of all social benefits to the local population... But before we begin, I would like to ask Mr Manturov to tell us **how the instructions are being carried out to implement long-term programs to upgrade the aircraft fleet and the water transport fleet.** We worked on this a lot last year, and **we all realize how critical these issues are, especially with regard to air transport**”.

In his report, D. Manturov pointed out that “in 2023–2025, Aeroflot will receive 63 aircraft, including 34 Superjets under the import substitution project, 18 MC-21 and 11 Tu-214 aircraft... separate passports will be approved this year under orders placed by other airlines to ensure the implementation of a comprehensive program for developing the aviation industry... Our shipyards plan to build 260 civilian vessels in 2023–2027... Overall, the program for upgrading the civilian fleet has been drawn up for 231 billion rubles”.

D. Manturov ended his report by clarifying the tasks at hand: **“Today, the key task is to rapidly approve the investment project passport.** We are ready to submit it to the Government and hope that my colleagues will quickly resolve procedural issues, which will allow us to start financing in this quarter as you, Mr President, have instructed us...”

**Vladimir Putin:** “Mr Manturov, **as long as there are no manufacturer’s specifications (passports), as you mentioned yourself, and companies do not have those, just like they have no contracts, there is no understanding of what they will do or what they need to do. It is taking too long. Please, I ask you to speed up this process.** Enterprises do not have contracts for 2023, what can I say to that? As you said, there are no manufacturer’s specifications. When will they be ready? And there are no contracts yet”.

**Denis Manturov:** “Here is the instruction, Mr President. We have the contracts, as I reported, from the Defense Ministry, from the civilian customers, the State Transport Leasing Company and other leasing companies – this is in terms of helicopters. **And we have all the plans drawn up for aircraft.** They take into account the technical trials, certification and import substitution programs – the Superjet and MC-21. Everything has been fully drawn up”.

**Vladimir Putin:** “Mr Manturov, **you say everything is ready to go, but there are no contracts.** This is what I am telling you. Let’s discuss this after the meeting. There is no point in our splitting hairs at this point. I know no contracts have been signed with the enterprises, the directors told me so. **What are you fooling around for?** When will the contracts be signed? This is my point. Directors of enterprises are telling me there are no contracts while you are telling me that everything is ready to go. When will the passports be available? When will the contracts be signed? These are the questions I need answers to”.

**Denis Manturov:** “With regard to the aircraft passport which I just reported on, the instruction was issued **strictly in accordance with the task that you set.** Other passports will be ready **during this quarter based on the funds available under the budget, including under the preferential National Welfare Fund program**”.

**Vladimir Putin:** “**I want all of this to be done within a month. What quarter are you talking about? Do we not understand the circumstances we are in?** Please complete this work within a month. Okay?”

**Denis Manturov:** “We will try to do our best with our colleagues from the economic bloc. Thank you”.

**Vladimir Putin:** “**No, do not try to do your best; please get it done in a month. It must be done in a month, no later.** Agreed?”

**Denis Manturov:** “Yes”<sup>2</sup>.

<sup>2</sup> Meeting of the President of the Russian Federation with Government members on January 11, 2023. Available at: <http://www.kremlin.ru/events/president/transcripts/70338>

Russia’s current situation represents a **culmination** of the country’s long-term struggle to preserve its national sovereignty, which began **in 2007**, after the President declared at the international level that Russia was not going to change the traditions of pursuing an independent foreign policy.

“Russia is a country with a history that spans more than a thousand years and has practically always used the privilege to carry out an independent foreign policy. We are not going to change this tradition today”<sup>3</sup>.

The long way toward the beginning of the special military operation (SMO) was marked by the year 2014, when, following a coup d’etat in Ukraine, the Collective West began working methodically on the implementation of its “anti-Russia” project, including eight years of Donbass shelling.

Vladimir Putin has taken a number of effective steps to prepare the country (society, public administration system) for the potential possibility of the worst-case and quite likely scenario for the development of relations with the Collective West:

✓ **March 21, 2014** – the Republic of Crimea and Sevastopol were admitted to the Russian Federation<sup>4</sup>;

✓ **January 15, 2020** – an initiative to amend the RF Constitution was introduced<sup>5</sup> (amendments were aimed at strengthening traditional spiritual and moral values and organizational foundations of the public administration system);

✓ **June 4, 2021** – Presidential Decree banning extremist organizations from participating in elections<sup>6</sup> (which brought to nought the activities of Navalny’s headquarters\*);

✓ **July 2, 2021** – a new National Security Strategy was signed (according to experts, the system of national values, moral and spiritual values was for the first time “prominently marked ... a separate priority was given to “ideological leadership, which is necessary in the world”<sup>7</sup>);

✓ **December 15, 2021**, during a meeting at the Russian Foreign Ministry, the U.S. party received drafts of the treaty between the Russian Federation and the United States of America on security guarantees and the agreement on security measures for the Russian Federation and the member States of the North Atlantic Treaty Organization<sup>8</sup>.

This agreement included Russia’s demand that NATO “shall not deploy military forces and weaponry on the territory of any of the other States in Europe in addition to the forces stationed on that territory as of 27 May 1997”; “shall refrain from any further enlargement of NATO, including the accession of Ukraine”; “shall not conduct any military activity on the territory of Ukraine as well as other States in the Eastern Europe, in the South Caucasus and in Central Asia”.

<sup>3</sup> Vladimir Putin’s speech at the Munich Security Conference on February 10, 2007. Available at: <http://www.kremlin.ru/events/president/transcripts/24034>

<sup>4</sup> Federal Law 36 “On ratifying the agreement between the Russian Federation and the Republic of Crimea on the admission of the Republic of Crimea to the Russian Federation and the formation of new constituent entities within the Russian Federation”, dated March 21, 2014.

<sup>5</sup> The initiative to change the Constitution was first voiced during the President’s Address to the Federal Assembly of the Russian Federation on January 15, 2020. The all-Russian vote was held in the period from June 25 to July 1, 2021.

<sup>6</sup> Federal Law 157 “On amendments to Article 4 of the Federal Law “On basic guarantees of electoral rights of citizens of the Russian Federation and on their right to participate in a referendum” and Article 4 of the Federal Law “On elections of deputies of the State Duma of the Federal Assembly of the Russian Federation”, dated June 4, 2021.

\* The activities of Navalny’s headquarters are recognized as extremist and banned on the territory of the Russian Federation.

<sup>7</sup> Opinion of A. Podberyozkin, director of MGIMO Center for Military and Political Studies. Available at: <https://www.rbc.ru/politics/03/07/2021/60e0a1c79a7947a36edadc3d>.

<sup>8</sup> On Russian draft documents on legal security guarantees from the United States and NATO. Available at: [https://www.mid.ru/ru/foreign\\_policy/news/1790809/](https://www.mid.ru/ru/foreign_policy/news/1790809/)

**Main provision of the agreement on measures to ensure the security of the Russian Federation and member States of the North Atlantic Treaty Organization<sup>9</sup>:**

- Article 4. “The Russian Federation and all the Parties that were member States of the North Atlantic Treaty Organization as of 27 May 1997, respectively, **shall not deploy military forces and weaponry on the territory of any of the other States in Europe in addition to the forces stationed on that territory as of 27 May 1997**”.

- Article 5. “The Parties **shall not deploy land-based intermediate- and short-range missiles** in areas allowing them to reach the territory of the other Parties”.

- Article 6. “All member States of the North Atlantic Treaty Organization commit themselves **to refrain from any further enlargement of NATO, including the accession of Ukraine as well as other States**”.

- Article 7. “The Parties that are member States of the North Atlantic Treaty Organization **shall not conduct any military activity on the territory of Ukraine as well as other States in the Eastern Europe, in the South Caucasus and in Central Asia**”.

“In December 2021, we officially submitted draft agreements on security guarantees to the USA and NATO. In essence, all key, fundamental points were rejected. **After that it finally became clear that the go-ahead for the implementation of aggressive plans had been given and they were not going to stop**”<sup>10</sup>.

However, all these demands made by Russia were ignored. **January 26, 2022**, U.S. Secretary of State Antony Blinken stated that “the U.S. will continue to uphold the principle of “open doors” in NATO”<sup>11</sup>; moreover, NATO Secretary General Jens Stoltenberg noted: “We will not compromise on the core principles on which our security has been based for decades”<sup>12</sup>. In fact, this meant NATO has rejected the basic requirements of security guarantees that Russia insisted on complying with.

After that, it became clear that the RF President had “**no other option** for defending Russia and our people”<sup>13</sup>, except to announce the recognition of the independence of the Donetsk and Lugansk people’s republics on **February 21, 2022**, and the launch of a special military operation (SMO) on **February 24, 2022** in order to “protect people who, for eight years now, have been facing humiliation and genocide perpetrated by the Kiev regime”<sup>14</sup>.

<sup>9</sup> Agreement on measures to ensure the security of the Russian Federation and member States of the North Atlantic Treaty Organization. Available at: [https://mid.ru/ru/foreign\\_policy/rso/nato/1790803/](https://mid.ru/ru/foreign_policy/rso/nato/1790803/)

<sup>10</sup> Address of the President to the Federal Assembly of the Russian Federation on February 21, 2023. Available at: <http://www.kremlin.ru/events/president/news/70565>

<sup>11</sup> Blinken: The U.S. will not abandon the principle of “open doors” in NATO. Available at: <https://tass.ru/mezhdunarodnaya-panorama/13535663>

<sup>12</sup> NATO and the United States rejected Russia’s security proposals. How will Putin respond? Available at: <https://www.business-gazeta.ru/article/537506>

<sup>13</sup> Address of the President of the Russian Federation to the citizens of Russia on February 24, 2022. Available at: <http://www.kremlin.ru/events/president/news/67843>

<sup>14</sup> Ibidem.

After February 24, 2022, it became clear that a return to the former relations between Russia and the Collective West was simply impossible. The Rubicon has been passed, and then Russia has no other choice but to realize its designated goals. **This has become a matter of not just a struggle for sovereignty, but a struggle for existence, “for Russia’s right to be on the political map of the world”<sup>15</sup>.**

**“The Western elite make no secret of their goal, which is, I quote, ‘Russia’s strategic defeat’... This means they plan to finish us once and for all”<sup>16</sup>.**

Today, when exactly a year has passed since the start of the SMO, there is no longer any doubt about the fact that, essentially, was obvious from the very beginning: the conflict that Russia has entered into is not local, but global, civilizational; and our country’s opponent in this confrontation is not only the current Kiev regime, but, first of all, the NATO bloc, the so-called “Collective West”, which publicly declares that Russia “must be eliminated” and that “free and independent states must be created in the post-Russian space”<sup>17</sup>.

According to the philosopher, political scientist, and public figure A. Dugin, the beginning of the SMO “became the culmination of modern Russia; we entered the war with the West, or rather, we admitted openly and honestly that the war is already underway and realized the scale of the fundamental confrontation... the president and the state did what was vital, what we should have done a long time ago, and when we didn’t, we only made the situation worse”<sup>18</sup>.

And despite numerous public assurances by senior NATO officials that “we are not going to get involved in World War III ... directly getting involved in the conflict”<sup>19</sup>, “neither NATO nor NATO allies are part of the conflict”<sup>20</sup>, it was obvious to Russia that this was just “forgery, fraud and distortion of the truth”.

**“... we were doing everything in our power to solve this problem by peaceful means, and patiently conducted talks on a peaceful solution to this devastating conflict.**

Behind our backs, a very different plan was being hatched. As we can see now, the promises of Western leaders, their assurances that they were striving for peace in Donbass turned out to be a sham and outright lies... **Now they admit this publicly and openly, and they feel no shame about it”<sup>21</sup>.**

<sup>15</sup> *Rossiyskaya gazeta*. March 10, 2022. Available at: <https://rg.ru/2022/03/10/lavrov-rf-vedet-boj-ne-na-zhizn-a-na-smert-za-mesto-na-politicheskoy-karte.html>

<sup>16</sup> Address of the President to the Federal Assembly of the Russian Federation on February 21, 2023. Available at: <http://www.kremlin.ru/events/president/news/70565>

<sup>17</sup> Excerpts from the article “The collapse of the Russian Federation is much less dangerous than leaving it under the control of criminals” by Anna Fotyga, Chairperson of the Subcommittee of the European Parliament on Security and Defense, former Polish Foreign Minister. Available at: <http://veche-info.ru/news/11124>.

<sup>18</sup> Dugin A. We have approached the year 2023 balancing on the brink of an abyss. Available at: <https://izborsk-club.ru/23744>

<sup>19</sup> U.S. President Biden’s press conference on November 10, 2022. Available at: <https://www.rbc.ru/politics/10/11/2022/636c432d9a794764b2cd21b0>

<sup>20</sup> Press conference of NATO Secretary General Jens Stoltenberg on February 14, 2023. Available at: <https://tass.ru/mezhdunarodnaya-panorama/17042559>

<sup>21</sup> Address of the President to the Federal Assembly of the Russian Federation on February 21, 2023. Available at: <http://www.kremlin.ru/events/president/news/70565>

**M. Zakharova:** “From the point of view of the West, it was all just a fabrication in order to pump up the Kiev regime with weapons, to prepare politically to start the very fighting that we saw at the beginning of 2022, when the Kiev regime began to inflict deadly strikes on Donbass. **This confession of Chancellor Merkel, former Chancellor Merkel, has a terrible message: the West is using forgery, machinations, manipulations, all kinds of distortions of the truth and law that can only be imagined.** Even then, in 2015, during many hours of negotiations, they already knew that they would never fulfill their promises and that they would pump the Kiev regime with weapons”<sup>22</sup>.

**S. Glazyev:** “The Germans remember that **it took eight years for the formation of the Hitler regime and the militarization of Germany, its preparation for war.** They, along with their patrons, have now applied this experience in Ukraine. All we are left to do is wonder at our own naïveté and complain that **they have deceived us again**”<sup>23</sup>.

**E. Satanovsky:** “... From the very beginning, no one intended to implement the Minsk Agreements, and their only goal was to save Ukraine from military defeat, to gain time to gather forces against Russia in the North Atlantic Alliance itself... and in general, to get prepared for the complete and final destruction of our country...”<sup>24</sup>

The 12 months of the SMO have shown that both geopolitical adversaries (Russia and the countries of the Collective West, led by the United States) underestimated each other’s capabilities in some aspects. Thus, despite an unprecedented scale of the sanctions attack by NATO countries on the Russian economy, they have not been able to carry out the “sanctions blitzkrieg”; the RF President points out publicly and regularly when he gives an open assessment of the state of the Russian economy: “The idea was clear as day – they expected to suddenly and violently crush the Russian economy..., but this blitzkrieg did not happen... Everything is working, everything is functioning, everything is stable” (*Insert 1*).

As for Russia, the deep internal consequences of the country’s existence in a “viscous, enveloping liberal fog”, which we wrote about five years ago in the article “One Year Left before the Fourth Presidential Term”, were underestimated: “The general conclusion regarding the most probable future of the Russian society can be expressed in one sentence – **‘it is in a fog’**. It is hard to disagree with such expert evaluation of the present and the future of the Russian society **taking into account the economic and social policy pursued by the ruling elites** and ineffective for large parts of the population, the policy leading to the decrease in the standard of living and quality of life as a result of reforms in education, healthcare and housing”<sup>25</sup>.

<sup>22</sup> Angela Merkel’s statement on the Minsk Agreements confirms that the West was not going to implement them. Available at: [https://www.itv.ru/news/2022-12-08/443077-zayavlenie\\_angely\\_merkel\\_o\\_minskih\\_soglasheniyah\\_podtverzhdayut\\_chno\\_zapad\\_ne\\_sobiralsya\\_ih\\_vpolnyat](https://www.itv.ru/news/2022-12-08/443077-zayavlenie_angely_merkel_o_minskih_soglasheniyah_podtverzhdayut_chno_zapad_ne_sobiralsya_ih_vpolnyat)

<sup>23</sup> Merkel’s confession is revenge on US accomplices and a bitter lesson for Russia. Available at: [https://tsargrad.tv/news/priznanie-merkel-mest-podelnikam-iz-ssha-i-gorkij-urok-rossii\\_682537](https://tsargrad.tv/news/priznanie-merkel-mest-podelnikam-iz-ssha-i-gorkij-urok-rossii_682537)

<sup>24</sup> Ibidem.

<sup>25</sup> Ilyin V.A. (2017). One year left before the fourth presidential term. *Economic and Social Changes: Facts, Trends, Forecast*, 10(1), p. 22.

## The President’s assessment of the economic situation in the country after the start of the SMO

1. Vladimir Putin’s speech at the joint news conference with President of Belarus Aleksandr Lukashenko, April 12, 2022: *“The blitzkrieg that our ill-wishers hoped to achieve was unsuccessful, of course. It is obvious. Our financial system and industrial sector are operating as normal... As it turns out, the Russian economy and its financial system are standing quite firmly on their feet”*<sup>26</sup>.
2. Vladimir Putin’s speech at the plenary session of the Saint Petersburg International Economic Forum, June 17, 2022: *“The idea was clear as day — they expected to suddenly and violently crush the Russian economy, to hit Russia’s industry, finance, and people’s living standards by destroying business chains, forcibly recalling Western companies from the Russian market, and freezing Russian assets. This did not work. Obviously, it did not work out; it did not happen... Step by step, we will normalize the economic situation.... The dire forecasts for the prospects of the Russian economy, which were made in early spring, have not materialized”*<sup>27</sup>.
3. Vladimir Putin’s speech at the plenary session of the Eastern Economic Forum, September 7, 2022: *“Many have already returned and realized that nothing terrible is happening here, even taking into account the sanctions aggression of some countries against Russia. Everything is working, everything is functioning, everything is stable”*<sup>28</sup>.
4. Vladimir Putin’s speech at the Valdai International Discussion Club meeting, October 27, 2022: *“By countering the sanctions imposed against it, Russia actually is creating a certain space of freedom so as to have no fear of sanctions pressure and freely develop economic ties between the most diverse regions of the world and different countries... They imposed these sanctions on Russia and they expected a total collapse of the Russian economy... But this blitzkrieg against the Russian economy did not happen”*<sup>29</sup>.
5. Vladimir Putin’s speech at the meeting of the Council for Strategic Development and National Projects, December 15, 2022: *“As you know, an unprecedented sanctions aggression has been launched against Russia. It was aimed at crushing our economy, wrecking our national currency — the ruble — by stealing our currency reserves, and provoking a devastating inflation in a short span of time. As we can see — in fact, this is common knowledge — this plan has fallen through”*<sup>30</sup>.
6. Vladimir Putin’s speech at the meeting with representatives of the aviation industry, February 9, 2023: *“...for many people — for those who were and are trying to create problems for us, it was surprising to see how effectively we countered the threats created for us in the economy and in some manufacturing industries. It appears that our financial system is fully functional, all manufacturing industries and services are operating — they are working rhythmically, without disruptions”*<sup>31</sup>.
7. Presidential Address to the Federal Assembly of the Russian Federation, February 21, 2023: *“As I have already said, the West has opened not only military and informational warfare against us, but is also seeking to fight us on the economic front. However, they have not succeeded on any of these fronts, and never will... They want to make our people suffer, which is designed to destabilize our society from within. However, their gamble failed to pay off. The Russian economy, as well as its governance model proved to be much more resilient than the West thought”*<sup>32</sup>.

<sup>26</sup> Joint news conference of Russian President Vladimir Putin and President of Belarus Aleksandr Lukashenko. Available at: <http://www.kremlin.ru/events/president/transcripts/68182>

<sup>27</sup> Vladimir Putin’s speech at the plenary session of the Saint Petersburg International Economic Forum. Available at: <http://www.kremlin.ru/events/president/transcripts/68669>

<sup>28</sup> Vladimir Putin’s speech at the plenary session of the Eastern Economic Forum. Available at: <http://www.kremlin.ru/events/president/transcripts/69299>

<sup>29</sup> Vladimir Putin’s speech at the Valdai International Discussion Club meeting. Available at: <http://www.kremlin.ru/events/president/news/69695>

<sup>30</sup> Vladimir Putin’s speech at the meeting of the Council for Strategic Development and National Projects. Available at: <http://www.kremlin.ru/events/president/news/70086>

<sup>31</sup> Vladimir Putin’s speech at the meeting with representatives of the aviation industry. Available at: <http://www.kremlin.ru/events/president/news/70484>.

<sup>32</sup> Presidential Address to the Federal Assembly of the Russian Federation on February 21, 2023. Available at: <http://www.kremlin.ru/events/president/news/70565>

### A concrete fact (example) of “liberal fog”

Norilsk Nickel is Potanin’s main asset, which he received in the mid-1990s as a result of the operation “collateral auction”... **Yeltsin’s team estimated the plant at 170 million USD. The price of the plant was underestimated by at least an order of magnitude. In just one difficult year of 1995, Norilsk Nickel received a net profit of about 730 million – more than 4-fold exceeding the total value of the controlling stake of the plant.** “It was in fact a deal to alienate state property into the hands of the friends of the current government...”, – says Yuri Boldyrev, deputy chairman of the Accounts Chamber of the Russian Federation in 1996–2003.

What was the fate of Norilsk Nickel after the plant has found a new owner? **The enterprise began to be “squeezed like a lemon”. Norilsk, whose infrastructure was on the balance sheet of the plant, also began to degrade.** A lot has been written about this in recent years. And one of the consequences of degradation was a large-scale environmental disaster. It occurred on May 29, 2020...

**The amount of dividends paid to Norilsk Nickel shareholders significantly exceeds the volume of capital investments in the company’s fixed assets.** Over the five-year period, the total amount of dividends paid amounted to **903 billion rubles**, and capital investments – **518 billion rubles**. The amount of dividends is comparable to the budget of Krasnoyarsk Krai, whose population is almost three million people and whose area is larger than the territories of many European states. The amount of dividends paid to Norilsk Nickel shareholders in 2015, 2017 and 2018 even **exceeded the amount of net profit**<sup>33</sup>.

#### “Norilsk Nickel is not an exception:

According to open source data, capital investments of the Novolipetsk Steel (beneficiary – Vladimir Lisin) for 2017–2021 amounted to **318.8 billion rubles**. And the dividend payments for the same period amounted to **662.2 billion rubles, that is, more than twice as much**.

Another example is PJSC Severstal (beneficiary – Aleksey Mordashov). In 2017–2021, capital investments amounted to **333.4 billion rubles**, dividend payments – to **603.3 billion rubles**<sup>34</sup>.

One concrete example of the implications of this “liberal fog” can be found in the development of the mining and metallurgical company Norilsk Nickel, which (as experts note) was “squeezed like a lemon”, which eventually led to a large-scale environmental disaster.

After the RF President’s decision to begin the SMO (February 24, 2022) the external “fog” largely dissipated: it became clear who is Russia’s friend and who is its enemy; which way the country should go, and which way it should avoid... The head of state very accurately felt and formulated the opinion of the majority of the Russian population when he noted that “not a single ordinary citizen in our country felt sorry

for those who lost their assets in foreign banks, lost their yachts or palaces abroad, and so on. In their conversations around the kitchen table, people have all recalled the privatization of the 1990s, when enterprises that had been built by our entire nation were sold for next to nothing and the so-called new elites flaunted their lavish lifestyle”<sup>35</sup>.

But the internal “fog” that is contained in specific people at all levels of government, “at the helm” of the economy, business, and culture, is still very dense. **In this sense, the task of the President to form an understandable image of the future of Russia and the system of public administration, which is based on social justice, remains unresolved.**

<sup>33</sup> Katasonov V. Russia’s economic development is hampered by oligarchs – we need nationalization. Available at: <https://www.fondsk.ru/news/2023/01/27/ekonomicheskoe-razvitiye-rossii-blokiruetsja-oligarhami-nuzhna-nacionalizacija-58329.html>

<sup>34</sup> Ibidem.

<sup>35</sup> Address of the President to the Federal Assembly of the Russian Federation on February 21, 2023. Available at: <http://www.kremlin.ru/events/president/news/70565>

The specific feature of the current situation in Russia is also connected with the fact that there is a little more than a year left before the presidential election. We recall that the election of the head of state (according to the current electoral legislation<sup>36</sup>) are to be held on March 17, 2024. Head of the Federation Council Commission for the Protection of State Sovereignty and Prevention of Interference in the Internal Affairs of Russia A. Klimov pointed out that “the West will try to destabilize the presidential election in 2024, using a special operation as a pretext for interference in our internal affairs”<sup>37</sup>.

Taking into account the nature of the current international situation and relying on expert opinion and the results of mass sociological surveys, we can state the following.

**First, the upcoming 2024 presidential election has not only internal, but also external (global, international) significance**, because over the past 22 years Russia under Vladimir Putin’s leadership has been a subject that really opposes the “distortion of the world order caused by the so-called unipolar agenda and the suppression of the world by Western domination for at least three centuries”<sup>38</sup>.

**Second, there is every reason to assume that after the election in March 2024, Vladimir Putin will serve his fifth presidential term, which means that the line of further severing the ties between Russia and the West will continue.** Some experts,

“After the start of the special operation, according to the idea of the Americans, our country was supposed to be overwhelmed by anti-war rallies... however, the special operation in Ukraine, instead of a split and protest sentiments, only united our society even more... **It is obvious that the anti-Russian strategy of the Collective West has failed. At the same time, the main miscalculation of the Americans was that they did not take into account our mentality**”<sup>39</sup>.

emphasizing the importance and necessity of Vladimir Putin’s new presidential term, say that “now it is quite obvious there is no one to replace the current President”<sup>40</sup>.

**The most important point is that the trust of Russian society in the current President (ultimately, the decisive factor on which the results of any vote depend) has been strengthening over the years.**

In this sense, the Collective West has clearly underestimated the mental features of Russian society as “an integral characteristic of the people living in a particular culture, with their special way of perceiving the world, way of thinking, hierarchy of life values, forms of everyday and social behavior”<sup>41</sup>. Back in 2016, Vladimir Putin noted: “In the mentality, in the soul of a Russian person, there is always a desire for some high moral ideal, for some high moral values”<sup>42</sup>.

The results of a public opinion monitoring conducted by VoIRC RAS show that in response

<sup>36</sup> On the election of the President of the Russian Federation: Federal Law 19 FZ, dated January 10, 2003 (as amended December 5, 2022; with amendments and additions effective as of January 1, 2023) Available at: [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_40445/c3b8b1b1845f4b4bcb6bfc2a1514d8cc0bacc74/](http://www.consultant.ru/document/cons_doc_LAW_40445/c3b8b1b1845f4b4bcb6bfc2a1514d8cc0bacc74/)

<sup>37</sup> Opinion of A. Klimov, head of the Federation Council Commission for the Protection of State Sovereignty and Prevention of Interference in the Internal Affairs of Russia (source: <https://ura.news/news/1052619323>).

<sup>38</sup> Yakovenko A. The world has entered the phase of searching for a new balance of development. Available at: [https://www.ng.ru/kartblansh/2022-12-15/3\\_8617\\_kb.html](https://www.ng.ru/kartblansh/2022-12-15/3_8617_kb.html)

<sup>39</sup> They did not take into account the mentality: The anti-Russian strategy of the West has failed. Available at: [https://politobzor.net/247473-ne-uchli-mentalitet-antirossijskaja-strategija-zapada-poterpela-neudachu.html?utm\\_source=topwar.ru](https://politobzor.net/247473-ne-uchli-mentalitet-antirossijskaja-strategija-zapada-poterpela-neudachu.html?utm_source=topwar.ru)

<sup>40</sup> Opinion of S. Stepashin, former Prime Minister, head of the Association of Lawyers of Russia. Available at: <https://ria.ru/20221013/stepashin-1823562381.html>. A number of experts noted that Stepashin expressed “exactly the general opinion” (A. Makarkin, director of the Center for Political Technologies); that this is “probably a consolidated position” (political scientist A. Nemtsev) and “the opinion of a respected and authoritative politician” (K. Kostin, chairman of the Board of the Civil Society Development Fund, ex-head of the Presidential Office for Internal Policy).

<sup>41</sup> Artemova V.G., Filippova Ya.V. (2008). Mentality of Russian people: Traditions and evolution. *Vestnik Nizhegorodskogo universiteta im. N.I. Lobachevskogo. Seriya: Sotsial'nye nauki*, 2(10), 1–12.

<sup>42</sup> Vladimir Putin’s interview in Vladivostok. September 5, 2016. Available at: <https://nikatv.ru/news/vlast/vladimir-putin-nazval-otlichitelnyu-chertu-rossijskogo-mentaliteta>

to the aggravation of threats to national security, society is consolidating around patriotic values and the head of state. In the conditions of the SMO, on average, in 2022, compared with 2021, the level of popular trust in Vladimir Putin has increased significantly (by 7 p.p., from 49 to 56%; *Insert 2*). In addition, the level of trust in the RF Government of the Russian Federation has increased significantly as well (by 6 p.p., from 40 to 46%), the level of trust in the Federation Council also increased (by 5 p.p., from 30 to 35%), as well as the level of trust the majority (16 out of 21) of key governmental and non-governmental institutions in general (*Tab. 1*).

Table 1. Governmental and non-governmental institutions that citizens of the Russian Federation began to trust more often in 2021–2022, %\*

Group of institutions	List of institutions
Institutions, the trust in which has increased by <b>11% or more</b>	1. RF President 2. RF Government 3. Federation Council 4. State Duma 5. Local self-government bodies 6. RF Civic Chamber 7. Vologda Oblast Civic Chamber
Institutions, the trust in which has increased by <b>6-9%</b>	1. Prosecutor's Office 2. FSB 3. Non-governmental organizations 4. Directors, heads of enterprises 5. Banking, business circles
Institutions, the trust in which has increased by <b>5% and less</b>	1. Court 2. Oblast government 3. Mass media 4. Political parties, movements
<b>Total: 16 institutions</b>	
* Detailed data are provided in <i>Insert 2</i> .	

“Many people believe that the aggravation of relations between Russia and the countries of the Western world occurred after the famous speech of Russian President Vladimir Putin at the Munich Security Conference in 2007. However, this is not the case... **The West realized even earlier that “he is a real Russian patriot” who will not grovel either to the United States or to Europe. This was the reason why they don’t like Putin**”<sup>43</sup>.

Thus, the data of sociological surveys and expert opinions indicate a high degree of probability of Vladimir Putin becoming President for the fifth term, and this can in no way suit the political elite of the Collective West, which has been at war **with him personally for many years and with the direction in which Russia is developing under his leadership**. That is why, in the period remaining before the presidential election in Russia, NATO countries can undertake certain steps that will lead to an escalation of hostilities during the SMO, and an increase in social tension within Russia.

**In such circumstances, it is obvious that in the next 12 months the President will have to make the necessary decisions** related to improving the country’s defense capability; strengthening discipline (primarily in implementing the priority needs of the armed forces); ensuring the functioning of the Russian economy in the new realities of international relations that have changed since February 24, 2022; maintaining the standard of living and quality of life of the broad strata of population and social protection of certain categories of citizens; improving the functioning of the information and cultural space, which is acquiring a particularly important role in the context of the SMO.

“Gradually, Russian people come to understand that there will be no former world: its internal content is deformed, the former structure of the economy is changing. **The war forces us to re-adjust comprehensively and in everything**”<sup>44</sup>.

At the same time, it is very important how these forced decisions will be perceived by society. The results of 2022 showed that the resource of public trust in the President is significant. Not only public rhetoric, but also specific decisions of the head of state are aimed at the realization of national interests and fully correspond to the nature of the present time (*Insert 3*).

<sup>43</sup> A true patriot of Russia: When the West turned against Putin. Available at: <https://freedom-news.ru/nastoyashhij-patriot-rossii-kogda-zapad-opolchilsya-protiv-putina/> (with a reference to the material by Mike Whitney, a columnist at *The Unz Review*).

<sup>44</sup> Pereslegin S. Rhythms of war. Available at: <https://centrasia.org/newsA.php?st=1676701680>

Insert 2

## Dynamics of the level of trust in governmental and non-governmental institutions in 2000–2022

Governmental and non-governmental institutions	Average annual data										Dynamics (+/-), 2022 to...			
	2000	2004	2008	2012	2018	2019	2020*	2021	2022**	2021		2000		
										p.p.	%	p.p.	%	
RF President	57.1	54.4	65.2	45.7	60.5	52.4	51.6	49.1	55.7	+7	+13	-1	-2	
Church	42.3	42.9	51.9	41.4	50.0	46.5	45.5	46.6	46.7	0	0	+4	+10	
Prosecutor's Office	30.9	28.8	40.9	33.9	47.1	43.6	43.1	44.6	46.7	+2	+5	+16	+51	
RF Government	42.7	35.2	60.2	39.6	47.3	41.0	41.0	40.1	45.6	+6	+14	+3	+7	
Court	31.6	31.0	41.3	36.1	45.3	39.4	38.1	42.1	44.5	+2	+6	+13	+41	
FSB	34.2	28.4	43.8	33.2	45.2	41.0	42.7	43.9	44.4	+1	+1	+10	+30	
Police	27.2	23.7	36.5	29.3	44.4	40.7	41.6	43.9	44.1	0	0	+17	+62	
Army	37.0	27.1	37.8	31.3	47.2	40.8	38.5	43.0	42.5	-1	-1	+6	+15	
Oblast government	31.3	30.0	48.6	34.6	35.4	33.5	34.2	35.6	38.5	+3	+8	+7	+23	
Local self-government bodies***	-	-	40.9	29.3	34.4	31.6	30.3	32.3	36.7	+4	+14	-	-	
Scientific organizations****	-	-	-	-	32.8	30.3	30.3	36.1	35.7	0	-1	-	-	
Federation Council	28.3	27.1	47.6	32.3	37.4	32.2	31.9	30.3	34.9	+5	+15	+7	+23	
State Duma	23.0	26.0	42.0	30.5	33.8	28.6	27.7	29.0	32.7	+4	+13	+10	+42	
RF Civic Chamber****	-	-	-	28.1	31.0	27.4	27.8	28.3	32.4	+4	+14	-	-	
Mass media	33.4	27.3	35.2	29.5	29.8	26.7	26.9	29.5	31.6	+2	+7	-2	-5	
Oblast's Civic Chamber****	-	-	-	25.4	28.3	25.6	25.9	27.6	30.9	+3	+12	-	-	
Trade unions	28.4	26.5	35.9	25.6	33.3	29.7	28.4	31.8	30.6	-1	-4	+2	+8	
Non-governmental organizations***	-	-	32.6	26.5	28.1	24.9	24.7	28.5	29.4	+1	+3	-	-	
Directors, heads of enterprises	19.6	21.5	30.5	25.1	25.1	20.5	21.2	24.4	24.7	0	+1	+5	+26	
Banking, business circles	12.4	17.6	26.6	21.3	20.7	17.6	18.9	22.8	23.9	+1	+5	+12	+93	
Political parties, movements	10.7	17.4	26.8	20.9	22.3	19.7	18.7	20.0	21.7	+2	+9	+11	+103	
<b>Dynamics of the number of positive and negative changes (for 21 institutions), %</b>										<b>14 / 3</b>	<b>14 / 2</b>	<b>14 / 2</b>	<b>+103</b>	

The wording of the question is “How would you describe your attitude toward current Russian governmental and non-governmental institutions?” (answer options are “fully trust” and “mostly trust”). The question is in the survey since 2000. The table shows the average annual data for 2000, 2004, 2008, 2012, 2018 (the years of presidential elections), as well as the average annual data for the period of Vladimir Putin's 4th presidential term.

\* 2020 – the year when the coronavirus pandemic started.

\*\* 2022 – the year when the special military operation on the territory of Ukraine started.

\*\*\* The answer option has been included in the survey since 2006.

\*\*\*\* The answer option has been included in the survey since 2010.

\*\*\*\*\* The answer option has been included in the survey since 2018.

**In the context of the SMO, on average for 2022, the share of those who trust the RF President increased by 13% (by 7 p.p., from 49 to 56%).**

**At the same time, the level of trust in all government institutions has increased: trust in the RF Government – by 14% (by 6 p.p., from 40 to 46%), Federation Council – by 15% (by 5 p.p., from 30 to 35%), State Duma – by 13% (by 4 p.p., from 29 to 33%), Oblast government – by 8% (by 3 p.p., from 36 to 39%).**

**Besides, on average, in 2022, the level of trust has not decreased with regard to all the major non-governmental institutions and institutions representing the “power bloc” (the police, army, etc.).**

## Insert 3

**Overview of key decisions made by the President of the Russian Federation (December 21, 2022 – February 21, 2023)<sup>45</sup>**

<p><b>December 28, 2022</b> – amendments have been made to the legislation prohibiting foreign agents from serving in the prosecutor’s office.</p>
<p><b>December 28, 2022</b> – Federal Law “On amendments to Article 4 of Part 1 and to Part 2 of the Tax Code of the Russian Federation and certain legislative acts of the Russian Federation”. The specifics of calculation and payment of certain taxes and fees on the territory of the Donetsk People’s Republic, the Lugansk People’s Republic, the Zaporozhye and Kherson oblasts are established.</p>
<p><b>December 28, 2022</b> – Federal Law “On amendments to certain legislative acts of the Russian Federation and invalidation of certain provisions of legislative acts of the Russian Federation”. The federal law increases the size of pensions for non-working pensioners. From January 1, 2023, the average amount of pensions for non-working pensioners will be 21,054 rubles.</p>
<p><b>December 29, 2022</b> – Federal Law “On amendments to the federal law “On the procedure for foreign investments in business entities of strategic importance for ensuring the country’s defense and state security”. It provides for the need for coordination with the authorized body of transactions to establish control by a foreign investor over a business company that has a license and (or) other permits to carry out activities of strategic importance for ensuring the defense of the country and the security of the state, and also establishes the procedure for obtaining such licenses and (or) other permits by a business company under the control of a foreign investor.</p>
<p><b>December 29, 2022</b> – an amendment has been made to the Decree on the application of special economic measures in the field of foreign economic activity in order to ensure the security of Russia. The Decree provides for the establishment of increased rates of export and (or) import customs duties in respect of products and (or) raw materials exported outside the territory of the Russian Federation and (or) imported into the territory of the Russian Federation, according to the lists determined by the Government of the Russian Federation</p>
<p><b>December 29, 2022</b> – Federal Law “On amendments to Articles 239 and 3301 of the Criminal Code of the Russian Federation”. It is envisaged to strengthen criminal liability for the creation of destructive organizations (including those recognized as foreign agents), whose activities involve violence against citizens and other harm to their health, with the encouragement of citizens to refuse to perform civil duties. Evasion from the performance of duties provided for by the legislation of the Russian Federation on foreign agents and violation of the procedure for the activities of a foreign agent are criminally punishable, provided that a person has been brought to administrative responsibility for similar acts twice within a year.</p>

<sup>45</sup> The Insert presents a continuation of the monitoring of management decisions of the authorities, which we started 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), 29–32.

<p><b>December 29, 2022</b> – Federal Law “On amendments to the Federal Law “On Information, information technologies and information protection”. It is prohibited for individual legal entities, in cases provided for by Federal Law, to use information systems and (or) programs for electronic computers belonging to foreign legal entities and (or) foreign citizens, which are intended and (or) used for the exchange of electronic messages exclusively between users of these information systems and (or) programs for electronic computing machines in which the sender of an electronic message identifies the recipient or recipients of an electronic message. The Federal Law establishes separate prohibitions and obligations for owners of ad placement services.</p>
<p><b>December 29, 2022</b> – Federal Law “On amendments to the Criminal Code of the Russian Federation and the Criminal Procedure Code of the Russian Federation”. The commission of any crime for the purposes of propaganda, justification and support of sabotage is recognized as an aggravating circumstance. The Criminal Code of the Russian Federation is supplemented by articles establishing increased liability for such acts as facilitating sabotage activities (inducing, recruiting or otherwise involving a person in committing sabotage, arming or training a person in order to commit the specified crime, financing sabotage), organizing the commission and financing of sabotage, undergoing training in order to carry out sabotage activities, organizing sabotage communities and participation in it. Persons found guilty of committing these acts may be sentenced to life imprisonment.</p>
<p><b>December 29, 2022</b> – Federal Law “On amendments to Article 6 of the Federal Law “On the Civic Chamber of the Russian Federation”. The number of representatives of the civic chambers of constituent entities of the Russian Federation in the Civic Chamber of the Russian Federation has been increased from 85 to 89 in connection with the admission to the Russian Federation of the Donetsk People’s Republic, the Lugansk People’s Republic, the Zaporozhye and Kherson oblasts.</p>
<p><b>December 29, 2022</b> – Federal Law “On amendments to articles 5 and 12 of the Federal Law “On combating corruption”. Amendments were made to the Federal Law “On combating corruption”, giving the RF President the authority to determine the specifics of compliance with restrictions, prohibitions and requirements, and the performance of duties established in order to combat corruption by federal laws.</p>
<p><b>December 29, 2022</b> – Federal Law “On Amendments to Article 6 of the Federal Law “On countering the legalization (laundering) of proceeds from crime and the financing of terrorism”. Amendments were made so that the list could include organizations and individuals in respect of which there is information about their involvement in extremist activities or terrorism. Rosfinmonitoring exercises mandatory control over their operations with cash or other property.</p>

*Continuation of Insert 3*

**December 29, 2022** – Federal Law “On amendments to certain legislative acts of the Russian Federation”. Amendments were made, according to which the court is obliged to suspend judicial proceedings in the event of a citizen’s participation in hostilities, in conducting a counter-terrorism operation, conscription for military service on mobilization, conclusion of a contract for voluntary assistance in performing tasks assigned to the Armed Forces of the Russian Federation, as well as in the case of performing tasks in an emergency or military provisions. In addition, federal laws “On enforcement proceedings”, “On the specifics of fulfilling obligations under credit agreements (loan agreements) by persons called up for military service on mobilization into the Armed Forces of the Russian Federation, persons taking part in the special military operation, as well as their family members, and on amendments to certain legislative acts of the Russian Federation” were amended, which provides for the suspension of enforcement proceedings against the relevant categories of persons. In this case, the bank or other credit institution suspends the execution of claims for the recovery of funds of these persons aimed at repayment of debt under the loan agreement.

**December 29, 2022** – Federal Law “On amendments to Article 38 of the Federal Law “On privatization of state and municipal property”. The amendments are aimed at improving the legal regulation of issues related to the adoption by the RF Government of decisions on the use of a special right (“golden share”) in relation to joint-stock companies not included in the list of strategic joint-stock companies approved by the Presidential Decree “On approving the list of strategic enterprises and strategic joint-stock companies”, but of strategic importance to ensure the defense of the country and the security of the state.

**December 29, 2022** – Federal Law “On amendments to Article 3 of the Federal Law “On privatization of state and municipal property”. The legislation has been amended to simplify the procedure for transferring weapons for state defense orders. It is envisaged to simplify the procedure under which federal executive authorities transfer weapons, ammunition, military and special equipment, spare parts, components and devices for them, explosives, explosives, gunpowder, all types of rocket fuel, as well as special materials and special equipment for their production, special equipment of personnel of paramilitary organizations, regulatory and technical products for their production and operation, to Russian organizations for the implementation of the state defense order, creation of weapons and for other purposes determined by the legislation of the Russian Federation,

**December 29, 2022** – Federal Law “On amendments to the Code of Administrative Offences of the Russian Federation”. The provisions of the Code providing for administrative responsibility for the dissemination of information about foreign agents in mass media and in messages and materials of mass media in information and telecommunication networks (with the exception of information placed in unified state registers and state information systems provided for by the legislation of the Russian Federation) or materials produced by them without indicating the status of a foreign agent are clarified, as well as for organizing the activities of a nonprofit organization, included in the register of foreign agents, in respect of which a decision has been made to suspend its activities, or participation in such activities.

**December 29, 2022** – A law was signed allowing transport companies from the EAEU to engage in internal Russian cargo transportation.

<p><b>December 29, 2022</b> – Federal Law “On amendments to Article 5 of the Federal Law “On state support of cinematography of the Russian Federation” and articles 1 and 17 of the Federal Law “On protecting children from the information harmful to their health and development”. It is established that the rental certificate for the film must contain information about the prohibition of the distribution of the film among children in cases where the film contains information prohibited for distribution among children, or information about the restriction of the distribution of the film among children of certain age categories in accordance with the Federal Law “On protecting children from the information harmful to their health and development”. It is stipulated that the Federal Law “On protecting children from the information harmful to their health and development” does not apply to relations in the sphere of circulation of works of literature, the study of which is provided for by federal state educational standards and federal basic general education programs, as well as in the field of distribution of the Bible, the Quran, Tanakh and Ganjur.</p>
<p><b>December 29, 2022</b> – Federal Law “On amendments to the Federal Law “On narcotic drugs and psychotropic substances”. It is legally permitted to use narcotic drugs for medical purposes without a license in military units.</p>
<p><b>December 29, 2022</b> – Federal Law “On amendments to Article 19 of the Federal Law “On freedom of conscience and on religious associations” and the Federal Law “On education in the Russian Federation”. Changes are being made concerning the implementation of programs for the training of scientific and scientific-pedagogical personnel in postgraduate studies and the abolition of the procedure for suspending the state accreditation of educational activities. Special rights are also established for admission to higher educational institutions for bachelor’s and specialist degree programs for Heroes of the Russian Federation, persons awarded three Orders of Courage, children who took part in the special military operation on the territory of Ukraine, the Donetsk People’s Republic, the Lugansk People’s Republic, the Zaporozhye and Kherson oblasts, military personnel and their children, persons, signed a contract on voluntary assistance in the performance of tasks assigned to the Armed Forces of the Russian Federation, etc.</p>
<p><b>December 30, 2022</b> – Amendments have been made to the Decree on a one-time cash payment to military personnel undergoing military service under a contract in the Armed Forces. The amount of a one-time cash payment is 195 thousand rubles.</p>
<p><b>December 31, 2022</b> – Decree “On additional social guarantees for military personnel and persons with special police ranks undergoing military service (service) in the troops of the National Guard of the Russian Federation, and their family members”. In the event of the death of a serviceman, a one-time payment of five million rubles is made to family members. In case of injury or contusion, a one-time payment of three million rubles is provided to the serviceman. One day of completing tasks in two days is counted in the length of service for assigning a pension on preferential terms to military personnel; the time of continuous treatment in medical organizations in case of injury or contusion when performing tasks is counted at the rate of one month of military service (service) for two months.</p>

*Continuation of Insert 3*

<p><b>January 25, 2023</b> – Decree 808 “On amendments to the Fundamentals of the State Cultural Policy approved by the Presidential Decree dated December 24, 2014”. The amendments, in particular, contain the following new provisions:</p> <ul style="list-style-type: none"> <li>✓ “The basis of the all-Russian civic identity is the historically established system of Russian spiritual and moral values that unites the distinctive cultures of the multinational people of the Russian Federation”;</li> <li>✓ “The approval of the priority of culture is designed to ensure the further development of the potential of society and the individual, the preservation of civil unity, the protection of national interests, the achievement of national development goals of the Russian Federation”;</li> <li>✓ “The main goals of the state cultural policy are the formation of a harmoniously developed personality sharing traditional Russian spiritual and moral values, and strengthening the unity and cohesion of Russian society through priority cultural and humanitarian development”.</li> </ul>
<p><b>February 17, 2023</b> – a number of laws related to the regulation of legal relations in the DPR, LPR, the Zaporozhye and Kherson oblasts were signed:</p> <ul style="list-style-type: none"> <li>✓ the law on the specifics of legal regulation of relations in the field of healthcare;</li> <li>✓ the law establishing the specifics of pension provision of citizens;</li> <li>✓ the law establishing the procedure for providing social protection measures to citizens;</li> <li>✓ the law on the specifics of legal regulation of relations in the fields of education and science;</li> <li>✓ the law establishing the specifics of the implementation of payments for compulsory social insurance of citizens.</li> </ul>
<p><b>February 17, 2023</b> – Federal Law “On amendments to Article 22 of the Federal Law “On strategic planning in the Russian Federation”. It is established that the forecast of scientific and technological development of the Russian Federation is developed on the basis of decisions of the RF President, taking into account data provided by federal executive authorities, executive authorities of constituent entities of the Russian Federation and the Russian Academy of Sciences. Coordination and methodological support for the development and adjustment of the forecast of scientific and technological development of the Russian Federation is provided by the Presidential Council for Science and Education. The forecast of scientific and technological development of the Russian Federation is approved by the RF President on the recommendation of the Presidential Council for Science and Education. The procedure for developing and adjusting the forecast of scientific and technological development of the Russian Federation is determined by the RF President.</p>
<p><b>February 17, 2023</b> – Federal Law “On amendments to Article 211 of the Code of Civil Procedure of the Russian Federation and Article 244 of the Code of Administrative Procedure of the Russian Federation”. A change is being made, according to which court decisions on the inclusion of a citizen of the Russian Federation in the list of voters, participants in the referendum are subject to immediate execution.</p>
<p><b>February 17, 2023</b> – Decree “On amendments to Presidential Decree 412, dated December 19, 2022 “On additional measures of social support for military personnel and their family members”. The list of recipients of additional social support measures includes persons serving in the troops of the National Guard of the Russian Federation.</p>

**February 21, 2023** – Presidential Address to the Federal Assembly of the Russian Federation. Key proposals of the head of state are as follows:

- ✓ to create a state fund, its task will be personal assistance to the families of servicemen who died in the course of the SMO; a personal employee should be assigned to each family; already this year the fund should be deployed in all regions of Russia;
- ✓ from January next year, in addition to the planned increase in the minimum wage, to carry out another one – by an additional 10%; thus, the minimum wage will increase by 18.5% and amount to 19,242 rubles;
- ✓ this year, constituent entities of the Russian Federation will be able to receive funds reserved for financing national projects in 2024 through the mechanism of interest-free treasury loans;
- ✓ to increase the amount of social tax deduction for expenses on children’s education from the current 50 thousand to 110 thousand rubles per year, and for expenses on own education, as well as for treatment and purchase of medicines – from 120 to 150 thousand rubles;
- ✓ to provide maternity capital in the Donetsk and Lugansk people’s republics, the Zaporozhye and Kherson oblasts to families in which children were born since 2007, that is, from the moment when this program began to operate throughout Russia;
- ✓ the government should find reserves to expand the program for issuing housing certificates to young scientists;
- ✓ to return to the traditional Russian basic training of specialists with higher education; the duration of training can be from four to six years;
- ✓ attracting capital to fast-growing high-tech businesses on the domestic stock market will be supported by tax benefits for companies and buyers of such shares;
- ✓ Russia suspends participation in the Strategic Offensive Arms Treaty; as the President stressed, “it does not withdraw from the treaty, namely suspends its participation”.

**February 21, 2023** – Decree 111 “On invalidation of Presidential Decree 605, dated May 7, 2012 “On measures to implement the foreign policy of the Russian Federation”. The text of the document notes that the decision was made in order to “ensure the national interests of Russia in connection with the profound changes taking place in international relations”

The decree on measures to implement the foreign policy course was signed on May 7, 2012. It stated that Russia’s foreign policy is aimed at ensuring its national interests based on the principles of pragmatism, openness and multi-vector approach. In particular, in accordance with the decree of the Ministry of Foreign Affairs of the Russian Federation, federal authorities were instructed to strengthen Russia’s position as an equal partner in world markets, firmly defend the central role of the UN in world affairs, and actively engage various forms of multilateral diplomacy, including BRICS, G20 and the Shanghai Cooperation Organization. Also, the foreign policy of the Russian Federation was aimed at promoting international efforts to counter global challenges and threats, including the danger of proliferation of weapons of mass destruction, international terrorism and regional conflicts.

But, as the President himself noted during his first inauguration on May 7, 2000, **“in Russia the head of state has always been and will always be the person who is responsible for everything in the country”**<sup>46</sup>.

And in this sense, there exists a “weak spot” for the resource of public trust in the state and the authorities, since the **legitimacy of any government is determined primarily by how much the public rhetoric of its representatives does not diverge from what is being actually done.**

The fact is that some representatives of the power vertical, when implementing a number of decisions visible to the general public (through the media, social networks, personal experience), contradict Russia’s goals in the global conflict with the West and thus discredit themselves, demonstrating their unwillingness to conform to the contours of a new Social Contract being formed in the country. And, no less important, they discredit the entire system of public administration, showing that they are simply “out of place”, and often it is an important place that requires quick and specific management decisions to implement the tasks set by the President.

Concrete examples of managerial decisions and actions of officials, which sometimes represent **“incredibly dangerous duality”**, sometimes purposeful **“destructive work”**, and sometimes are **“the pinnacle of cynicism and inhumanity”** and thus **“discredit the authorities”**, **“undermine trust in the**

**state”**, create conditions for “internal protest in society”, are presented in *Insert 4*.

“In modern Russia, the part of the elite that was historically formed as a class of preferential trade and a “big grab” **remains such to this day and is not motivated for pro-national changes.**

A significant part of Russian business representatives seek to leave Russia, restructure their companies taking into account the sanctions imposed on the Russian Federation, save or withdraw their assets abroad. **A significant part of the bureaucracy is also paralyzed”**<sup>47</sup>.

For example, in his program “Besogon”, the film director Nikita Mikhalkov, who holds an active pro-governmental position, regularly raises the question of contradictory and ambiguous statements by Dmitry Peskov, Spokesperson for the RF President (in particular, about Russians who left the country), as well as about the “destructive work ... the underlying provocative imposition of the idea of dismemberment of Russia”, which is conducted by the Yeltsin Center. Over the past 17 episodes (starting with the emergency issue of March 5, 2022, which became the first one after the start of the SMO) Mikhalkov has quoted Peskov five times<sup>48</sup> and spoke about the activities of the Yeltsin Center three times<sup>49</sup>; but so far nothing has changed in real life.

<sup>46</sup> Vladimir Putin’s inauguration ceremony as President of Russia on May 7, 2000. Available at: <http://kremlin.ru/events/president/transcripts/21410>

<sup>47</sup> Lepekhin V. The government, the elite and the people. From mobilization to modernization. Available at: <https://centrasia.org/newsA.php?st=1676868480>

<sup>48</sup> Episodes:

1. “The Titanic effect” (April 15, 2022);
2. “Is there a noble rage?” (April 29, 2022);
3. “Davos is still there” (June 4, 2022);
4. “Howling among strangers” (November 11, 2022);
5. “The wives of the Marquis of Carabas” (February 10, 2023).

<sup>49</sup> Episodes:

1. “Davos is still there” (June 4, 2022);
2. “The bloody liberty of Europe” (June 24, 2022);
3. “The wives of the Marquis of Carabas” (February 10, 2023).

Insert 4

### Some examples of managerial decisions and actions of elites that contradict the President’s policy and the main agenda of public opinion after the beginning of the SMO

<p>1. The episode of “Besogon” aired on February 10, 2023:</p> <ul style="list-style-type: none"> <li>✓ <b>“Again, we don’t know who should be held accountable. This bifurcation in society is incredibly dangerous. On the one hand, regarding the cultural figures, celebrities, etc., who have fled Russia, this is what State Duma officials say: “Most of the departed celebrities regarded Russia as a fodder base, rather than a Homeland. So it is necessary to methodically cut off their fodder sources” (E. Yampolskaya, Chairman of the State Duma Committee on Culture). On the other hand, here is an opinion of Press Secretary Dmitry Peskov: “They are all our citizens, all equally. And everyone could have different reasons for leaving. But those who have not chosen the path of a truly hostile attitude toward our country are our citizens, and we need to fight for them”.</b></li> <li>✓ <b>“How ready are we to resist all this, if we cannot even prevent the infamous Yeltsin Center from spreading its destructive influence. We’ve been talking about this for many years; take, for example, a terrible cartoon in which they show our children that everything is mediocre, everything is bloody, everything is false in Russia, except for the time when the first president of Russia Boris Yeltsin appeared... Not only we, but in general, our society expresses this internal protest that the Yeltsin Center spreads Russophobia and calls for the dismemberment of our country”.</b></li> </ul>	<p>2. “Investigators of the central criminal investigations directorate of the Ministry of Internal Affairs of Russia in Moscow have completed a preliminary investigation of the criminal case against former Deputy Minister of Education of the Russian Federation M. Rakova, Rector of the Moscow Higher School of Social and Economic Sciences S. Zuev, as well as former employees of the Foundation for New Forms of Education Development E. Zak, M. Inkin and others. They are accused of committing five episodes of fraud on a particularly large scale. During the investigation, evidence was collected confirming the guilt of the defendants in the criminal acts. At the same time, information appeared about the employment of M. Rakova in the Agency for Strategic Initiatives (ASI), a structure created by the Government of the Russian Federation. ASI is headed by S. Chupshева, member of the Presidium of the Presidential Council for Strategic Development and National Projects, D. Peskov, Special Representative of the President of the Russian Federation on Digital and Technological Development, and A. Vaino, son of the head of the Presidential Administration of Russia. Allegedly, Ms Rakova was officially accepted as an adviser to the Director General of ASI on December 13 last year, the monthly salary is said to be three times the salary of a State Duma deputy”.</p> <p><u>Kirill Kabanov</u>, Member of the Presidential Council for the Development of Civil Society and Human Rights, Chairman of the National Anti-Corruption Committee: “The decision to appoint ex-Deputy Minister of Education M. Rakova to the position of adviser to the director of ASI after accusations of systemic multi-million dollar embezzlement of budget funds as part of the group is not just shameful. One such decision discredits the authorities, people have a stable feeling that the fight against corruption in Russia has collapsed, as pro-Western experts constantly broadcast. And when they also pay her a salary in the amount received by 10 fighters in the zone of the SMO, it goes beyond all imaginable limits...”</p>
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Aleksey Leonkov, editor of the *Arsenal otechestva* magazine: *“ASI managers have at least level 2 access to state secrets. As, indeed, do their advisers. By definition, Marina Rakova, the girl under investigation, cannot have it. There is no way to explain this to anyone from the deep state. There exists such term as “high treason”<sup>50</sup>.*

N. Mikhalkov: *“Doesn't such a decision taken by ASI undermine trust in the state, in the authorities? Especially if we know that the Supervisory Board of this organization is headed by the President of Russia. But the most piquant thing is that V. Mau, rector of the RANEPa under the President of the Russian Federation, was involved in the case of Ms. Rakova, that is, it is one of the leading universities that trains personnel for the management of our country”<sup>51</sup>.*

3. *“The investigators from Moscow have suppressed the criminal activities of a transnational group, which, according to preliminary data alone, has taken over 1 trillion rubles abroad. In addition to Russian citizens, the group also included citizens of Ukraine... Using the “Bank-Client” keys of fictitious companies, the participants carried out illegal financial turnover directly on the territory of Ukraine and Cyprus...*

*The criminals had been operating for about ten years, and the survivability of their illegal business, unfortunately, was explained quite simply: by the presence of patrons among law enforcement officers, the Federal Tax Service and employees of the banking sector. The group had a highly structured, organized hierarchical structure, highly technical support, a high degree of secrecy. One of the patrons of the group was Colonel Dmitry Zakharchenko (he was sentenced to 16 years of strict regime for corruption crimes, his assets, estimated at 10 billion rubles, were confiscated)...*

*In total, several hundred people participated in the shadow business, the role of each was clearly regulated... In total, the group controlled more than one and a half thousand legal entities and entrepreneurs. The attackers also had their own bank — “Novoye Vremya”. Using it and a number of criminal schemes, the defendants, according to the estimates of the investigation, cashed out or brought abroad more than 1 trillion rubles, having received criminal income in the amount of 32 billion rubles... to date, about 3 billion rubles have been returned to the budget of the Russian Federation”<sup>52</sup>.*

4. *At the beginning of January 2023, a video showing M. Vasiliev, deputy of the Kursk Regional Duma, on vacation in Mexico appeared on the Internet. Secretary of the General Council of United Russia A. Turchak called this video inappropriate against the background of how “the whole country is working for the needs of the front, helping the families of mobilized and deceased fighters”, and “residents of the border Kursk Oblast are being shelled” S. Turchak noted: “It is pure cynicism and inhumanity. No Homeland, no flag. No honor, no dignity. No brains”<sup>53</sup>. On January 24, 2023, M. Vasiliev resigned as deputy chairman of the regional parliament committee on budget, taxes and economic development.*

<sup>50</sup> Ivanov A. Ms Rakova, accused of embezzling 50 million from the budget, is employed by the Agency for Strategic Initiatives. Available at: [https://zavtra.ru/events/rakova-obvinyaemaya\\_v\\_hishemii\\_50\\_millionov\\_trudoustroilas\\_v\\_agentstvo\\_strategicheskikh\\_initiativ](https://zavtra.ru/events/rakova-obvinyaemaya_v_hishemii_50_millionov_trudoustroilas_v_agentstvo_strategicheskikh_initiativ)

<sup>51</sup> Mikhalkov N. “Besogon TV”. Episode 217 “The wives of the Marquis of Carabas” (February 10, 2023). Available at: <https://besogontv.ru/videos/zhyeny-markiza-karabasa/>

<sup>52</sup> Dmitry Zakharchenko opened a “Portal” for the investigation. Available at: <https://www.kommersant.ru/doc/5772247>

<sup>53</sup> What is the scandal with the Kursk deputy who recorded congratulations from Mexico? Available at: [https://aif.ru/politics/world/chto\\_zh\\_s\\_kandal\\_s\\_kurskim\\_deputatom\\_zapisavshim\\_pozdravlenie\\_iz\\_meksiki](https://aif.ru/politics/world/chto_zh_s_kandal_s_kurskim_deputatom_zapisavshim_pozdravlenie_iz_meksiki)

A similar story happened with the deputy of the Legislative Assembly of the Vologda Oblast D. Dolzhenko, who on January 6 posted a video of his vacation in Dubai. As the governor of the Vologda Oblast O. Kuvshinnikov noted, “sometimes the permissiveness of officials and people’s deputies crosses all boundaries... When fellow countrymen risk their lives and defend the interests of our country with weapons in their hands, someone considers it permissible for themselves, as before, to carelessly go on vacation to luxury resorts and post the videos on the social media... **There is a social demand for justice. It is a hundred times tougher when it comes to officials and deputies than bloggers and other celebrities.** It is surprising that during the years of being a deputy Mr Dolzhenko did not understand this. In such difficult conditions, it is **simply stupid and unethical** to continue to engage in posturing and self-admiration”<sup>54</sup>.

Dolzhenko was removed from the post of deputy chairman of the Committee on Economic Policy and Property of the Vologda Oblast Legislative Assembly, from the post of regional coordinator of the Green Economy party project, and also excluded from the party’s supporters by the decision of the Presidium of the General Council of United Russia”.

5. “At the end of 2022, Vladimir Putin signed a law banning the propaganda of perversions. On January 10, the information emerged about the first case initiated under a new article on LGBT propaganda against the scandalous publishing house Popcorn Books, which released the infamous pedophile novel “Leto v pionerskom galstuke” (Summer in a Pioneer Tie), its sequel “O chem molchit lastochka” (What the Swallow Is Silent About) and many other perverse “masterpieces” ...

**The owner of Popcorn Books, Denis Kotov (President of ANO “Sotvoreniye”, co-owner of the united retail chain “Chitay-gorod – Bukvoed”) ... joined the updated Public Council under the Ministry of Culture of the Russian Federation. The corresponding order was signed by the Minister of Culture Olga Lyubimova... “it turns out that the person whose efforts corrupt the Russian youth, the person who fulfills the ideological narratives of our geopolitical opponent, will “advise” the Ministry of Culture how the state should adjust humanitarian policy. Isn’t this ironic?”**

Nina Ostanina, Chairman of the State Duma Committee on Family, Women and Children, in an interview with NEWS.ru. expressed her opinion as follows: **“The problem lies precisely in the fact that public councils are created behind the scenes, without the involvement of society. But the council is called public because it must represent the interests of society. I would be interested to know which society’s interests are represented by the publisher Denis Kotov. I am also interested to know the criteria for granting membership in the Public Council under the Ministry of Culture”,** Writer, ex-chairman of the Public Council under the Ministry of Culture Yuri Polyakov believes that **“the only way to fix the situation is a personnel revolution in the Ministry of Culture. Without permutations, nothing will change”**<sup>55</sup>.

<sup>54</sup> The Vologda Oblast Governor reacted to the scandal that involved Denis Dolzhenko, deputy of the Vologda Oblast Legislative Assembly. Available at: <https://vologdaregion.ru/news/2023/1/10/gubernator-vologodskoy-oblasti-otreagiroval-na-skandal-s-deputatom-zso-denisom-dolzhenko>

<sup>55</sup> Ivanov A. The person involved in the case of LGBT propaganda joined the Council of the Ministry of Culture of the Russian Federation. Available at: [https://zavtra.ru/events/figurant\\_dela\\_ob\\_lgbt-propagande\\_voshyol\\_v\\_sovet\\_ministerstva\\_kul\\_turi\\_rf](https://zavtra.ru/events/figurant_dela_ob_lgbt-propagande_voshyol_v_sovet_ministerstva_kul_turi_rf)

Such facts suggest that many officials still hope that “it will be possible to return everything as it was, at least in some form ... Such sentiments exist both in the business elite and among officials (especially the corrupt rent beneficiaries)”<sup>56</sup>. But, as experts note, “in order to be adequate to the modern world and, most importantly, to serve Russia, we must try to make a **moral choice** even in the current difficult circumstances... **the only way to live a decent life is to live in accordance with the principles of social justice**”<sup>57</sup>.

Social justice is the cornerstone that unites Russian society. The majority of citizens have been experiencing the need for social justice for many years. Over the past seven years (from 2015 to 2022), the share of people who consider modern Russian society unjust has increased by 9 percentage points (from 51 to 60%), and it is observed in most (13 out of 14) socio-demographic groups (*Insert 5; Tab. 2*).

It is for a reason that justice (in fact, as an indicator of the **effectiveness of public admini-**

**stration**) was included in the list of traditional Russian values, which **were legislated** by the RF President in November 2022 and which are “the basis of Russian society”, “moral guidelines that form the worldview of Russian citizens”<sup>58</sup>. But making this principle dominant among officials at all levels of government is a difficult task, designed for a long-term perspective. And in order to address this task, first of all it is necessary to achieve victory in the SMO.

“Traditional values include life, dignity, human rights and freedoms, patriotism, citizenship, service to the Fatherland and responsibility for its fate, high moral ideals, strong family, creative work, priority of the spiritual over the material, humanism, mercy, **justice**, collectivism, mutual assistance and mutual respect, historical memory and continuity of generations, unity of peoples Russia”<sup>59</sup>.

Table 2. Categories of population groups in which the sense of injustice of society increased for the period from 2015 to 2022, %\*

Categories of population groups	Population groups
Categories in which the sense of injustice of society has increased <b>by 20% or more</b>	<ol style="list-style-type: none"> <li>1. Men</li> <li>2. Persons under the age of 30</li> <li>3. People with secondary and incomplete secondary education</li> <li>4. 20% of the least well-off</li> <li>5. Residents of districts</li> </ol>
Categories in which the sense of injustice of society has increased <b>by 11-19%</b>	<ol style="list-style-type: none"> <li>1. Women</li> <li>2. Persons aged 30–55</li> <li>3. People with secondary vocational education</li> <li>4. 60% of the middle-income people</li> </ol>
Categories in which the sense of injustice of society has increased <b>by 10% and less</b>	<ol style="list-style-type: none"> <li>1. Persons over 55 years of age</li> <li>2. People with higher and incomplete higher education</li> <li>3. 20% of the most affluent</li> <li>4. Residents of Vologda</li> </ol>
<b>Total: 13 population groups</b>	
* Detailed data are provided in <i>Insert 5</i> .	

<sup>56</sup> Chadaev A. Fear of victory and hope of defeat. On the sentiments of a significant part of the Russian elite. Available at: [https://tsargrad.tv/experts/strah-pobedy-i-nadezhda-na-porazhenie\\_710246](https://tsargrad.tv/experts/strah-pobedy-i-nadezhda-na-porazhenie_710246)

<sup>57</sup> Fursov A. How to survive in the 21st century. Available at: <https://izborsk-club.ru/23754>

<sup>58</sup> Presidential Decree 809, “On approval of the foundations of state policy for the preservation and strengthening of traditional Russian spiritual and moral values”, dated November 9, 2022.

<sup>59</sup> Ibidem.



Thus, according to the data presented in *Insert 5*, since 2015 the proportion of people who consider modern Russian society unjust has been increasing in almost all major segments, **and if society does not see justice from the state, more precisely, it sees that “justice is not for everyone”, then the legitimacy (trust) of the authorities is under threat.**

**“We proclaim that we are fighting for justice, but our society lacks it so much that the hair stands on end. We talk about honesty and purity, and our heroes, our people, our church, our history, our identity really embody honesty and purity, but our ruling class does not meet these criteria in any way...**

We see a president who fights almost alone, there is a group of people who support him politically, there are people who are ready to rise up and wake up to save Russia. But a huge suffocating wave of inertia does not allow us to recover”<sup>60</sup>.

Therefore, a protective mechanism should be laid down in a new Social Contract, which protects the statehood as much as possible from managerial personnel who put their personal interests above the interests of national security and national development. **In order not to lose the resource of public trust, it is necessary to make people clearly aware of the direction in which we are moving and the state we are building.** And this cannot be done without the appropriate focus of managerial personnel. According to experts, **“the task of modernizing the personnel policy is now super-urgent”**<sup>61</sup>.

We cannot but agree with such a statement and we are aware of the urgency of the task of the “personnel revolution from above”: “... we need not only a strong, powerful, modern army... **we need a completely different state**”<sup>62</sup>. A state in which all elements of the ruling hierarchy are aimed at the realization of national interests and in which the actual deeds of officials do not diverge from the tasks formulated by the President.

**“...now the main task is how to implement personnel changes, that is, how to push the elite clans away from power and systematically replace incompetent officials or agents of Western influence with competent and patriotic professionals... The existing clan elite in Russia is not voluntarily transformable, evolutionarily transformable... the issues of inefficiency of the society’s management system can be peacefully resolved by a **personnel revolution from above** (i.e. a new personnel policy) followed by political reform...**

**If Putin wants to and will act wisely and cunningly, decisively and consistently, then he may well rein in all the oligarchic clans without demolishing the entire power system”**<sup>63</sup>.

**It is unacceptable to continue “fooling around” even in peacetime, because it slows down the process of national development and aggravates the internal situation in the country. But in today’s conditions, when the “war is no longer hybrid, but almost real”**<sup>64</sup>, **this is simply unacceptable, because it poses a threat to the very existence of Russia.**

<sup>60</sup> Dugin A. We have approached the year 2023 balancing on the brink of an abyss. Available at: <https://izborsk-club.ru/23744>

<sup>61</sup> Papayani F. Transformation of the elites. Available at: <https://izborsk-club.ru/23813>

<sup>62</sup> Dugin A. We have approached the year 2023 balancing on the brink of an abyss. Available at: <https://izborsk-club.ru/23744>

<sup>63</sup> Papayani F. Transformation of the elites. Available at: <https://izborsk-club.ru/23813>

<sup>64</sup> Talks with South Africa’s Foreign Minister Naledi Pandor. Available at: <https://ria.ru/20230123/rossiya-1846778090.html>

According to experts, **“it is impossible to fight by half... When we fight by half and not completely, then we lose.** We actually win only the patriotic wars when the whole people are engaged, the whole state is engaged, when everything is for the front, everything is for victory, when there is not a single element in the state, in society, that is not included in the system of struggle for victory”<sup>65</sup>. **Only under these conditions can victory be won. And only after the victory will it be possible to talk about the real formation of a new Social Contract in Russia.**

Perhaps we can agree with one of the expert opinions expressed by V.A. Lepekhin, Russian sociologist, political scientist, director of the Institute for the Study of Development Problems of

the Eurasian Economic Union; he gave a concise assessment of the prevailing social sentiments in society: “What is the way out? And what do we see as guarantees of Russia’s victory in another clash with the West and serious systemic problems within the country?.. If we try to build an algorithm for the way out, it should look like this: **“From the mobilization of elites to economic modernization, and further on to a solidary state”... The head of state in modern Russia can be the subject of positive changes. Actually, this is exactly what the majority of the country’s citizens expect from the President of Russia: they expect wise and effective decisions. But whether there will be a harsh purge of the elites, a change in the economic model, and when this will happen, we do not know yet**”<sup>66</sup>.

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<sup>65</sup> Dugin A. We have approached the year 2023 balancing on the brink of an abyss. Available at: <https://izborsk-club.ru/23744>

<sup>66</sup> Lepekhin V. The government, the elite and the people. From mobilization to modernization. Available at: <https://centrasia.org/newsA.php?st=1676868480>

## The Logic of Withstanding between Civilizational Poles



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**Abstract.** The article proposes a conceptual scheme of historical development as a sequence of breaking points that are associated with the change of sense, ideological structure and determine the dominant attitudes of the subjects of historical activity. The time intervals between successive breaking points are epochs of relative stability of the system of ideological attitudes. The modern epoch began with a historical breaking point that came at the end of the 19th – early 20th century, replacing the epoch of classical capitalism of the 15th – 19th century. The dominant sense structure of the modern epoch is determined by the civilizational confrontation between Western countries and a group of leading non-Western countries. In the 20th century, the main ideological contradiction of this multidimensional confrontation was the struggle of socialism and capitalism. However, at the beginning of the 21st century, the confrontation between Western and non-Western countries transformed into a struggle between supporters of a unipolar world and supporters of a multipolar world. From time to time, the civilizational confrontation experiences periods of extreme aggravation (for example, the First and Second world wars), which is then followed by “détente”. The most important factor in historical dynamics is the processes that occur in the Western power elite and that are associated with the need to maintain the dominant ideology of superiority in this part of the world. The article describes the features of economic and political processes that can lead to the emergence and acceleration of exacerbations in international relations. They include the tendency of the West losing its leadership and an uncompromising struggle with contenders for new leadership; large-scale and, in many ways, successful attempts to manipulate public consciousness through the media and

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the education system; emergence of powers behind the throne in Western countries; revival of neo-Nazi organizations.

**Key words:** historical breaking point, epoch of stability, historical development, withstanding, confrontation, West, non-Western countries, ideology.

### **Driving forces of history. Historical breaking points**

Let us classify driving forces of historical development by arranging them into four groups: 1) spiritual and ideological (semantic); 2) information and technological; 3) socio-economic; 4) institutional. Factors in the first group can be considered the most inertial ones. Major features of the worldview prevailing in society and the structure of semantic attitudes persist for long historical periods (centuries or even millennia) and to some extent help to stabilize factors in other groups. Relatively small changes in the factors in all the groups (including the first group) are gradually accumulating and lead to a radical change in the fundamental spiritual and ideological structure. This triggers more radical changes in other groups of factors and is generally perceived by descendants as a historical *breaking point*.

The breaking points in Western Europe were the spread of Christianity and the transition from the Middle Ages to the Modern Times and capitalism. The adoption of Christianity meant substituting the urge to conform as much as possible to the traditional, objectively set norms of behavior and limitations of morality with the pursuit of endless improvement of man in his desire to get closer to God.

The time interval between breaking points is characterized by a relatively stable system of spiritual and ideological attitudes of the subjects of history. Let us call such intervals *epochs of stability* of semantic attitudes. This stability does not mean the absence of extreme and even shattering events, such as wars, throughout the epoch. It is only about preserving, in spite of these difficult events, the semantic structure that defines an epoch.

Why do we need a new model for structuring history? It urges us to pay more attention to established or rapidly changing spiritual and semantic factors. Their role is often underestimated, but in the modern world they become increasingly important when it comes to understanding historical events.

The following question is currently relevant. Is it really possible, as some Western ideologists say, that the current socio-political aggravation of the situation when Russia and China are opposing the Collective West can be contained, and ultimately end only if one of the parties is destroyed? According to the concept proposed in the article, it is more likely that there will be a transition (in one or another political and ideological form) to the phase of “peaceful coexistence” of regimes (most likely, with the continuation of ideological struggle and, possibly, local “hot” wars).

The following “methodological hypothesis” can be formulated. The moment or period of historical breaking point is characterized by the fact that the line of historical development that follows is not uniquely determined by the preceding historical movement. Even later historians often notice that there were quite probable alternative results of conflicts and ways of development. During such periods, elite ruling groups (as well as individual members of society) usually face several alternative opportunities from which they can choose. Groups that foresee a breaking point prepare the conditions in advance for the implementation of their alternative.

In the epoch of stability, there is an actual choice only with regard to secondary issues or those where the effects of one or another choice will be evident only in the long run. Finding solutions to major

issues (even such as waging a war) turns out to be almost unambiguously predetermined by objective processes and the established structure of spiritual and institutional factors. The “mistakes” made by the ruling group of one of the countries in choosing “the only reasonable” policy course “predetermined for a given epoch” may worsen the situation for a given country; but they will not change the overall configuration of the main factors determining the image of the epoch. This is the logic of history. For Russia, the main “mistake” in 1991 was its actual loss of sovereignty. Can it be so that there is no strong personality that can alter the course of history? There may be such an individual, but they are very unlikely to emerge in the epoch of stabilization. In the following sections, these provisions will be illustrated when analyzing trends of the modern epoch.

**The breaking point of European history in the 15th – 17th century** is characterized by the transition from focusing on the inner, spiritual life of an individual and from focusing on contemplation in the semantic sphere to the dramatic intensification of pragmatic action and increase in its value. Higher meanings are pushed to the sidelines. The most important result of a breaking point in the goal-setting area was the dominance of the capitalist drive toward personal, individual enrichment and victory in financial and economic competition. The reason for this historical breaking point lies in a combination of factors such as the emergence of ultra-high return on investment (hundreds or even thousands of percent) in “special sectors” due to economic and technological development, and the awareness of the possibilities for obtaining this return; the possibilities of obtaining highly efficient technology through scientific and intellectual activity<sup>1</sup>, as well as great geographical discoveries (Balatsky, 2021).

<sup>1</sup> Such fantastic profitability exists in certain sectors at the present time as well. Examples are given in (Balatsky, Ekimova, 2020)

Geographical discoveries resulted in European civilization meeting the peoples of the civilizations of America and Africa who were at lower stages of development. And this allowed the Europeans not only to gain enormous wealth from the natural resources and exploitation of the labor force of these territories, but to believe in their undoubted superiority. This influenced the development of culture and the entire mentality of Western European peoples, similar to the impact of **imprinting** on the psyche of animals (fixation in memory of some distinctive features of objects and acts of behavior). A less convincing, but similar situation arose when the people and the army of the ancient Roman Empire clashed with the barbarian peoples who came from Asia. This socio-psychological phenomenon may explain the wide spread of racist ideologies in Western European countries, and at times their serious influence on socio-political processes<sup>2</sup>.

The establishment of the capitalist system in Western Europe and then in North America served as a powerful impetus to the historical development of these countries and humanity as a whole. A system of colonial and semi-colonial dependence and exploitation of the peoples of non-Western countries was created. As a result, Western civilization became long-term world leader and even hegemon; this status supported and strengthened its dominant ideology of global leadership (“superiority imprinting”).

The system of semantic attitudes and institutions of capitalism became the core of the ideological and institutional system of the Modern Times. Transpersonal meanings and values that are not related to the accumulation of capital or that hinder the development of free market competition (religious teachings, the value of the state and

<sup>2</sup> It can be suggested that the peoples of Western Europe are more ready to accept *dividing ideologies* than, for example, the peoples of Russia, who are inclined to accept *unifying ideologies* (see the next section).

national traditions) were relegated to secondary roles. On the contrary, the values of antistate liberalism, individualistic, personal meanings of being were given paramount importance. The right of private property became “sacred”; the rights and freedoms of a person (an individual, rather than an organization or a social stratum) became the basis of ideology in society. Economics turned out to be more important than politics and ideology. The period of emergence and development of capitalist forms of social life in the 15th – 19th century is naturally called the epoch of capitalism.

**The historical breaking point of the early 20th century.** Prior to the epoch of capitalism, permanent ties and interactions (economic and cultural) between different civilizations were very weak or insignificant by the standards of historical time. They mainly arose in the course of wars between countries or resettlement of peoples.

In the epoch of capitalism, the main processes determining the development of humankind took place within a group of countries of Western civilization. Major contradictions defining historical development in this period were interactions (cooperation and confrontation) between classes. The rest of the countries had little impact on these processes. Some did not participate in this development at all; others played a subordinate role of colonies or semi-colonies dependent on Western countries.

However, it is now becoming increasingly clear that the semantic and institutional structure of capitalism has ceased to be completely dominant in the system of the driving forces of history. Geopolitical factors – political, ideological and economic factors in the confrontation between Western and non-Western countries – are coming to the fore. Can these changes be considered another historical breaking point, which opens an epoch with a new, more or less stable, structure of dominant values and meanings?

Under capitalism, an individual’s goals and movement were determined by the framework of a given social structure, the “environment” that cannot be controlled by an individual. The behavior of most people was determined by their *personal* semantic mindset: for capitalists – to accumulate capital, for workers and peasants – to increase their standard of living. *Transpersonal* life meanings were determined by religion. In a certain sense, it served as an “environment” in the spiritual space. After the period of Modernity and Enlightenment, religious life meanings began to be actively replaced by cultural and socio-political values and meanings. The necessity and possibility of changing the foundations of this “environment” in the sphere of the structure of society and the essence of man himself, his nature, were revealed. At the end of the 19th – beginning of the 20th century, changes in the spiritual and ideological sphere reached the intensity of a breaking point. Examples include futurism in the visual arts, and Nietzscheanism in philosophy.

The October Revolution of 1917 in Russia showed and made it possible to realize the political direction of these changes as the main direction, as well as the need to replace *personal* semantic attitudes, dominating the spiritual and ideological hierarchy, with *transpersonal* attitudes that unite huge communities (the country, the whole world). Of course, this applies more to the elites rather than the masses that are involved in heroic and tragic events and wars of the elites for relatively short periods of time<sup>3</sup>.

As a result of enormous progress in technology and production capabilities under capitalism, changes have taken place in the system of human and social needs. Along with physiological needs,

<sup>3</sup> Giovanni Arrighi (Arrighi, 2006), when defining the layer of socio-economic life to which his construction of capital accumulation cycles belongs, writes that this is “the study of capital ‘at home’, on the top floor of the house of commerce”.

the need for comfortable living conditions, the need for security and identification with a large and stable community come to the fore. According to Abraham Maslow (Maslow, 2002), these are deficiency needs. Political factors become even more significant driving forces of history than economic ones.

Already in the period of imperialism, the values of identifying oneself and one's company with those from major Western countries and with their government structure rose to the highest level in the system of meanings along with the personal drive toward capital accumulation. More and more representatives of the working class and the intelligentsia identified themselves with the builders of communism. This happened in Western and non-Western countries. However, in Russia, with the formation of a powerful socialist state, transpersonal meanings reigned supreme without alternative.

Western historiography contains a very popular concept, according to which the main events that turned the course of history were the unleashing of the First World War by Germany (the catastrophe of the 20th century) and the country's subsequent defeat<sup>4</sup>. Most German historians agree with the statement about the continuity of Germany's expansionist policy before the First and Second world wars (and the statement about the unity of foreign and domestic policy). It is postulated that there exist causal links between the outbreak of the First World War and the defeat of Germany, the November revolution of 1918, the instability of the Weimar Republic, the rise to power of the Nazis and the outbreak of the Second World War. In addition, the First World War helped the Bolsheviks come to power in Russia. Consequently, to some extent, it caused the Cold War and the collapse of the USSR (Zalessky, 2022, pp. 323–324).

We should note that the goals of the German elite in the preparation of the First World War, and its ideas about the structure of Europe in the post-

war epoch were realized in a certain way in the second half of the 20th century. These ideas were being developing for a long time in the concept of *Mitteleuropa*. Their essence was set out in a secret note submitted by the Chancellor to the government on September 9, 1914 (a month after the outbreak of the war). It envisaged the creation of a mid-European economic union, similar in composition and content to the modern European Union, with the following cynical addition: "This association will not have a supreme constitution; outwardly all its members will be equal, but in fact Germany will have a leading role" (Zalessky, 2022, pp. 8–9).

At the end of the 20th century, the elite of the British Empire was also aware of the necessity and inevitability of "breaking point" events. In its spiritual and intellectual space, events took place that were perhaps more important than Germany's preparation for a European war; the events included the formation of the ideology of a global empire. In 1891, a closed society was established in London; its most famous founder was Cecil Rhodes. He considered himself and the British ruling class in general to be the heirs of the mighty empires of Alexander the Great, the Persian tsars, and Napoleon; his goal was the dissemination of British rule throughout the world, "colonization by the British of all lands where livelihood can be acquired by energy, labor and enterprise" (Fursov, 2022).

Social inequality is the most important element of the British cultural code. At the same time, inequality is the main source of class struggle under capitalism. To Rhodes, it was necessary to protect the empire from class civil war, first of all in its core, in Britain. The solution to the problem is provided by colonialism: it leads to the ideological, semantic and institutional "substitution" of socio-economic inequality for ethnic, civilizational, racial inequality.

Ordinary English people from the lower classes may feel like aristocrats in relation to the lower races. The idea of electability, legitimate domination is introduced into the liberal ideology of the West

<sup>4</sup> Detailed description is given in (Zalesskii, 2022).

(by proclaiming the German people as a race of masters, Hitler in many ways turned out to be a disciple of the British).

The fateful events of the turning period that defined the epoch after the breaking point were the socialist revolution and the establishment of the USSR. In the leading community of the countries of Western civilization, there emerged a need for response to this challenge of the non-Western world. Such an answer was the assertion of fascism in Italy and National Socialism (*Nazism*) in Germany. Despite some similarities between the political and ideological structures of Nazism and *early socialism* – *Stalinism* (mainly in the system of institutions)<sup>5</sup>, these political and ideological systems radically differ both in goals and means of implementation. In the second half of the 20th century, the confrontation between Western countries and countries building socialism continued in the form of the Cold War. The ideological confrontation on the part of non-Western countries was under the slogan of the struggle for socialism against capitalism, and on the part of the West – for liberalism and democracy against dictatorship and totalitarianism.

The historical experience of centuries (or even millennia) in the West has prepared the ground for the formation of “*dividing*” theories and ideologies, *ideologies of superiority* that raise the value and role of their community (country, people) to a priority level and require submission or suppression of others. Methods of violence are not excluded. In Russia and China, the priority theories and ideologies are the “*unifying*” ones. It is considered necessary to understand the culture of the people with whom there is interaction, to take into account their interests. The goal is cooperation and mutual assistance in the name of common interests (Volkonsky, 2017). The creator of futurism, Italian

poet Filippo Tomaso Marinetti, in the Manifesto of Futurism (printed on the first page of *Le Figaro*, February 20, 1909) praises the war: “We will glorify war – the world’s only hygiene – militarism, patriotism, the destructive gesture of freedom-bringers”. None of the Russian poets praised the war as an independent value.

Capitalism, which forces all actors (from individuals to states) to participate in market competition, is a typical dividing semantic complex. The ideology of socialism, which requires a policy of cooperation, equality and justice in social and economic relations, is a typical unifying ideology.

The semantic core of the new historical epoch is the *confrontation between Western and non-Western civilizations*, or between supporters of a unipolar world (UPW) and supporters of a multipolar world (MPW). The confrontation between the universal semantic complexes based on the Western dividing ideology of capitalism and the “Eastern” ideology of socialism (each with its own institutional system) in the 20th century was a form of confrontation between Western and non-Western civilizations.

In the 1990s, two books appeared that are very informative and important for our research: *The Long Twentieth Century* by Giovanni Arrighi (Arrighi, 2006) and *The Clash of Civilizations* by Samuel Huntington (Huntington, 2019). Arrighi structures the historical process of the capitalist epoch as a sequential change of capital accumulation cycles, accompanied by a change of geo-economic and geopolitical centers (nation-states or empires). Why is capital accumulation the main factor in structuring? Under capitalism, it was the concentration of capital in the leading countries of Western Europe and America, and its subsequent expansion that were the main driving forces and sources of great achievements of humankind.

Arrighi considers the creation and preservation of the capitalist system to be the main condition for the current and future successes of historical

<sup>5</sup> Later, Western ideologists used this similarity to discredit Soviet socialism.

development. The attempts undertaken by Russia, China, and Vietnam to create a socio-economic system different from capitalism are of little interest to him. In the last pages of the book, while considering “three possible ways out of the crisis of the American accumulation regime”, each time he draws the same conclusion about the inevitability of the “end of capitalist history”. At the very least, capitalist history will continue, but there will no longer be a modern socio-economic system that ensures “expanded reproduction of the capitalist stratum” in society. Development will have to start over. Given the growing number of signs of weakening in Europe and the United States, the lack of optimism is quite natural.

However, Huntington’s book, published in 1995 almost simultaneously with Arrighi’s work, is based on a much broader view of the driving forces of history. According to Arrighi’s concept, the world capital accumulation center unconditionally protects (has to ensure) its dominant position from other contenders for the position of leader (or hegemon). The hegemon is interested in the economic growth of its satellites. But one of them may become a threat to the hegemon’s leading position (which provides advantages in terms of capital accumulation). Then the hegemon uses a wide range of means to limit the development of a successful satellite. Arrighi discusses in detail what economic and political means (including military ones) the United States could use in the 1980s to slow down the development of Japan and other Southeast Asian countries.

Consideration of modern world problems from the standpoint of the theory of civilizations is immeasurably more fruitful than Arrighi’s ideas concerning the inevitable concentration of world economic and political power in a single center. Arrighi’s concept is still relevant due to the fact that now the Collective West and its center, the United States, retain real power and the dominance of their ideology in a large part of the world. We should

note that according to Huntington it is Western civilization that has inherent strive to establish world domination for a single center (Huntington, 2019).

After the destruction of the USSR and the socialist camp, only a few non-Western countries officially declared the orientation of their political system toward socialism. Historical significance of the ideology of socialism also declined noticeably after the collapse of the USSR and now requires updating. The universal world ideology of socialism becomes effective when it is combined with the traditional values of national culture. Socialism has evolved into a variety of ideologies with various national specifics. It is necessary to modify the original idea of socialism in order to combine it with the mechanisms of the market and other elements of capitalism, i.e. it is necessary to implement the ideas of convergence. At present, capitalist values and semantic attitudes also cease to be dominant in the space of meanings (Volkonsky, 2022).

With the collapse of the Soviet Union it seemed that the intensified confrontation between the West and the socialist camp ended with the victory of the West and the world became unipolar (UPW). The dominant ideology of liberalism in the West was transformed into an American-style ideology of globalism. But already at the beginning of the 21st century it became obvious that the confrontation between Western and non-Western civilizations acquired a new meaning and escalated into a confrontation between supporters of a unipolar world (UPW) and supporters of a multipolar world (MPW).

The confrontation of capitalism vs socialism, being the main ideological contradiction in the 20th century, can be considered as the first stage of confrontation between Western civilization and a number of non-Western civilizational poles. However, the values and meanings of socialism are included as an important part in the “civilizational codes” of most non-Western countries seeking to free themselves from the

dictates of the Western center (Volkonsky, 2021). Therefore, the civilizational confrontation “UPW vs MPW” in a certain sense is a continuation of the confrontation “capitalism vs socialism”. In the article we will consider the 20th century as the first stage of a longer epoch, whose ideological, or more broadly, mental core is the confrontation between civilizations.

**Is it legitimate to talk about a new historical breaking point at the beginning of the 21st century?**

Granted, the collapse of the Soviet Union changed the structure of relations between civilizations. But the opposition “UPW vs MPW” remained the main one in the semantic and ideological space. It is just that there began a period of détente. For the West, the open escalation of new tensions in relations with Russia or new attempts to split the ruling elite of China were fraught with an obvious risk. A significant part of the ruling strata in Russia and China at that moment was pro-Western, but open external pressure could make it hostile to the West (which happened a little later). It was necessary to establish a period of “UPW construction” by weakening secondary centers of resistance, such as Middle East countries and Yugoslavia.

However, already in 2007, at the Munich Security Conference, Vladimir Putin said that a unipolar world order with the unconditional hegemony of the West had “outlived itself”, an MPW was coming in which Russia was equal to the West. With a coup d’état in Ukraine in 2014, the COVID-19 pandemic and the Democrats coming to power in the United States in 2020, the political and ideological pressure of the West (primarily the United States) on Russia and China began to increase dramatically, which led to a rapid escalation of the confrontation.

The current situation, of course, differs from the situation in the 20th century, at least in that the political structure of the previous century was in fact binary. Now Western countries are actually governed from one center, the Collective West. The non-Western countries do not have a single control

center. But the common goal of opposing the West leads to the rapid strengthening of economic relations and interstate coalitions, which brings the situation closer to a binary structure. The work (Balatsky, 2022) notes an important fact: after the introduction of unprecedented international sanctions against Russia in 2022 by the Collective West, a non-Western alliance of Islamic Iran, Sinic China and Orthodox Russia was formed. As for deep spiritual and ideological differences between these countries, they were not an obstacle at all.

The period of the COVID-19 pandemic and then the aggravation associated with Russia’s special military operation are considered by many Western political scientists as a kind of threshold, the beginning of a movement toward a new world. Indeed, this aggravation has revealed the phenomena in relations between countries and peoples that were not observed for many decades. Such phenomena include unification and even consolidation of the elite strata of Western countries and those oriented toward the Western center – an association based on universal Russophobia; and an almost complete absence of protests in Western Europe against neo-Nazism in the government and society in Ukraine. And it is happening in Europe, which lived through the period of Hitler’s Nazism that had essentially become a catastrophe for Europe’s great humanistic development. Not only ordinary political scientists, but also political figures and ideologists who shape the agenda of the Western community, began to make forecasts and appeals predicting the arrival of a New World Order in the coming years. Klaus Schwab, permanent curator of the Davos Forum, writes about this, for example, in (Schwab, Malleret, 2020). The World Economic Forum in Davos changed this year’s theme from neutral-friendly to alarmist: “History at a Breaking Point: Government Policy and Business Strategies”. In the West and in Russia there emerge publications describing the future that will arise as a result of the “final” victory of one of the parties in the clash of civilizations.

The current situation is similar to that in which a historical breaking point is taking place. However, at the same time, not a single semantic, political and ideological principle or phenomenon has emerged that would not have had a prototype in the previous century. The current aggravation of the political, economic, informational and ideological confrontation between Western and non-Western countries should not necessarily be considered a new historical breaking point. All ideological and institutional aspects of the modern confrontation are the revival or escalation of ideas and institutions that emerged in the 20th century. This is not the formation of a new semantic structure, but a return to the usual one. It is advisable to consider such a historical development when the current aggravation in one way or another will evolve into a cold war, for example. It is necessary to be prepared for a situation when prerequisites for such a transition have been created. We need a model, a conceptual scheme of the epoch of civilizational confrontation, which is an alternation of periods similar to the current aggravation on the verge of a “big war” and the periods of relatively peaceful coexistence of the West and non-Western civilizational poles, similar to the “détente” of the 1970s (with the continuation of the cold, information and ideological warfare and episodically emerging local hot wars).

The major source of transitions from periods of “détente” to geopolitical aggravation and again to “peaceful coexistence” is found in the processes taking place in the ruling elites of the West. Let us point out the simplest logic underlying these processes.

An ideological, semantic complex is the main factor ensuring the unity and coordinated actions of the Western community as a whole, given a relatively weak role of its governments. This complex is based on the ideology of superiority: both the elite and the majority of citizens are sure that Western countries play a leading role in the historical development and their citizens

enjoy a privileged position in terms of quality of life as compared to non-Western countries (at the beginning of the article we mentioned socio-psychological “imprinting” as a result of a capitalist breakthrough).

The beginning of the 21st century has clearly shown that major non-Western civilizational poles are gaining economic and political strength and the West is weakening and losing its leading positions in many aspects. Regaining and maintaining its leadership becomes for the Western community not just a natural desire to win the intercivilizational competition, but a matter of preserving its capacity as a whole and overcoming the spiritual crisis.

The above-mentioned Arrighi, when describing capital accumulation cycles, considers the concentration of both economic and political power in the hands of one state leader inevitable. After the Second World War, the United States became such a leader among Western countries. The inevitable uniqueness of the leader is also supported by Huntington (“core state”) (Huntington, 2019). However, what he means is leadership within a single civilization. Nevertheless, the relationship between leaders of different civilizations does not necessarily boil down to a “game of exclusion”. Currently, this is relevant, because many non-Western countries opposing the Collective West have an urgent need for ideological and political unity, but at the same time they do not aspire to become a single leader, much less a hegemon. For example, the concept of cooperation between Russia and China on designing a common strategy for the community of supporters of a MPW and its implementation does not contradict anything. In the framework of this cooperation China plays a decisive role in addressing economic issues, and Russia plays a decisive role in addressing geopolitical and military issues.

The split within the U.S. elite is not about their world leadership. The difference between the two parts of the elite (close in number and influence)

concerns the question of how to understand leadership. One part considers the restoration of the country's stable primacy in terms of economic, technological, and scientific development as priority targets (with internal issues topping the agenda). The other part argues that major goals are to maintain geopolitical hegemony and exercise control over the power structures and key decisions of all other countries (superglobalism). The first of the goals is associated with Donald Trump's course, the second – with that pursued by Barack Obama and with a more aggressive course implemented by Joseph Biden. The transition from the period of “détente” to the current escalation of the confrontation “UPW vs MPW” is mainly due to the fact that the Western elite is now painfully aware of its having lost civilizational leadership. When and how this period of aggravation ends will largely be determined by political and ideological processes in Western countries.

Major non-Western countries remain catching up in many aspects. The state plays a big role here. Its goals and those of the patriotic part of the elite are primarily associated with raising the economic, technological, cultural and educational level and the standard of living. These countries are forced to participate in hybrid wars to ensure their security. But they, as well as their patriotic elites, are interested in ending the period of aggravation and establishing mutually beneficial relations between all countries and their coalitions. The following sections of the article are devoted to a more detailed description of the problems that determine the interaction of civilizational poles.

**The West's tendency toward losing leadership.** An important factor that has a serious impact on the political and ideological situation in the world is the weakening of the West, which is clearly manifested during both decades of the 21st century. The United States is losing leadership in one aspect of public life, then in another. A steady trend is the reduction of the share of the West both in the world's

population and in the global economy. China has overtaken the U.S. in terms of GDP; catching-up Third World countries have long shown higher rates of economic growth. More and more non-Western countries are joining the coalition of states where Russia and China are leaders. After the end of the wars in Iraq and Afghanistan, the United States lost much of its influence in the Middle East. To weaken their opponents, the U.S. and the EU use large-scale sanctions as an economic and political weapon. However, this undermines the authority of the ideology of liberalism and especially globalism. And in 2022, it became obvious that sanctions are causing more damage to Western countries themselves.

Associations of Western countries no longer have the political unity that forced most of them to obey the dictates of the United States. A political and ideological split has clearly manifested itself in the elites of the U.S. and other Western countries. The peak of the authority and leadership of the West and the belief in the American-style UPW seem to become a thing of the past. We should note that, despite this, the confrontation is likely to persist for a long period. And not only because huge amounts of material, informational and human capital have been accumulated in Western countries, but also because their active social stratum is “charged” with a stable semantic mindset aimed at preserving (or achieving) world leadership (possibly as a result of the “imprinting” noted above).

Currently, the media are discussing the fact that a large number of politicians who lack experience in political work and have an insufficient level of education obtain positions in the governing bodies of Western countries. The “scale of personality” of modern leaders of European countries is compared with those of the past: Boris Johnson vs Margaret Thatcher, Emanuel Macron vs Charles de Gaulle, Olaf Scholz vs Ludwig Erhard. Publicists explain the obvious signs of the West's loss of geopolitical leadership by the “mistakes” its politicians make in

the conditions of the much needed policy change. However, as usually happens in history, the low level of leading figures is only one of many factors characterizing the overall long-term historical trend, which is determined by a number of objective factors. “Human logic” demands the rejection of politically conditioned anti-Russian sanctions to prevent an energy and food crisis, to guarantee against a world war. But the “logic of history” turns out to be stronger.

Each stable community, in order to ensure its unity and revitalization, strives to strengthen and develop its dominant ideology, its dominant semantic complex. In the West, it is the ideology of globalism – the idea of superiority of the West, its culture and institutional systems, as well as the necessity and beneficence of their spread worldwide. In order to maintain the ability of this ideology to perform unifying and activating functions in conditions of actual weakening, society complies with its increasingly aggressive variants.

Donald Trump became president of the United States with the political mindset of “making America great again”, which meant addressing primarily internal problems to ensure the country’s leadership in the economic, technological, social, information and cognitive fields (temporarily putting aside the task of imperious governance of the whole world). Such a policy could give the world a period of “détente”. Biden came on the wave of activation of the most aggressive part of the American elite that is “obsessed” with the messianic superglobalist craving for world hegemony *at any cost*.

In response to the West’s desire for political and economic subordination of non-Western countries, coalitions and alliances are formed in many of these countries, the civilization of a multipolar world and its ideology are beginning to form (Volkonsky, 2021).

The field of financial and economic development is also experiencing a process associated

with the weakening of the West – the *fragmentation* of the network of financial and economic flows that contribute to the formation and strengthening of non-Western poles in a multipolar world (opponents of Western hegemony). Naturally, this process pushes Western elites to escalate the struggle with their main geopolitical opponents – Russia and China. During the period of “peaceful coexistence”, the readiness to aggravate this struggle is increasing.

One of the trends, which can be called *economic deglobalization*, is the weakening of global interconnectedness and “intertwining” of economic and production processes. It was addressed by Jacques Sapir in his report “World Trade: Between Fragmentation and Restructuring” delivered at a Russian-French seminar in June 2022<sup>6</sup>. An important parameter that reflects this trend (and is its measure) is the ratio of world trade volume to world GDP. After the 2008–2010 crisis, an increasing share of manufactured products switched from international trade to the domestic market.

The reason is the transition of the West (mainly the United States) from a general ideological orientation toward maximizing the expansion of free market relations to a policy of mass use of sanctions in order to limit and suppress the development of countries with “authoritarian” regimes. Economic ties within groups of countries with similar political and ideological orientations are being strengthened. Similar processes characterize the network of financial and investment flows. The number of *sovereign funds* and their size are growing, which corresponds to a growing desire of countries for economic and political sovereignty, independence, and self-sufficiency. The process of *fragmentation* of the network of financial and economic ties is underway, the process of deglobalization. And along with

<sup>6</sup> Sapir J. (2022). World trade: Between fragmentation and restructuring. A report at the Russian-French Symposium on June 29, 2022. Available at: <https://ecfor.ru/publication/mirovaya-torgovlya-mezhdu-fragmentatsiej-i-restrukturizatsiej/> (accessed: October 14, 2022).

the restructuring of the network, we see that the connections within groups of countries with similar political and ideological orientations are increasing and strengthening; as a rule, this corresponds to the formation of civilizational poles and the increase in their strength and stability. A characteristic feature of this process can be found in the fact that Republicans in Texas are once again pushing for a referendum to decide whether the state should secede from the United States. It proves that the processes of cultural, ideological, and political integration of Latin American peoples and the formation of the Latin American civilizational pole are continuing.

All this indicates a general increase in the significance of political and ideological factors: economic factors are more often used as tools.

From the standpoint of liberal socio-political theories, the described processes of fragmentation in the trade and financial network deserve only a negative assessment. However, we can provide arguments that question such a judgment. For example, as the complexity of technologies increases and the interests of manufacturers from different countries “interweave”, the production chains of creation and market sale of many types of products become excessively long and subject to high risks (risks are not only natural and economic, but also political!). It can be expected that the restructuring of such production chains will lead to their replacement with shorter and, most importantly, more reliable ones.

Thus, we can point out the following long-term trends that indicate a weakening of the global dominance of Western civilization:

- decrease in the share of Western countries in world GDP;
- expansion of country coalitions such as BRICS and the SCO, in which Russia and China are leaders;
- fragmentation of the global network of trade and financial ties between countries (degloba-

lization), and strengthening such ties within groups of countries close in political and ideological mindsets.

**The state agenda in the West and in the East.** *The Narrow Corridor*, a book by Daron Acemoglu and James A. Robinson (Acemoglu, Robinson, 2021) uses the broadest historical material to analyze the interaction and confrontation between the state (and other power groups) and society. According to the authors, the main value that peoples (not all, but the most successful ones) manage to achieve as a result of difficult and contradictory development is freedom – social, political, economic. This state of society – freedom – serves as the main factor ensuring its long-term scientific and technological, economic, cultural development, welfare growth, etc. Freedom is not only the absence of violence and threats of violence. It is the absence of any dominance: the one who is dominated is not able to make a free choice. A free society requires law and order.

In accordance with Thomas Hobbes’ teachings, in a society without a state there is a “war of all against all”. Maintain freedom and order requires a strong state – a mighty and terrible Leviathan. But Leviathan can restrict the freedom of members of society itself – in this case it is a Despot Leviathan. According to the authors, a positive result is achieved only if society is active and “mobilized”, if it is constantly fighting (up to bloody uprisings) against the Despot Leviathan (in order to curb its insatiable desire for power) and against the dominance of any elite groups. As a result of such a struggle, a more or less stable balance is established between the power and authority of the state on the one hand, and the opposing force and activity of society on the other. A positive result is achieved if this equilibrium is located in a certain “narrow corridor” between the zones of the Absent Leviathan and the Despot Leviathan. The corridor is a zone of the Shackled Leviathan.

The book convincingly substantiates the necessity to have freedom so as to achieve long and diverse development of the country in the economic, technological and social spheres. Criticizing the modern model of social structure in China under the leadership of the Communist Party, the authors write that high rates of economic growth and technological advances were “the result of the concentration of [intellectual and other resources] on well-posed problems in narrow areas ... Diverse and ongoing innovation in a range of fields ... depends not on solving existing problems but on dreaming up new ones”. This requires out-of-the-box thinking, a large number of individual experiments with possible violations of the rules, frequent failures and rare successes – that is, what characterized the Italian city-states of the late Middle Ages and entrepreneurs of the Industrial Revolution. “You can order individuals to work hard, but you cannot order them to be creative” (Acemoglu, Robinson, 2021, pp. 328–329).

In the epoch of capitalism, the state was quite successfully opposed by the class of entrepreneurs. This class restrained Leviathan. During the period of late capitalism, major banks and financial and industrial corporations used it to their advantage as a powerful chain dog. According to the concept of the authors of the book, this is not a situation of a Despotic Leviathan and not a situation of an Absent Leviathan. This means that Western countries are in the zone of a “narrow corridor”. However, they bear little resemblance to a society of freedom, where there is no dominance. If Marxists wanted to use the terminology of this book, they would say that Leviathan is not the state, but the stratum of the largest capitalists exercising imperious control over society.

In Russia and China, the relations between society and the state have always been and still are dramatically different from those in Western countries. Many historians emphasize that the unity of state power and the people is a typical feature of

Russia’s social structure. The dominant worldview contains a stable normative image of the state as a representative of the people, responsible for the fate of the people as a whole and each member of society (Sergeitsev et al., 2020). Naturally, the balance between the power of the state and the possibilities of control by society (narrow corridor) turn out to be different from those in Western countries: in Russia, the state has greater functions and greater power. In China, the role of the state in the social structure is also much greater than in the West. In modern conditions, this is an advantage (Volkonsky, 2022).

The ideological concept presented in the book by T.N. Sergeitsev and co-authors is undoubtedly a valuable and fruitful contribution to the theory of the state and its role in historical development. Unfortunately, the book says virtually nothing on how the state and the balance of power between the state and society are influenced by intercountry and intercivilizational interactions and confrontations that have become the most important contradictions and engines of history in the 20th –21st century.

The emergence of the Soviet Union, a strong state, “charged” with an uncontrollably spreading communist ideology aimed at restructuring the “old world” in a revolutionary way, transformed the semantic system of the Western ruling elites. The crucial factor is geopolitical and ideological confrontation, which require the rapid strengthening of centralized political power, i.e. increasing the value and role of the state. The need for strong and effective centralized management was also due to the growing complexity of industrial and social relations and an increasing pace of social processes.

This was not an easy task in the context of a dominating, mostly antistate, liberal ideology. We can point out several ways in which the Western governance system could address this task. The first way is to discredit the ideology and institutional system of the enemy, the Soviet Union and the

entire socialist camp. The main thing that has been achieved is a stable perception among a large part of the population of Western countries that Russia has been and remains a very dangerous *enemy* capable of destroying the foundations of the Western social order and establishing a system that deprives an individual of their freedom. This idea is not always necessary, but it can be easily activated with any aggravation, like the current instantaneous spread of Russophobia in all the media and political elites.

The presence of a permanent enemy has helped the ruling elite of Western countries and their governing structures to create over the past 50–70 years the following two factors or institutions that largely solve the problem of operational centralized management:

1) monopoly control over key information flows (in the mass media and social media) and dominant political and ideological attitudes (the system of think tanks, which provides a real opportunity to manipulate public consciousness;

2) establishing another, invisible, “covert” power center besides official governmental structures; this turned out to be easier and more effective than strengthening the control and power functions of the state itself in conditions when society is “mobilized” against the strengthening of Leviathan. The monopolistic structure of control over the main information flows makes it possible to protect the “covert” center from excessive public attention and investigations (Volkonsky, 2022). Such a center is commonly called a deep state. Nobel laureate Joseph Stiglitz in his book *The Price of Inequality* (Stiglitz, 2015) regularly uses the term “top”, which in many cases corresponds to the term “covert” center of power.

**Manipulating public consciousness.** An individual’s behavior is formed on the basis of that virtual world, the world of ideas about facts and their interrelations, which has developed in their head and which they consider a reflection (bad or good) of the real world. Different political and ideological

communities build their ideological complexes and political attitudes on the basis of the same set of facts and their interrelations (or ideas about them), using its different subsets. Consciously substituting an adequate representation of a fact with an inadequate one that does not correspond to reality is called a lie. Accusing a political center or a politician of using lies has always led to a loss of trust in them. Such situations were rare: politicians were wary of using lies.

Another situation arose when, as a result of the monopolistic management of institutions whose purpose was to create and disseminate information, it became possible to effectively restrict and direct the creation and dissemination of specific types of information. Western politicians accuse the “authoritarian” regimes of Russia and China of centralized control and restrictions on the creation and dissemination of information, arguing that Western countries have freedom and competition as their typical features. However, even if this situation were true, it was such only during the Cold War in the 20th century. Currently, a number of studies prove that key information flows in Western countries are now subordinated to monopoly management and centralized control (Volkonsky, 2022). We can point out the 2020 U.S. election campaign as an illustrative example. Then the mainstream mass media and social media responded with enviable unanimity and almost simultaneously to all the events of this campaign – against Trump and in favor of Biden. The invisible center demonstrated its control capabilities in the information space. The truth, as a statement purified of any lies, has ceased to be valuable even in information intended for the society of one’s own country.

An important consequence of the monopoly control of the Western top over the information space was its conviction of complete irresponsibility in relations with non-Western countries, especially with opponents. Social psychologists use the term

“the feeling of permissiveness and impunity”. The invisible center feels free from any value and moral restrictions. Terrorist and neo-Nazi forces are regularly used in the struggle for global hegemony. Covert networks of special forces carry out operations to eliminate recalcitrant individuals, overthrow unwanted governments and train foreign military.

Perhaps the most surprising consequence has been an increasingly widespread use of lies by politicians and political organizations, who do not really bother to conceal that it is a lie. It is also surprising that there are almost no protests against this in European countries, the countries of an old and high culture. Staged events are used to create fakes, to replace the ideas inside a Western individual’s head about real facts with such ideas that are needed to support an ideological attitude. In Kramatorsk, Ukrainian nationalists hit the train station with a missile to “prove” that it is the Russian military that is hitting civilians. On the same day, their accusations were picked up by many leading Western politicians. And although it is difficult to distinguish the truth from a lie in the world of fake news, in this case it promptly became clear that the strike was carried out by the *Tochka-U* missile, which is used by Ukraine and has long been decommissioned in Russia<sup>7</sup>. As a result, the campaign to accuse Russia of this mass murder was almost immediately curtailed, but Western countries did not bring charges against Ukraine and tried to silence this story.

In Ukraine, the fabrication of such fakes has become massive. However, the very use of terrorist acts by Western special services “under a false flag” has a long history. For example, in the 1960s and 1970s in Western Europe, there was a secret

unit created by national intelligence services and operating under the control of the CIA – the Gladio sabotage network, whose activities have now been studied quite well. Then left-wing governments in European countries were gaining popularity, there was a danger of the collapse of NATO. The Gladio network carried out terrorist operations as part of a “strategy to increase tension”; left-wing radicals were made responsible for the acts, thus compromising local left-wing parties and Moscow. According to one of the main experts on this topic, Swiss researcher Daniele Ganser, from 1969 to 1987, more than 14,500 “terrorist attacks under a false flag” were committed in Italy alone. About 500 people were killed and almost 1,200 were injured (Ganser, 2017).

At the secret base of the 10th U.S. Special Forces Regiment in Germany, where the Gladio network terrorists were trained, Ukrainian special forces are now being trained and a headquarters for coordinating military assistance to Ukraine has been established; it includes 20 countries<sup>8</sup>.

The development of private initiative in a free market is impossible without a general atmosphere of **trust**, which is only rarely violated – trust between unfamiliar partners, trust in government structures. The use of lies as a weapon mainly concerns the political and ideological sphere, and it is directed, as a rule, against civilizational opponents or, at least, non-Western partners. The United States violates any international agreements and generally accepted rules, if necessary. In the economic and financial sphere, trust remains to a certain extent. However, the facts of expropriation of state property of the Russian Federation (“freezing” of Russia’s foreign exchange reserves), accounts and real estate of Russian oligarchs in Western countries show that even such universal values as the “sacred” right of ownership are no longer preserved. As a result, the general atmosphere of trust is degrading.

<sup>7</sup> Lavrov B., Stepovoy B. “Information on the Tochka-U attack: Who actually struck at peaceful people at the Kramatorsk railway station? Available at: <https://iz.ru/1317765/anton-lavrov-bogdan-stepovoi/u-tocheknye-dannye-kto-nanes-udar-po-mirnym-liudiam-na-vokzale-kramatorska> (accessed: October 14, 2022).

<sup>8</sup> Krashennnikova V. (2022). The USA is preparing for a big war with Russia. *Pyataya gazeta*, issue 30.

Russia and China are interested in developing domestic business, attracting investments and active business people from abroad (more precisely, Russia needs to eliminate all the motives for their outflow). The state policy here is to strengthen the general atmosphere of trust. The ideological weapon is the truth and the disclosure of opponents' lies. It is generally accepted to consider the United States and Western countries as heirs of capitalism, and Russia and China as heirs of an alternative ideology of communism and socialism. The general atmosphere of trust highlight the emergence in recent years (at least, the possibility of emergence) of a new factor that is very important in the conditions of a "hybrid war for life and death" between Russia and the West.

The question is whose side the entrepreneur class will be on in this fight. And the significance of this choice is much more serious than the growth or decline of the Russian economy. The opponents in the civilizational confrontation are the West and the emerging civilization of a MPW. The code of the new civilization will be based on mutual understanding and cooperation<sup>9</sup> (Volkonsky, 2021). The West, using large-scale politically conditioned sanctions and dividing peoples into "us" and "them" on national and cultural grounds (Russophobia, like racial division under the Nazis), quickly destroys the atmosphere of trust necessary for entrepreneurs to work effectively. On the contrary, the activity of entrepreneurs and business people who establish trade, financial and personal ties, serves as one of the main drivers in the formation and development of a MPW civilization.

<sup>9</sup> S.Yu. Glazyev describes this new emerging civilization in the language of changing world economic paradigms (WEPs): this will be an "integral WEP" (Glazyev, 2016; Glazyev, 2017).

Similar ideas are contained in an article by Russian billionaire Ruben Vardanyan<sup>10</sup>. This is what he writes about the West: "Western civilization seems to have done everything to undermine trust both in itself and within itself at all levels – system, institutions, communities, people". He considers the elimination of spiritual, ideological and political hostility between civilizations to be the crucial task (the author uses the word polarization) and calls on business people to solve it. It is necessary to note that, according to Vardanyan, the small peoples who are "at the crossroads of civilizations" and who possess extensive historical experience of mediation between unfriendly civilizations (even under sanctions) can play an important part in addressing the task. They can be "at the forefront of the search for ways to reduce polarization". It is easy to understand that he is talking about such peoples as Armenians and Jews.

**The clash of civilizations and the danger of fascism.** The West has a powerful weapon – revival of fascist movements – which is used by the most aggressive parts of the Western elite as an *ultima ratio* in the confrontation between civilizations. Western intelligence agencies have gained considerable experience in creating destructive extremist movements and providing them with the necessary direction of development. For the last half century, the ideology of Nazism was looked upon as a kind of marginal, dying semantic complex that exists only in the minds of a few surviving figures of Hitler's regime. The seizure of power in Ukraine after 2014 by ultra-right nationalists, who openly use ideas and symbols of German Nazism, and, more importantly, the fact that the ruling elites of the United States and other Western countries support this regime, indicate that the above perception of Nazism is flawed.

<sup>10</sup> A new world: What should we be like to get into it. Available at: [https://www.rbc.ru/opinions/economics/16/06/2022/62a9dc149a794748eee0119e?from=column\\_1](https://www.rbc.ru/opinions/economics/16/06/2022/62a9dc149a794748eee0119e?from=column_1)

Fascism, neo-Nazism<sup>11</sup> can be called the most dangerous ideological threats to humanity. Nazism is based on the cultural and ideological foundations of the most powerful Western civilization, claiming global hegemony. And Nazism itself once in history has already demonstrated the ability to mobilize almost the entire Western Europe under its destructive ideology.

After the defeat in World War II, Nazism did not disappear. Socio-political movements using the ideological developments and practical experience of German Nazism arise and operate in almost all Western European countries (and not only European ones). A fascist organization is not only a political party. This is a community charged with fanatical faith in its own teaching (close to the faith of cultists in occult myths) and purpose. Its members are bound by conscious discipline and are ready to make sacrifices for the sake of the future they believe in. This belief is based not only on a concrete image of a social structure achievable in the foreseeable future, but also ideas protected from rational analysis and doubt, referring to pagan myths and Nietzsche's idea of the *Übermensch*.

The classic of psychological science Carl Gustav Jung was one of the first to try and explain the massive change in the psychological condition of a

large community under Nazism through the psychology of the individual. In a 1946 paper (see Jung, 1997), he explains the phenomenon of fascism by a kind of universal archetype associated with primitive instinct, violence and cruelty. It is an archetype that "sleeps" in the unconscious of each individual. The difficult situation in which society found itself after the defeat in the war, the general atmosphere of moral decline led to the awakening of this "primitive instinct". Later, Erich Fromm (Fromm, 1977) gave a more detailed explanation of the role of psychological mechanisms based on the postulates of psychoanalysis.

The difference between fascists and an occult sect is that the ideology that underlies the faith of the former does not contradict a significant part of modern scientific knowledge, allowing them to use a huge arsenal of modern technology. In Hitler's Germany, a lot of engineers and scientists were members of the NSDAP and worked effectively "for the glory of the Third Reich". It is the combination of a fanatical quasi-religious goal setting and modern scientific and technological tools to achieve the goals that makes fascism especially dangerous.

But the study of the socio-psychological processes of the emergence and development of cults (there are more than a thousand of them in the U.S.) made it possible for Western special services to accumulate experience in the selection and direction of the development of destructive groups and organizations of the neo-Nazi type. "Scientific and engineering" methods of socio-psychological research help an individual (of a certain psychological type of personality, or an adolescent) accept the ideological attitudes of fascism as their main life meaning. According to Aleksey Kochetkov, coordinator of the Russian Union Movement, author of the book about the Azov Movement (Kochetkov 2022), the Azov Regiment and then the socio-political Azov Movement were created to a significant extent under the leadership (and funding) of the CIA and other

<sup>11</sup> We should note that the name of the movement "Nazism" can be misleading, indicating its obligatory connection with nationalism. Indeed, at the birth of National Socialism in Germany, its main political goal was to establish the dominant position of the great German nation in Europe and the world. National Socialism acquired its most antihuman traits by replacing this attitude with the "theory" of the superiority of the Aryan race and the practice of ensuring its domination. For modern variants of neo-Nazism, the idea of the isolation and superiority of a certain community is the key one. But this community may not necessarily be a nation or a race. An example is the most radical neo-Nazi organization in Ukraine – the Azov Movement. "Russian, Hungarian or Pole, it doesn't matter who you are – if you accept the idea of building ... a "nation of masters", if you want to rule in the space that will remain after the destruction of Russian civilization, then you are one of us" (Inclusive fascism. How specialists from the USA prepared the Azov Regiment. Conversation with the coordinator of the Russian Union Movement Aleksey Kochetkov. *Zavtra*, 2022, issue 29).

Western intelligence services. The secret services and power centers of the West hope that they will always be able not only to create this “weapon”, but also target it in the direction they choose.

The possibility of involving a significant number of people in the Nazi movement is due to its highly appealing (to certain psychological types) ideology, as well as the social status its participants acquire. Being aware of the *uniqueness and superiority* of all members of the fascist “caste” in relation to other people (and within the movement – the prominence of its main spiritual and ideological core – the type of SS organization in Hitler’s Nazism) gives the participants of the organization a sense of life meaning and helps to overcome the “spiritual vacuum” in which the people of the late capitalism epoch found themselves. The role of the idea of supervalue gives fascists freedom from generally accepted legal and moral norms and restrictions in relation to nonfascists (and, if necessary, to their associates), justifying *permissiveness and impunity*. In particular, this applies to the widespread use of *violence* to achieve the goals of the movement. In order to instill fear of fascist organizations in society and “dehumanize” the psyche of the fascists themselves (especially teenagers), extreme cruelty is encouraged, and the use of torture becomes habitual. There is evidence that the Azovites use even more sophisticated cruelty than the Nazis<sup>12</sup>.

How could it happen that this antihuman ideology turned out to be attractive to a significant part of the highly cultured stratum of Germans? It can be explained by the following factors. When the National Socialist Party was created in the 1920s, its ideology was dramatically different from the ideology of the party and the German state after Hitler came to power, when ideology was

based on racial theory and anti-Semitism; and the corresponding policy began to be implemented in practice. It is racism and the politics based on it that are primarily responsible for the monstrous crimes associated with Nazism. Most likely, during those 12 years, cultured and educated people joined the NSDAP not because they shared its principles.

Initially, National Socialism is an heir of quite constructive and fruitful ideologies of socialism and nationalism. Many members of the National Socialist Party and most of the citizens who supported it (as well as the fascists of Italy) shared some of the attitudes of socialism and considered the bourgeoisie a hostile class. It was not left-wing anticapitalism, as in Marxism, but right-wing anticapitalism. Right-wing anticapitalism proceeded from the fact that the international nature of capital hinders the realization of the national idea and the sovereignty of the state.

In the 18th – 19th century, Germany was one of the leaders in the field of literature and philosophy. But unlike England and France that were powerful sovereign states with united bourgeois nations, Germany remained a country with feudal fragmentation, consisting of more than three dozen duchies, principalities, and free cities. Aleksandr Dugin describes in detail (Dugin, 2020) how the “united German nation” with a sovereign state was first formed as an ideological concept of romantics and philosophers, saturated with heroic passionarity, and transformed from a purely rational construction of a bourgeois nation into an ideology of “revolutionary nationalism”. This ideology could become the basis of an effective political system. But the defeat of Germany in the First World War, the humiliating Treaty of Versailles, and the Great Depression of the 1930s created the conditions for the Nazis to rise to power and subsequently transform this ideology by saturating it with racism; afterwards they used it for their extremist purposes.

<sup>12</sup> Inclusive fascism. How specialists from the USA prepared the Azov Regiment. Conversation with the coordinator of the Russian Union Movement Aleksey Kochetkov. *Zavtra*, 2022, issue 29.

So far, it seems, there is no sufficiently elaborated answer to the question why Western countries, familiar with Nazism from the time of Hitlerism and subsequent decades, show no protest against its modern revival in Ukraine, its escalation in a number of other countries and its support by government structures in Europe and the United States? The following circumstance can serve as an explanation (of course, it is far from being comprehensive). Those features of Nazism, which were mentioned above as appealing, are an extreme (or mind-boggling) continuation of the key features of the ideology of superiority dominant in Western civilization. The policy of the Western authorities and the media to “turn a blind eye on”, ignore and even support the development of neo-Nazi movements is one of the types of practice of “stepping over” any barriers and rules in the name of preserving one’s own superiority. And the information that fascists are overstepping any “extreme limits” can be prevented from being widely discussed.

It should be recognized that disadvantages of civilization proceed from its advantages. Western politicians consider the main threat posed by “authoritarian” Russia and China to be the excessive strengthening of the state in these countries, which threatens the destruction of liberal freedoms and individual rights. Russian patriots have always considered the most important task to be the improvement of the state, which should not hinder, but stimulate and support the expansion of the free initiative of citizens and civil servants themselves.

## Conclusion

At the turn of the 19th – 20th century, several political and ideological forces were fighting for a new future, for the prospect; in particular those were the German elite (it fought for the unification of continental Europe under its leadership), and Britain (it fought for the global role of the British Empire). However, the main result of the breaking point and the period of war and revolutions was the formation of a powerful socialist state – the USSR. In the future, key events mostly occurred in accordance with causal logic. The countries of Western civilization were forced to respond to the challenge of a non-Western Russia (the Soviet Union). Their main weapons (and instruments of unification) are as follows: preservation of their leadership, formation of an ideology of superiority, and constant economic and political expansion to accumulate capital. The West seeks to control and subjugate non-Western countries, and the elites of non-Western countries seek to free themselves from this subjugation. The intercivilizational confrontation between West and Non-West is becoming the main factor determining the spiritual and ideological image of the epoch. The West is gradually losing its leadership and is forced to escalate the geopolitical situation, using information and ideological monopoly, economic and political means, up to the unleashing of hot wars (World War II was the first consequence of such an escalation). After an escalation there come periods of almost “peaceful coexistence”. So far there are no signs foreshadowing a new historical breaking point.

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## Modern Development of the System of Cities in Russia: Static and Dynamic Approaches



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**Abstract.** The article raises the issues of urban transformation. The provisions of the new economic geography state that large cities get agglomeration effects from overcrowding, businesses and amenities. But practice shows that medium and small cities often have more prospects for development. Borrowed size (the location of a small or medium-sized city or settlement near a larger one) allows residents to use some of the services of neighboring cities without incurring the associated costs. The possibility of borrowing agglomeration advantages is forming a new system of cities. The distribution of population and economic activity does not always occur around administrative centers, there is a polycentricity of spatial development. To analyze the system of cities we proposed to use static and dynamic approaches that allow us to determine more fully the reasons for the attractiveness of cities and population growth. We constructed a system of econometric models of the influence of high order urban functions – factors of economy, education, culture and sports – on the number of residents of cities in the Central Federal

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District of Russia as a whole and by size categories. The analysis of polycentricity of cities revealed that a high level of the indicator is observed in the Moscow, Vladimir, Belgorod, Tula, Tver and Kaluga oblasts, and low polycentricity is in the Lipetsk, Ryazan, Voronezh and Orel oblasts. It was determined that the attractiveness of cities and the growth of their population are influenced by high-order urban functions (business, science, sports and culture), the ability to take advantage of “borrowed” size, the external effects of the urban network and the level of inter-city cooperation. The most significant factor in the growth of the city is the number of schools. The second factor is the possibility for children and adolescents to join sports clubs. Budget expenditures have a positive impact on the growth of large, big and small cities. Cultural and recreational activities are significant for the attractiveness of cities with a population of up to 10 thousand people and from 15 to 20 thousand people. It was revealed that more than a half of settlements in the Central Federal District are cities and urban-type settlements with population less than 10 thousand people. For this group, all the considered development factors are statistically significant and important. The results can be used to further develop the ideas of static and dynamic analysis to assess the reasons for the attractiveness of cities, substantiate the “borrowed size factor”, and determine general trends in the system of cities formation. The practical value of the work lies in a better understanding of the principles for creating an attractive city for residents at different stages and conditions of its development; it can be used in the development of appropriate socio-economic programs at the city and regional levels.

**Key words:** borrowed city size, high-order urban functions, polycentricity of the city system, agglomeration effects, cities and regions of Russia.

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### Introduction

The polycentricity of the urban system in Russia explains the multidirectional trends of its development. In general, the level of urbanization in the country is approaching its maximum threshold value: in 2022 it reached 74.8%, increasing annually since 2016 by 0.12 p.p. At the same time, in a number of regions the share of urban population over the same period decreased: by 1 p.p. in the Irkutsk Oblast, by 0.5 p.p. in the Moscow Oblast, Jewish Autonomous Oblast and the Samara Oblast, by 0.4 p.p. in the Murmansk and Yaroslavl oblasts and Adygea Republic, by 0.2 p.p. in the Astrakhan and Kaluga oblasts, by 0.1 p.p. in the Tula and Moscow oblasts and Altai Republic<sup>1</sup>.

The growth of large cities and the level of urbanization corresponds to the provisions of research emphasizing the importance of agglomeration (Glaeser, 2011) and is theoretically justified by the provisions of the new economic geography (Fujita et al., 1999). At the same time, the decrease in urbanization is confirmed by individual trends, for example, in Western Europe (Meijers et al., 2016). A number of countries are currently experiencing the growth of medium-sized and small cities, rather than large ones<sup>2</sup> (Rastortseva, Manaeva, 2022a; Camagni et al., 2017). Polycentricity is increasing – cities form socio-economic clusters, often without adhering to administrative or historical boundaries of cooperation.

<sup>1</sup> Calculation based on: Showcase of statistical data. Federal State Statistics Service of the RF. Available at: <https://showdata.gks.ru/report/278932/> (accessed: September 15, 2022).

<sup>2</sup> Criteria for categorizing Russian cities as millionaires, largest, large, big, medium-sized, and small are presented in (Rastvortseva, Manaeva, 2022a). In addition, the definition of a large city in Russia and other countries differs.

It is believed that the key factors in urban growth are economic (or business, attracting business structures), scientific and educational, cultural, leisure and other factors. Considering the full range of conditions, we understand that these factors vary depending on the size of the city.

The purpose of the study is to identify the main trends in the development of the city system through the assessment of polycentricity and the use of static and dynamic approaches to identify the impact on urban development of such factors as education, economy, culture and sports.

The first section of the article presents a theoretical and bibliographic review of studies reflecting the advantages of large cities. The methodological aspects of assessing the development of the city system, namely the definition of polycentricity and specifics of using static and dynamic approaches, and the initial data for the analysis, are considered in the second section. The results of the study are shown in the third section, the conclusion formulates results and directions for further research.

#### **Theoretical and bibliographic review**

How can we explain the fact that for all the advantages of large cities from the position of economic rationality, in practice small and medium-sized cities have higher growth rates? Let us determine the reasons for the attractiveness of large cities.

The concentration of social and economic activity in the city, according to the new economic geography, brings rather positive effects for the activity of companies (Krugman, 1991). This means that there are sources of benefits from the location of the company in a large city compared to a medium-sized or small. First, there are the conveniences and higher quality of life (Blomqvist et al., 1988; Carlino, Saiz, 2008). Second, there are the best characteristics of the industrial environment (Chinitz, 1961). By combining different types of economic activities on its territory, the urban environment contributes to better specialization

and diversification, the formation of “connected diversity” (Boschma, Iammarino, 2009). Complementarity between different sectors of the economy guarantees the exchange of knowledge and the diffusion of technology. The interaction of companies goes beyond clusters and extends to the whole urban environment, increasing its efficiency (Rastvortseva, Manaeva, 2022b).

Third, the city creates favorable conditions for social communication and acts as a mediator (Martin et al., 2011). The city becomes a “melting pot of knowledge, culture, and attitudes” (Krugman, 1991, p. 53). Large cities achieve the best results in the field of recruitment. The availability of a highly skilled workforce in various sectors of the economy stimulates higher labor productivity (Shkiotov, Markin, 2020), and therefore makes cities more attractive to new companies (Rastvortseva, Manaeva, 2022b).

In the literature, discussions of the benefits of large cities focus on three main aspects: indivisibility, synergy, and physical proximity (Capello, 2009).

Indivisibility is conditioned by a number of conditions arising in agglomeration processes. This is the possibility of sharing the existing and developing infrastructure. We can include here the general labor market, which is formed for the specific needs of industries operating in the city, intermediaries and service firms. Indivisibility arises when companies strive to standardize production processes and achieve the benefits of scale effect (internal and external). The city and the urban economy benefit from indivisibility: increased attractiveness for large companies, the formation of institutions and infrastructure for the development of self-sustaining agglomeration process, reduced unemployment with a high probability of more effective recruitment and attraction of a large number of specialists, the formation of creative capital. Indivisibility occurs when the benefits of agglomeration effects (externalities) increase overall factor productivity (Rosenthal, Strange, 2001).

A number of studies have assessed how much more companies benefit from agglomeration when they operate only in their industry with other companies or when they are in a set of interrelated industries (Carlino, 1980; Henderson, 1985).

The synergy aspect is more related to the socio-cultural changes that arise in agglomeration processes. Here we can refer changes in the level of trust, the sense of belonging, the increase of cultural homogeneity, the intensity of local interactions, which eventually leads to an increase in returns by minimizing transaction costs (Becattini, 1989). It is under these conditions, representatives of different (even competing) companies have the opportunity to conduct interpersonal contacts, which contributes to a better dissemination of information, including in an implicit form. Synergy leads to the formation and development of creative capital, which, in turn, attracts new professionals to the city or region, allows them to create more comfortable and attractive living conditions for themselves, which ultimately supports agglomeration processes. The development of synergy as an important component of agglomeration processes in the city often takes place in the framework of programs to promote innovation with public support (Camagni, 1991; Storper, 1995).

The third aspect of the advantage of large cities is proximity. If the economy lacks the costs of transporting goods, raw materials, and other resources, and there are no barriers to the transfer of information, then the idea of concentrating economic activity in one area loses its meaning. Proximity is related to geographic agglomeration and interaction effects.

The highlighted three aspects can be explained in terms of three approaches to the sources of agglomeration economies. The indivisibility of the labor market, production processes is determined by technical effect of scale. Indivisibility reduces costs and increases total factor productivity at the

firm level (microindustrial approach). Synergy reduces transaction costs and, together with proximity (geographic approach), represents the macro-territorial level (Camagni et al., 2017). The sources of static agglomeration savings and dynamic efficiency in all approaches have their own specifics.

The reasons why larger cities are attractive to companies should be taken into account when analyzing the static picture (current advantages of a city) and the dynamic situation (changes in advantages and potential as the city's population grows).

#### **Methodological approaches to the urban development assessment: Polycentricity, static and dynamic approaches**

The system of cities can be evaluated through the polycentricity index. A polycentric region is a set of cities that are often historically and administratively different, but territorially close and connected to each other. Understanding the degree of urban system polycentricity in a region allows us to determine how likely settlements can benefit from agglomeration processes. The polycentricity index can be measured by the Herfindahl – Hirschman index ( $H$ ).

$$H = \sum_{i=1}^N S_i^2, \quad (1)$$

where  $S_i$  is the share of the population of city  $i$  in the total population of all cities in the region,  $N$  is the number of cities in the region.

The value of the polycentricity index can range from  $1/N$  to 1. The lower the index, the more polycentric the system of cities in the region<sup>3</sup>.

The main methods for analyzing the cities system development are static and dynamic approaches, which provide information about the main trends and reasons for development.

<sup>3</sup> The use of the Herfindahl – Hirschman index in analyzing polycentricity can be noted in (Meijers et al., 2018; Meichang, Bingbing, 2020; Hoogerbrugge et al., 2022), in analyzing economic spatial structure in (Liu et al., 2022).

The advantages of large cities over small ones are identified through a comparative analysis of the system of cities in a particular period of time. This approach is called a static approach. It shows which size cities have a higher level of attractiveness and whether it decreases or increases as the population changes. Constructing econometric models reveals a set of development factors for cities of a certain size, but does not actually show whether a city's population will grow or decline under certain conditions.

Dynamic analysis tells us about future development trends. It is conducted over a period of time and does not just show the significant factors, but also reflects their impact on possible trends in the dynamics. Such factors should include the internal characteristics of the city. For example, there is the opinion that agglomeration processes alone do not stimulate urban growth and efficiency, just as urbanization itself in terms of the number of inhabitants does not guarantee accelerated economic development (Henderson, 2010). Static and dynamic approaches are characterized by a different set of research questions (Camagni et al., 2017).

Citywide attractiveness can be evaluated by different indicators. For example, urban land rents, taking into account the net benefits of location (benefits minus costs) (Albouy, 2009). The use of this indicator is logically explained by the fact that in large cities real estate is more expensive. In our view, the indicator has three disadvantages. For example, due to the artificial limitation of the supply of new housing construction, it is in large cities that price shifts are possible (Cheshire, Sheppard, 2002). Further, large cities are much more often administrative centers, the concentration of management functions requires the presence of a significant number of staff and thus increases housing prices. Finally, for an actual analysis, we need data on real estate values not only in large cities, but also in medium-sized and small towns.

Their absence or difficulty in obtaining them may distort the results obtained.

The easiest and most accessible indicator of a city's attractiveness is the size of its population. *The size of the city by the number of inhabitants*, in our view, can be both a factor and a resultant indicator. The new economic geography considers a circular causality relationship that explains the self-sustaining nature of agglomeration processes. Cities with a higher number of population may be more attractive to new residents, while population size can act as a key indicator of a city's prosperity (Rastvortseva, 2013).

In some states, population mobility is higher and changes in population are faster. But even in countries where the population is low-mobile, such as Russia, changes occur as a result of natural or mechanical movement. We believe that for the static analysis – the number, and for the dynamic – its change in the dynamics – are the most appropriate indicators.

Factor indicators of city attractiveness can be high-level urban functions, “borrowed size” and externalities of the urban network, or the degree of urban cooperation (Camagni et al., 2017).

*High-level city functions* (for example, the share of administrative employees in the total number of employees). It is believed that the presence of such functions will contribute to the qualitative shift of the city's efficiency curve. Such a positive effect persists at any size of the city. High-level functions may include business, science, sports, and culture (Meijers et al., 2016).

*“Borrowed size”* is the extent to which a small or medium-sized city uses the advantages of a larger city nearby. The effects of “borrowed size” are defined through population, statistically and dynamically, and through city functions at different levels. We can assume that a large city receives such advantages as an influx of commuting migrants (this increases the labor market), reduced tension in the real estate market (due to the fact that workers live

Table 1. Indicators for empirical analysis

Variable	Designation	Explanation	Period and data source
Population size	<i>In_Y</i>	Population of the city	2021; The resident population of the Russian Federation by municipalities by January 1, 2021. Available at: <a href="https://rosstat.gov.ru/storage/mediabank/">https://rosstat.gov.ru/storage/mediabank/</a> (accessed: September 16, 2022).
Education	<i>In_school_learn</i>	The number of students in general education organizations, including separate subdivisions, people	2017; Economy of Russian municipalities, Multistat – Multifunctional statistical portal
	<i>In_schools</i>	Number of general educational organizations at the beginning of the school year, units	2017; Economy of Russian municipalities, Multistat – Multifunctional statistical portal
Economy	<i>In_budg_exp</i>	Local budget expenditures actually executed, thousand rubles	2018; Economy of Russian municipalities, Multistat – Multifunctional statistical portal
Culture	<i>In_culture</i>	The number of people working in cultural and leisure organizations, including separate subdivisions, total, persons	2017; Economy of Russian municipalities, Multistat – Multifunctional statistical portal
Sport	<i>In_sport</i>	The number of students in children's and youth sports schools, people	2017, 2018; Economy of Russian municipalities, Multistat – Multifunctional statistical portal

outside the city), and increased opportunities for interpersonal communication. The disadvantages of this connection are traffic congestion, pollution, and high travel costs for workers.

Small and medium-sized cities benefit from the fact that they can develop some services not within themselves, but use them in larger cities. Among the “borrowed functions” are theaters, concert venues, museums, universities, ports and airports, sports arenas, parks and zoos, large hospitals, and other organizations of education, science, culture, sports, leisure, health, logistics, etc.

For the empirical part of the study, we defined the cities and towns of the Central Federal District (CFD) of Russia as the object. Detailed indicators and sources of information are presented in *Table 1*.

Earlier (Rastvortseva, Manaeva, 2022) we provided a rationale for the influence of educational, economic, cultural, and sports factors on the development of cities of different sizes. In the works of Russian researchers, we can note this set of factors in different interpretations. Thus, O.O. Smirnov and V.A. Bezverbnyi refer to the educational system the development of the academic environment of the city (Smirnov, Bezverbnyi, 2022), A.A. Buvin and V.I. Khabarov in the healthcare system of cities

emphasize digitalization trends (Buvin, Khabarov, 2022), E.A. Kolomak (Kolomak, 2022) highlights the housing stock, the number of doctors, market cities, etc.

#### Results of the study

Let us determine how polycentric is the urban structure of the CFD according to the Herfindahl – Hirschman index, the number of cities and towns, and the number of urban residents (*Tab. 2*).

We would like to point out that the number of cities and towns in the regions of the Central Federal District has not changed during the period under analysis. The number of city residents in the district decreased by 84,623 people over the year. The largest decrease occurred in the Vladimir (14,544), Tula (14,211), Yaroslavl (12,626) and Tver (11,126) oblasts. An increase in the number of residents occurred in the Moscow (37,665) and Kaluga (9,910) oblasts.

The dynamics of the polycentricity index is quite difficult to trace over the year – the concentration of population in cities changes slowly. But we can see some trends – a decrease in the Orel (-0.0021 units) and Tula (-0.000 units) oblasts, the largest increase in the Kostroma and Tver (0.0044 units each), Voronezh (0.0034 units) and Ryazan (0.002 units) oblasts.

Table 2. Urban polycentricity of the Central Federal District regions in 2021

Region	Number of cities	Number of urban-type settlements	The number of urban residents*		Polycentricity**	
			on January 1, 2021	on January 1, 2022	on January 1, 2021	on January 1, 2022
Belgorod Oblast	11	18	1 041 310	1 037 398	0.201	0.202
Bryansk Oblast	16	23	833 197	825 055	0.2441	0.2449
Vladimir Oblast	23	9	1 049 234	1 034 690	0.1506	0.1513
Voronezh Oblast	15	17	1 567 046	1 558 117	0.4562	0.4596
Ivanovo Oblast	17	13	807 364	799 962	0.2705	0.2729
Kaluga Oblast	22	7	758 763	768 673	0.2247	0.2254
Kostroma Oblast	12	7	459 063	455 546	0.378	0.3824
Kursk Oblast	10	22	752 748	745 355	0.3818	0.3832
Lipetsk Oblast	8	0	729 043	718 936	0.5023	0.5024
Moscow Oblast	74	73	6 296 406	6 334 071	0.0235	0.0237
Orel Oblast	7	13	483 481	476 031	0.4125	0.4104
Ryazan Oblast	12	21	793 275	783 514	0.4608	0.4628
Smolensk Oblast	15	10	663 281	656 710	0.2576	0.2578
Tambov Oblast	8	12	611 901	605 394	0.2603	0.2614
Tver Oblast	23	28	950 071	938 945	0.2152	0.2196
Tula Oblast	19	11	1 082 882	1 068 671	0.2144	0.2141
Yaroslavl Oblast	11	11	1 011 966	999 340	0.3912	0.3911

\* Residents of cities and urban-type settlements.  
\*\* Herfindahl – Hirschman Index.  
According to: The resident population of the Russian Federation by municipalities on January 1, 2021, on January 1, 2022. Federal State Statistics Service. Available at: <https://rosstat.gov.ru/> (accessed: September 16, 2022; February 1, 2023). Information on the number of cities and urban-type settlements was obtained from the Internet resources for each oblast individually.

We remind that the lower the Herfindahl – Hirschman index, the higher the polycentricity of a region. The highest polycentricity is observed in the Moscow Oblast, which is the leader both by the number of inhabitants and by the number of cities and urban-type settlements. The second oblast with a high polycentricity of cities is the Vladimir Oblast. Next are the Belgorod, Tula, Tver, and Kaluga oblasts. The Lipetsk, Ryazan, Voronezh, and Orel oblasts have a low level of polycentricity.

We see that in the Central Federal District on January 1, 2021 there were 303 cities and 295 urban-type settlements with a population of almost 19 million people (excluding Moscow). The largest numbers of urban residents are in the Moscow, Voronezh, Tula, Vladimir, Belgorod, and Yaroslavl oblasts; the smallest numbers are in the Kostroma and Orel oblasts.

The total sample was 598 cities and towns. We note that for some of them there are no individual

statistical data, which means that the sample size will vary.

The largest city in the sample is Voronezh, with a population of over 1 million people, the smallest – urban-type settlement Gorodok in Kaluga region with 64 inhabitants. The largest cities (from 500 thousand to 1 million people) include four – Yaroslavl, Ryazan, Balashikha and Lipetsk. Big cities (from 250 thousand) are mostly regional centers, except for two cities in the Moscow Oblast – Podolsk and Khimki. There is a total of 14 large cities in the sample. There are 25 big cities (over 100 thousand inhabitants), mostly located in the Moscow Oblast, except Rybinsk in the Yaroslavl Oblast, Novomoskovsk in the Tula Oblast, Obninsk in the Kaluga Oblast and Zheleznogorsk in the Kursk Oblast.

Medium-sized cities (50,000 to 100,000 people) include 32 cities, and the other 522 are small towns.

A model of the impact of high-level urban functions on population size is:

$$Y = F(Educ, Econ, Cult, Sport), \quad (2)$$

where  $Y$  – population of the city or urban-type settlement;

*Educ* – factors of the education and science system;

*Econ* – business development and economic factors;

*Cult* – cultural and leisure factors;

*Sport* – sport development.

Model 1 (*Tab. 3*) is based on a linear form, models 2 and 3 are based on natural logarithms.

We built three models of the impact of indicators of education, economy, culture, and sports on the cities' population. Model 1 reveals a linear relationship and demonstrates that all of the factors considered have a positive effect on the number of urban residents. We see that the greatest influence is exerted by education. Initially, it was assumed that the model could include the number of students in general education organizations. However, there was a high correlation of this indicator with the

total population – the more residents in the city, the more children studying, so this indicator was replaced by the number of general educational institutions. Despite the fact that the occupancy of schools and kindergartens, their number and other parameters are regulated by general norms throughout the country, the correlation with the number of population is not as high. At the same time, this indicator continues to have a greater influence on the city's size.

The second most important factor is the number of students involved in children's and youth sports schools. We should note that there are not many indicators in the available statistics, which could reflect the level of sports development in cities, especially in small ones. The number of schools in a large range of city sizes varies from 1 to 2. At the same time, the number of students in sports schools is different. We can explain it by the availability of coaches, the number of sections, the general organization of sports schools, in other words, the administrative resource. A higher level of sports development for children and young people attracts more residents and plays a role in the choice of the place of settlement.

Table 3. Models of the influence of individual factors on the population of cities and urban-type settlements of the CFD

Indicator	Model 1	Indicator	Model 2	Model 3
<i>Dependent variable</i>	$Y$	<i>Dependent variable</i>	$\ln\_Y$	$\ln\_Y$
<i>const</i>	-5988*** (1300)	<i>const</i>	4.88*** (0.320)	4.901*** (0,312)
<i>ln_schools</i>	3565.32*** (538,97)	<i>ln_schools</i>	0.56*** (0.061)	0.588*** (0.05)
<i>ln_budg_exp</i>	0.0069*** (0.0026)	<i>ln_budg_exp</i>	0.146*** (0.027)	0.153*** (0.028)
<i>ln_culture</i>	0.059*** (0.019)	<i>ln_culture</i>	0.042 (0.039)	
<i>ln_sport</i>	9.321*** (538.97)	<i>ln_sport</i>	0.322*** (0.044)	0.327*** (0.044)
$R^2$	0.94	$R^2$	0.899	0.898
Stand. error	23446	Stand. error	0.423	0.423
Number of observations	423	Number of observations	360	360

const – constant term of equation; \*\*\* – significance level 1%; \*\* – 5%; \* – 0%.

A standard error is given in parentheses.

Source: own compilation.

There is no direct correlation between the number of city residents and employees of cultural institutions, so the level of cultural development and the availability of attractions in the city are an important but not decisive factor when choosing a place to live. The city's budget expenditures also play an insignificant role, although their growth positively affects the number of residents.

As we noted earlier, the influence of factors in cities of different sizes may vary. We divide cities into groups of large (model 4), big (model 5), medium-sized (model 6), and small (model 7). The results are presented in *Table 4*.

The division of cities into groups according to size shows that the number of schools is always positively reflected in the number of city residents. This factor is more influential in large and small cities, and less influential in medium-sized cities. It is interesting that the culture factor is not statistically significant in large cities. In big cities it has a negative effect on the population. We believe that this can be explained by the outpacing

development of the cultural sector before the immediate growth of the city.

Economic factors are important for urban development and have a positive effect on the population. The only exception is medium-sized cities, where an increase in city budget expenditures does not make the city more attractive.

Sports, namely children's and youth sports, remain an important development factor. To a greater extent it is noticeable in small towns, where an increase in the number of children and youth sport school students by 1% gives an increase in population by 0.327%.

The largest group consists of small towns – 522, of which a full set of data is presented for 360 cities. We propose to consider them in more detail, distinguishing among them groups according to the classification presented in (Rastvortseva, Manaeva, 2022a): with a population up to 10,000 (312 settlements), from 10,000 to 15,000 (77), from 15,000 to 20,000 (38), from 20,000 to 30,000 (51) and from 30,000 to 50,000 (44). The results of the modeling are presented in *Table 5*.

Table 4. Models of the influence of individual factors on the population of large, big, medium-sized and small towns and urban-type settlements of the CFD

Indicator	Model 4	Model 5	Model 6	Model 7
	Large	Big	Medium-sized	Small
<i>const</i>	-5.834*** (1.104)	8.896*** (0.54)	10.656*** (0.139)	4.906*** (0.312)
<i>ln_schools</i>	0.603*** (0.143)	0.488*** (0.107)	0.168*** (0.051)	0.588*** (0.054)
<i>ln_budg_exp</i>	0.249*** (0.082)	0.07*** (0.017)		0.153*** (0.028)
<i>ln_culture</i>		-0.08** (0.035)		
<i>ln_sport</i>	0.069** (0.03)	0.095* (0.054)		0.327*** (0.044)
<i>R</i> <sup>2</sup>	0.864	0.68	0.2	0.898
Stand. error	0.135	0.171	0.177	0.423
Number of observations	19	22	31	360
const – constant term of equation; *** – significance level 1%; ** – 5%; * – 0%. Standard error is given in parentheses. Source: own compilation.				

Table 5. Models of the influence of individual factors on the population of small towns and urban-type settlements of the CFD

Indicator	Model 8	Model 9	Model 10	Model 11	Model 12
	up to 10,000 people	10,000-15,000 people	15,000–20,000 people	20,000–30,000 people	30,000–50,000 people
<i>const</i>	5.864*** (0.476)	9.321*** (0.032)	9.03*** (0.141)	9.253*** (0.225)	10.511*** (0.369)
<i>ln_schools</i>	0.156*** (0,076)	0.076*** (0.027)	0.043* (0.023)		
<i>ln_budg_exp</i>	0.099 *** (0.032)		0.024* (0.012)		-0.044* (0.024)
<i>ln_culture</i>	0.124** (0.048)		0.044** (0.02)	-0.045*** (0.023)	
<i>ln_sport</i>	0.205*** (0.058)		0.032* (0.015)	0.154*** (0.039)	0.089*** (0.027)
$R^2$	0.418	0.085	0.338	0.296	0.143
Stand. error	0.357	0.118	0.066	0.103	0.146
Number of observations	144	69	29	38	37

const – constant term of equation; \*\*\* – significance level 1%; \*\* – 5%; \* – 0%.  
Standard error is given in parentheses.  
Source: own compilation.

We see that in the smallest towns (up to 10,000 people) the most important role is played by schools and the opportunity to do sports in children's and youth sports organizations. On the one hand, this can be explained by the fact that in small urban-type settlements there may be no schools or sports sections at all. On the other hand, such settlements lose their attractiveness. A city without a school is like a city without a promising future. At the same time, the impact of cultural facilities and local budget expenditures is positively assessed in such cities. Let us note once again that it is small towns with a population of up to 10,000 people, and there are 312 of them in the CFD, that are the most sensitive to all development factors.

We see a similar situation in the group of cities with a population of 15,000 to 20,000 people. The most important factors are the number of schools, the opportunity for children and adolescents to do sports and the number of employees of cultural and leisure organizations.

In cities with 10 to 15,000 inhabitants, the only statistically significant growth factor is the number of schools. It is noteworthy that this indicator is no longer playing a leading role in the growth of the city (from 20,000 to 50,000 people). It varies considerably in these groups (from 0 to 33). For these groups of cities insignificant or sometimes negative factors are the development of culture and leisure, urban budget expenditures. The sports factor retains a high importance.

### Conclusion

Thus, we can see that in regional economic science new factors promoting urban attractiveness are emerging and actively researched, which explain the growth of not only large, but also medium-sized and small settlements. High-order urban functions and borrowed size determine to some extent the development of Russian cities. The set of significant factors varies depending on the size of the city, but the availability (and number) of schools and the opportunity for children and

adolescents to do sports remains an important condition. For small towns (with a population of up to 10,000 people) the role of all the studied factors is important.

The use of the dynamic approach showed that the polycentricity of the urban system in the regions of the Central Federal District tends to increase, and the total number of urban residents is decreasing.

In our opinion, the Herfindahl – Hirschman index cannot be considered an exhaustive indicator and requires additional analysis or modification, which could be the subject of an independent study. Its value as an indicator of polycentricity of the urban system depends on the number of cities in the region and their size by number of inhabitants. It is necessary to understand that an equal indicator of polycentricity can be observed in regions with different system of cities. But in general, the Herfindahl – Hirschman index is widely used in economic geography, and its application, for

example, in assessing the degree of monopolization of industries in the United States, occurs without adjustment for the number of firms in an industry.

The results of the study can be useful for scientists to further develop the ideas of using static and dynamic analysis to assess the reasons for the attractiveness of cities, justify the “borrowed size factor”, determine the general trends in the formation of the system of cities. The practical value of the work lies in a better understanding of the principles of creating an attractive city for residents at different stages and conditions of its development, which can be used in the development of appropriate socio-economic programs at the city and regional levels.

In the further stages of the study it is planned to assess the impact of factors on the growth of cities in the dynamics, to analyze the trends of polycentricity of urban system of regions and to include in econometric models of distance variables to identify the “borrowed size”.

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## Agent-Based Modeling in the Formation of an Effective Territorial Network of Forest Roads



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**Abstract.** The paper considers conceptual and methodological aspects in creating computer simulation agent-based models which provide decision-making on the formation of an effective territorial network of forest roads. The key aim of the research is to interpret and test a service-oriented approach to building such models. The approach is based on the principle of interaction between the following objects distributed in space: service providers and consumers. We consider issues related to constructing and operating a network of forest roads used for forest harvesting processes. Complexity in solving these problems is due to a large number of interacting elements and estimated parameters that differ in their impact on the system depending on a particular territory. Thus, such problems are solved using simulation modeling methods, in particular, the agent-based approach, which is one of the most promising ones among them. At the same time, it is determined that they are constructed without using a formalized methodological framework, which does not allow us to interpret the results obtained here as a unified concept of formation of agent-based models in the subject area. To fill this niche, we propose our own concept based on the service-oriented approach. We present main fragments of formal description of the approach and describe some aspects of its applied interpretation using a prototype of game agent-based model in AnyLogic environment. We use general scientific methods: formalization, abstraction, generalization; methods of system analysis and agent-based modeling. As a result of the work we developed and tested our own concept of agent-based modeling of effective territorial transport infrastructure of the harvesting system. The novelty of the concept lies in the use of service-oriented approach. In addition, the concept can be used as a universal basis for building the models in question. This will require the development of methodological aspects of its application, a full-scale interpretation of the possible uses, as well as practical testing on real systems.

**Key words:** harvesting system infrastructure, transport accessibility of forest resources, efficient road network, agent-based modeling, service-oriented approach.

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### Introduction

Global consumption of all natural resources is expected to increase from 92 billion tons in 2017 to 190 billion tons in 2060, according to the State of the World's Forests 2022 report by the UN Food and Agriculture Organization. Consumption of biomass, the largest consumer of which is the forest and wood industry, will increase from 24 billion tons to 44 billion tons<sup>1</sup>. Sustainably meeting the demand for forest biomass will require an increase in the supply of forest resources. The Russian Federation has enormous forest resources. However, most

of the forests grow in harsh climatic conditions; this fact causes high costs of timber harvesting and transportation (Grebenyuk, Garus, 2014). In this connection, the question of the possibility of building an effective territorial infrastructure of the harvesting system is of particular relevance. It is for a reason that the expansion of the forest road network is stated as one of the basic conditions for the transition to the intensive forestry model in the Strategy for the Development of the Forest Sector of the Russian Federation until 2030. According to calculations by the All-Russian Forest Inventory Organization, the development of the estimated

<sup>1</sup> The State of the World's Forests 2022. Available at: <https://doi.org/10.4060/cb9360en>

logging area requires at least seven kilometers of all types of roads per one thousand hectares of forest area. Now this figure is 2.4 kilometers<sup>2</sup>. The most significant shortage of roads is observed in the zone of perspective forest development, which causes an unequal degree of technological impact on the forest ecosystem in terms of harvesting wood resources, creating risks of deforestation of some areas and the formation of large areas of overmature forests in others. In this regard, the development of a network of forest roads represents one of the key tasks in improving the efficiency of forest management (Mokhirev et al., 2017).

The functioning of the harvesting sector is ensured by a set of production and transportation facilities. The parameters of the location of facilities, their design and technological solutions determine the costs of logging production, its efficiency and safety (Afonichev et al., 2014). The issue of financial investments in road construction to date remains debatable (Kuryanov, Morkovin, 2009). The profitability of forest road construction is estimated by calculating the optimal density of the road network. Optimization of road network density is reduced to the problem of comparing the costs of timber transportation with the costs of construction (Gerasimov et al., 2009). The search for the optimal option is due to the fact that improving the quality of the road makes it more expensive, but simultaneously reduces the costs of directly transporting timber (Mokhirev et al., 2019). To determine the economic feasibility of constructing timber roads, additional capital investment should be compared with savings in current production costs. These savings are obtained not only on transportation operations. Good roads

ensure smooth functioning of all links of logging production, which promotes the maximum use of fixed assets and labor resources and raises the level of its organization. As a result, the cost of timber harvesting is reduced by 20–80% (Pochinkov, 2000). The effectiveness of investment in the construction of new transportation routes can be assessed by the increase in the regional gross domestic product; the effectiveness increases if other natural resources are used in the region along with forests (Yakusheva et al., 2014).

The general task of creating a territorial network of forest roads is formulated as follows: to select the locations and parameters of infrastructure nodes and routes between them, as well as the structure and movement patterns of vehicles of the logging system so as to provide the most cost-effective option for harvesting and transportation of forest resources for a long period, taking into account their effective renewal, from the nodes of forest plots of the territory to infrastructure nodes of primary processing or warehousing. The complexity of this task involves the use of modern tools capable of supporting management decisions in this area. Methodological tools and software developed in foreign countries are not always applicable in Russian natural-production and economic conditions. In Russia, the approaches to substantiating the parameters of transportation of wood resources are not yet well developed, and the available Russian scientific works do not solve a whole range of tasks related to the development of national forest transportation potential. This indicates the need to conduct scientific research to improve the transport and economic accessibility of wood resources of the Russian Federation (Mokhirev, Rukomoynikov, 2022) and the relevance of such research works. Agent-based modeling can be used as one of the

<sup>2</sup> Roslesinforg has counted the amount of kilometers of forest roads. Available at: <https://roslesinforg.ru/news/all/4449/>

most promising tools of this kind; in recent years it has been increasingly used in works on the forest complex.

The main purpose of the study is to interpret and test the service-oriented approach to the construction of agent-based models that ensure the formation of an effectively functioning territorial network of forest roads.

New scientific results include the development of our own concept of creating agent-based models using the service-oriented approach to model effective territorial transport infrastructure of the logging system and its practical validation.

Practical significance of the results consists in the development of a methodology for creating agent-based models, providing decision support processes for the formation of a territorial network of forest roads.

### Methods

To date, there exist certain studies devoted to individual problems of spatial network formation, such as the location of network nodes, evolution of transport networks, taking into account their use by business entities. Methods that substantiate the search for shortest paths between graph nodes are described in (Bellman, 1958; Dijkstra, 1959; Moore, 1959; Floyd, 1962). They allow analyzing static elements in the operation of enterprises and serve as a basis for the implementation of stationary-dynamic problems of flow programming in the rationalization of flows in transportation systems (Mokhiev et al., 2019). A number of scientific papers present mathematical models aimed at solving the problem of optimizing the structure of the forest sector with a focus on location and accessibility. A.G. Tret'yakov (Tret'yakov, 2019) uses the simplex method of linear programming to solve such problems (Kumar, Kaur, 2010). Mathematical models presented in the works of

I.R. Shegelman (Shegelman, 2001; Shegelman, et al., 2005) are designed to substantiate end-to-end flows of wood harvesting, transportation and processing. Optimization models proposed by B.A. Il'in (Il'in, 1987) allow us to calculate the width of the gravity zone of a temporary road. The solution to the problem of finding the optimal route of timber transportation from the logging site using Dijkstra's algorithm and dynamic programming method is presented in (Mokhiev et al., 2018). In a scientific publication by E.G. Gladkov (Gladkov, 2005), a mathematical model of logging enterprise functioning is described.

However, the possibilities of practical use of the considered methods are small. Such models, as a rule, are static and are calculated on examples with a small amount of input data. They characterize the possibility of passing only one flow variant through the arcs of each time interval and do not take into account the specifics of the logging industry, which provides for the need for an integrated solution to the problems of developing several logging sites within one time range when substantiating a schedule for the technological process of logging operations (Mokhiev et al., 2019).

Many scientists have investigated the possibility of applying simulation modeling to solve problems related to increasing the efficiency of logging production (Sukhanov et al., 2012; Vasil'ev and Kornyl'eva, 2015; Rukomoynikov et al., 2020; Lim, 2012). Simulation modeling provides a detailed description of the system and allows analyzing its dynamic characteristics (Makarov et al., 2019; Rossoshanskaya, 2019). The available models cover a wide range of tasks in the subject area under consideration: finding optimal timber transportation routes (Sokolov, Osipov, 2017; Komarov et al., 2019), organizing the interaction of truck trains (Nikitin et al., 2016), choosing the

type of road to be designed on the transport network section (Mokhirev et al., 2019), organizing transport flows<sup>3</sup>, optimal timber cargo flow distribution<sup>4</sup>, synthesis of an optimal logging plan (Gerasimov et al., 2011). The set of methods used is diverse: Petri nets (Sokolov, Osipov, 2017), fuzzy networks (Komarov et al., 2019), Monte Carlo method (Nikitin et al., 2016), mathematical modeling and geoinformatics (Gerasimov et al., 2011; Mokhirev et al., 2017), discrete-event and agent-based modeling (Mokhirev, Rukomoynikov, 2022). Significant opportunities for solving the problem of efficient use of forest resources of territories are provided by agent-based modeling tools (Gulin, Antonov, 2017; Huff et al., 2015). Their significant advantage is the ability to take into account the dynamics of changes in the characteristics of the entities over time and their spatial location, as well as the structure of relationships between the entities under consideration (Arifin, Madey, 2015; Janssen, 2017; Scholz et al., 2017; Holm et al., Fitzpatrick, 2018; Zupko, Rouleau, 2019; Scholz et al., 2021; 2018; Sotnik et al., 2021). The problem is that such models are constructed without using a formalized methodological framework. This does not allow the results obtained here to be interpreted as a unified concept for the formation of agent-based models in this subject area.

<sup>3</sup> Ivannikov V.A. (2019). *Sovershenstvovanie sistemy formirovaniya gruzopotokov lesomaterialov na smezhnykh vidakh transporta: dis. ... d-ra tekhn. nauk: 05.21.01* [Improving the System for Forming Timber Cargo Flows on Related Modes of Transport: Doctor of Sciences (Engineering) Dissertation]. Voronezh.

<sup>4</sup> Pilnik Yu.N. (2019). *Metody i algoritmy sinteza organizatsionnykh struktur formirovaniya setevykh gruzopotokov lesomaterialov mnogourovnevnykh transportno-tekhnologicheskikh sistem: dis. ... d-ra tekhn. nauk: 05.21.01, 05.13.10* [Methods and Algorithms for the Synthesis of Organizational Structures to Form Network Cargo Flows of Timber of Multi-Level Transport and Technological Systems: Doctor of Sciences (Engineering) Dissertation]. Voronezh.

As part of the solution to the indicated problem, we developed a concept of agent-based modeling for effective territorial transport infrastructure of the logging system, based on the service-oriented approach (Dianov, 2020). The fundamental element of the concept is a model ( $M$ ) based on the interaction of mobile and stationary services and users. All objects of the model can act in the roles of consumers and service providers. As part of the service delivery process, they must interact either directly or using other model objects. The interaction is carried out in the configuration of the territorial transport network. In the process of service provision the values of a given set of parameters for assessing the success of the model – the target values ( $CRP$ ) are formed. The main purpose of modeling is to find the most optimal architecture for the functioning of the modeled system based on the values of the target indicators with the available resources ( $mLim$ ).

There are the following elements of the model.

1. Nodes ( $U$ ) – points in space, where model objects can be located. Each node has its own identifier ( $uID$ ).
2. Tracks ( $S$ ) connect nodes. The model objects move along them. They contain the following set of attributes: identifier ( $sID$ ); connected nodes  $uID(U_1)$  and  $uID(U_2)$ ; type ( $sT$ ); length ( $sL$ ); set of state parameters ( $ps$ ). The set of parameters defines the characteristics of movement along the path of model objects. Examples of such parameters are minimum depth of a waterway, smoothness of a roadway, etc. Each parameter has a name ( $psNm$ ), a domain ( $psD$ ) and a value ( $psV$ ). The domain defines the range of possible parameter values. Tracks can be combined into routes ( $W=\{S\}$ ).
3. Objects ( $O$ ). They can denote a wide range of various elements of the system being modeled. They have a name ( $oN$ ), a place of permanent

dislocation in nodes (oConstD), a type (oT). An important object parameter is the mobility type (oTyMob). Its domain contains two values: true and false. When oTyMob=false, the object is stationary. In this case, it cannot move independently (or at all) from the node of its defined dislocation. If oTyMob=true, then the table of characteristics of its mobility (oTabMob) is formed in the parameters of the object. It defines possible types of paths of object movement and average speed of object movement (oSPEED) by each of them:  $oTabMob = \{ \{sT, oSpeed\} \}$ . The current dislocation parameter (oCurD) is also defined for this type of objects.

Sets of needs ( $O(\{oNeed\})$ ) and services provided ( $O(\{oServ\})$ ) are associated with each object type. At the object level, a set of activated needs ( $O(\{oNeed\}^A)$ ) and services ( $O(\{oServ\}^A)$ ) are maintained at each simulation time. The activated needs contain the names of the needs and the sets of parameters characterizing them:  $oNeed_i^A(oNeedName_i, \{oNeedParNm, oNeedParV\})$ . Here, each parameter has a specific value oNeedParV. Activated services contain a mapping of the object  $O_k$ , to which a service is provided, and its activated need  $oNeed_t^A(O_k)$ , as well as the name of the service provided  $oServName_p$  and the place of its provision  $U_m$ .

Needs and services are processed within the object behavior model. The needs arise from a certain state of the object parameters (oPar). The parameters have a name (oParNm), a domain (oParD) and a value:  $oPar = \langle oParNm, oParD, oParV \rangle$ . A separate needs identification module (oNeedModId) is formed for each need in the object behavior model, where formulas (F) are defined, by means of which the task of identifying each need is solved. The identified needs are placed in the set of activated needs.

In the object behavior model, for each need, the module of its realization is defined. It is divided into two blocks: a block of service search and a block of service access.

When searching for a service provider, objects can use active and passive behavior. In the passive behavior, they either inform the service providers about the existing need and wait for their reaction, or simply wait for the service providers to show interest in them. In the first case, a message containing the name of the author of the message and the activated need is sent to the objects providing the desired service:  $msgNeedA(oN^{this}, oNeed_i^A)$ . In the second case, the service search block is not defined. A distinctive feature of this type of behavior of objects is their complete passivity in the choice of provider – providers themselves in competition determine which of them will provide a service.

In the case of active behavior, objects independently search for a service provider. The search is associated with selecting the best option for the needs of the object at the current time. For this purpose the fit criterion of service provider selection (CrFS) is defined. It can be both a minimization criterion and a maximization criterion for different choices. When calculating the criterion, the parameters of access paths to the service, the object of the service and the object itself are analyzed:

$$CrFS = \left\{ F \left( \begin{matrix} W_i(sT, sL, pS), O_j(oTyMob, oTabMob, oConstD, oCurD, oPar) \\ oTyMob, oTabMob, oConstD, oCurD, oPar \end{matrix} \right) \right\}^{CountOS};$$

$$\min/\max(CrFS) \rightarrow \langle O^S, U^S, W^S \rangle,$$

where  $O^S$  is the selected service object,  $U^S$  is the service receiving node,  $W^S$  is the access route to the service receiving node.

The service search block functioning algorithm includes the following steps: generation of possible interaction routes; calculation of the fit criterion for service provider selection for each

route; selection of the fit option; forwarding a message to the selected service providing object, which contains the service receiving object name, demand and service receiving place:  $\text{msgNeedO}(\text{oN}^{\text{this}}, \text{oNeed}_i^A, U^S)$ .

The service access block is defined only for mobile objects. It is used when the node of service providing does not coincide with the node of the current dislocation of the object receiving the service. It is also activated when a message is received from the service object about the node where the service will be provided and the path to it:  $\text{msgServU}(U^S, W^S)$ . According to the defined access route to the service receiving node, the object is moved. The parameters of movement depend on the parameters of the object itself and the parameters of the paths that make up the route. The total time for the passage of the route is determined by the sum of the time spent on the paths, which make up the route. In turn, the travel time is determined based on some functional dependence:  $t_i = F(\text{sL}, \text{pS}, \text{oSpeed}, \text{oPar})$ , where  $\text{oSpeed}$  is selected from the table of object mobility characteristics  $\text{oTabMob}$ . The service access block can also define the effects an object has on the parameters of the paths it travels, as well as the change in the parameters of the object after it has traveled the path.

Behavior model for each service providing object contains modules of service identification, service commitment and service provisioning.

Service identification module is used in the cases, when a service providing object carries out an independent search of objects for service provision. The algorithm of its work consists of the following steps: searching in the set of active needs of the object  $O(\{\text{oNeed}\}^A)$ ; determining the fact of servicing the need; if the fact of servicing the need is not confirmed, the object prepares and sends to

its address a message, containing the name of the object, which needs a service, and the activated need:  $\text{msgNeedA}(\text{oN}, \text{oNeed}_i^A)$ .

The service commitment module receives at its input the messages about the need for a service. Here the problems are solved concerning the service provision possibility and, in case of a positive decision, its parameters. To determine the service provision parameters, a service provision efficiency criterion (CrES) is calculated for all the possible ways of service provision (CountW), taking into account the mobility of interacting objects:

$$\text{CrES} = \frac{\{F(W_i(\text{sT}, \text{sL}, \text{pS}), O_i(\text{oTyMob}, \text{oTabMob}, \text{oConstD}, \text{oCurD}, \text{oPar}), \dots)\}^{\text{CountW}}}{\min/\max(\text{CrES}) \rightarrow \langle U^S, W^S \rangle};$$

After selecting the service provisioning parameters, the object enters into a dialog with other model objects that plan to commit to providing the service under consideration. In this dialog the objects exchange information about the calculated service provision efficiency criteria. According to its results, the object providing the service is selected, which prepares and sends itself a message containing the name of the object of service receipt, the need, the place and the path of service receipt:  $\text{msgNeedO}(\text{oN}, \text{oNeed}_i^A, U^S, W^S)$ . When the node of service provision does not coincide with the node of the current location of the mobile object of service receipt, it receives a message containing the node and the path of service receipt  $\text{msgServU}(U^S, W^S)$ . At the same time, the corresponding element in the set of activated services of the object is formed.

The service provisioning module is activated when messages with the parameters accepted for processing are received. Here the problems of transfer to the service provision node and the service provision are solved.

The block of moving to the service providing node is defined only for mobile objects. It is used, when a service provisioning node is not the same as the object's current location. Its content is similar to the service access block that is considered for the objects that implement the needs.

After the block of moving to the service provision node is processed, the block of service provision is activated. The first step in this process is the monitoring of the objects' location in the node. If this condition is met, the service provisioning process is initiated. The process implies the alteration of the interacting objects' parameters within a certain period of time. The magnitude of changes at each time step depends on the set of values of the current parameters of the objects:  $oPar_i(O^N) := F(oPar(O^S), oPar(O^N))$ ;  $oPar_i(O^S) := F(oPar(O^S), oPar(O^N))$ . The service provisioning stops when certain values in the parameters of the service provisioning object specified in some service parameters are reached:  $oPar_i(O^N) < oServPar_j(O^S)$ . After that, the corresponding elements are removed from the sets of activated needs and services of the interacting objects.

Various architectural compositions of the system being modeled are formed in the process of modeling. The number of possible variants is limited by the specifics of the subject area and the constraints of available mLim resources. Further, simulation by each of the variants within a certain simulation time  $TM$  is performed. According to the results, the values of model effectiveness indicators (IE) are calculated, which are derived from the values of the model objects' parameters observed in the course of the modeling:  $IE_i = F(\{oPar^{O \rightarrow TM}\})$ . The set of obtained indicators for each model is compared with the set of target CRP indicators, and the most optimal variant of the architecture of the simulated system is determined.

## Results

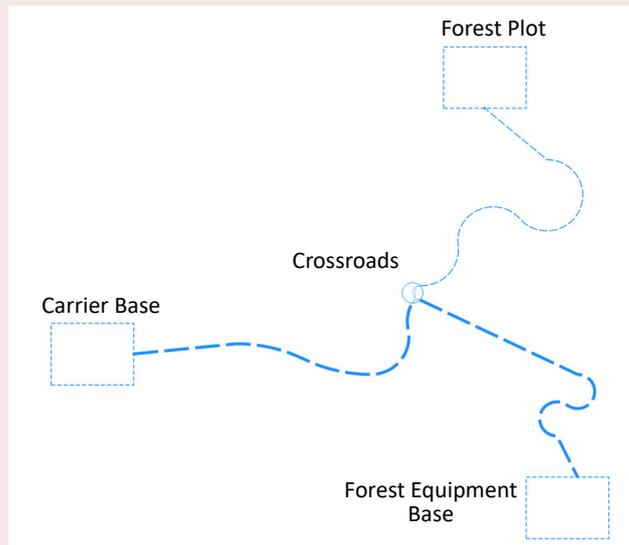
In order to test the presented concept in its individual aspects, as well as to demonstrate the possibilities of its interpretation, a prototype of the agent-based model of the logging infrastructure has been created. It is not a representation of the real system. At this stage, we did not seek to make the model as close as possible to the subject area. Many elements of the prototype are of demonstration nature. The process of harvesting with the use of motor roads is considered. Cut-to-length logging is used. It is assumed that there are two transportation bases: a logging equipment base and a heavy-duty truck base capable of transporting logging equipment. They are connected by an automobile road. There is a forest plot to which a forest road is laid from the automobile road connecting the transport bases. One harvester is placed on the logging equipment base. In order to simplify the model at this stage it was decided not to simulate forwarder operation. One vehicle is placed on the basis of automotive equipment. A forest massif grows in the forest area. When it matures, the harvesting process begins. A truck is used to transport the harvester to the forest road. The harvester then drives on its own to the forest and begins logging. At the end of logging, the harvester travels to the forest road and is then taken back to the base by the truck. The modeling process takes place over a long period of time, during which several moments of forest maturity occur at the site. The characteristics of the forest road deteriorate as vehicles pass through, which affects the parameters of its passage by vehicles. The purpose of the modeling is to examine the cost-effectiveness of forest road pavement quality. Profitability of logging process acts as a criterion for model evaluation. It depends on the profit received as a result of wood harvesting and the costs incurred in the logging process. A conditional simulation time is used, which is not related to the time of real processes.

A prototype model has been created in Any-Logic. There are four nodes in the model (*Fig. 1*): node (Carrier Base), the location of heavy-duty vehicles that provide transportation of logging equipment; node1 (Forest Plot), the location of the logging site; node2 (Crossroads), general location where all tracks intersect; and node3 (Forest Equipment Base), the location of logging equipment.

Three path elements were created: path that connects node and node2; path1 that connects node2 and node1; path2 that connects node2 and

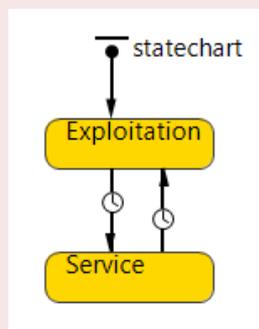
node3. Path and path2 represent public roads, while path1 represents a forest road. The set of properties of these elements contains a single attribute – Quality – that defines the quality of the road surface. The domain of its values includes real numbers in the range from 0 to 1. In the prototype model this parameter is defined only for path1 element. Based on the specifics of the modeling environment used to work with the parameters of the elements, an agent is created for each of them. In this case, the Way agent is created, containing the quality parameter. This agent has two states (*Fig. 2*):

Figure 1. Layout of nodes of the prototype model



Source: own compilation.

Figure 2. Diagram showing the states of the Way agent



Source: own compilation.

Exploitation and Service. In the Service state, the value of the Quality parameter increases. The transition to this state is carried out according to the set time interval (Service\_period).

At the prototype level of the model, the path type attribute is currently not used. It is assumed that the objects available in the model can move strictly along the routes defined for them. Path lengths are also conditional.

Three objects are defined in the model: forest plot, harvester and car transporter. The forest plot is set as stationary. The other two objects are set as mobile. In tables of mobility characteristics of these objects the average speed of their movement is defined. The harvester object can move only on a forest road, and the car transporter object can move only on public roads.

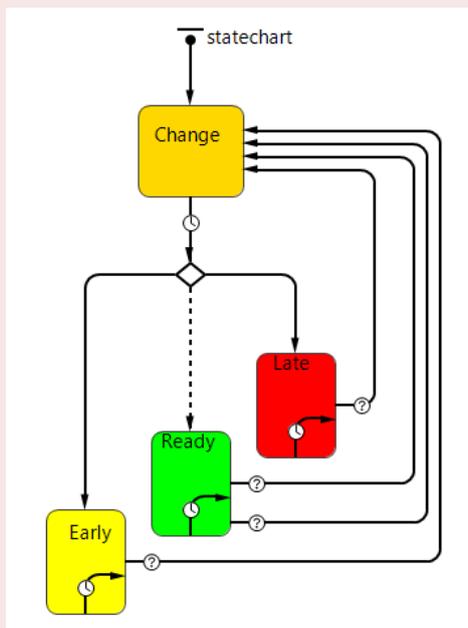
Needs are defined at the level of forest plot and harvester objects. For the first object it is the need for logging, and for the second object it is the need for delivery to the forest road. Services are defined

at the level of harvester – logging, and truck – equipment transporting.

The forest plot object has the following parameters: stand age (Age), stand area (Square), stand volume (Volume). At each simulation step, the value of the Volume parameter changes depending on the current values of the Age and Square parameters. The need for felling occurs when the stand reaches a certain age. When searching for a service provider the forest plot object has a passive behavior. It sends a readiness message to the harvester object.

In the simulation environment, the forest plot object is implemented using two agents: Les and Manager. The former generates the values of the object parameters, and the latter monitors the current state of the object and sends a message when the need for harvesting arises. Les agent has three states that characterize the age of the stand (Fig. 3): Early, Ready, and Late, as well as the state of age transition (Change).

Figure 3. Diagram showing the states of Les agent



Source: own compilation.

Manager agent can be in two states (*Fig. 4*): monitoring the state of Les agent (Select) and waiting for the end of the felling service (Wait). While in the Select state, the agent checks the state of Les agent at certain intervals. If the state equals Ready, the agent sends a message to the harvester object about the need for service. After the message is sent, Manager agent enters a Standby state. It stays in this state until it receives a response message from the harvester object about the end of the service.

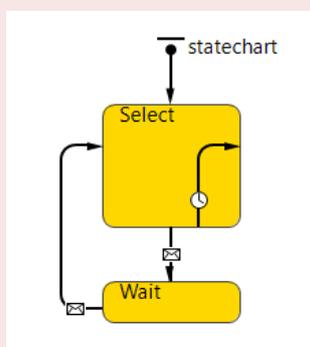
The Harvester object has a Performance parameter – the amount of forest it can cut in a certain amount of time. When rendering a logging service, it changes the Volume and Age parameters of the forest plot object. At the same time, it increases the value of the parameter of the total harvested volume (Zagotovleno). This parameter is defined on the general model level. The harvester object is implemented in the modeling system in the form of Harvester agent. This agent has many states, which can be arranged into the following groups: waiting for a request to provide logging service; receiving the service of transportation to the forest road; moving by the forest road to the forest plot; providing logging service; moving by the forest road to the public road; receiving transportation

service to the forest machinery base. The need for transportation service arises upon receiving a message from the forest plot object about the service request or after the end of the service provision after moving to the public road. The harvester object has a passive behavior when searching for a service provider. In this case, it sends a message to the car transporter object about the availability of the corresponding need. The message parameters contain information about the delivery location.

The car transporter object is implemented as Auto agent. The agent activates the service delivery functionality after receiving a message from the harvester object. It moves the harvester to the node specified in the message. At the same time, it moves to the current location of the harvester in advance. After the service is rendered, Auto agent moves to the node (Carrier Base).

At the level of Harvester and Auto agents, Current\_time variables are defined, which record the time of their current operations. The variables Time\_harvester and Time\_auto, which accumulate the total time spent by Harvester and Auto agents to perform operations, are introduced at the general model level. The variable Service\_count is introduced into the model to calculate the number of service operations.

Figure 4. Diagram showing the states of Manager agent



Source: own compilation.

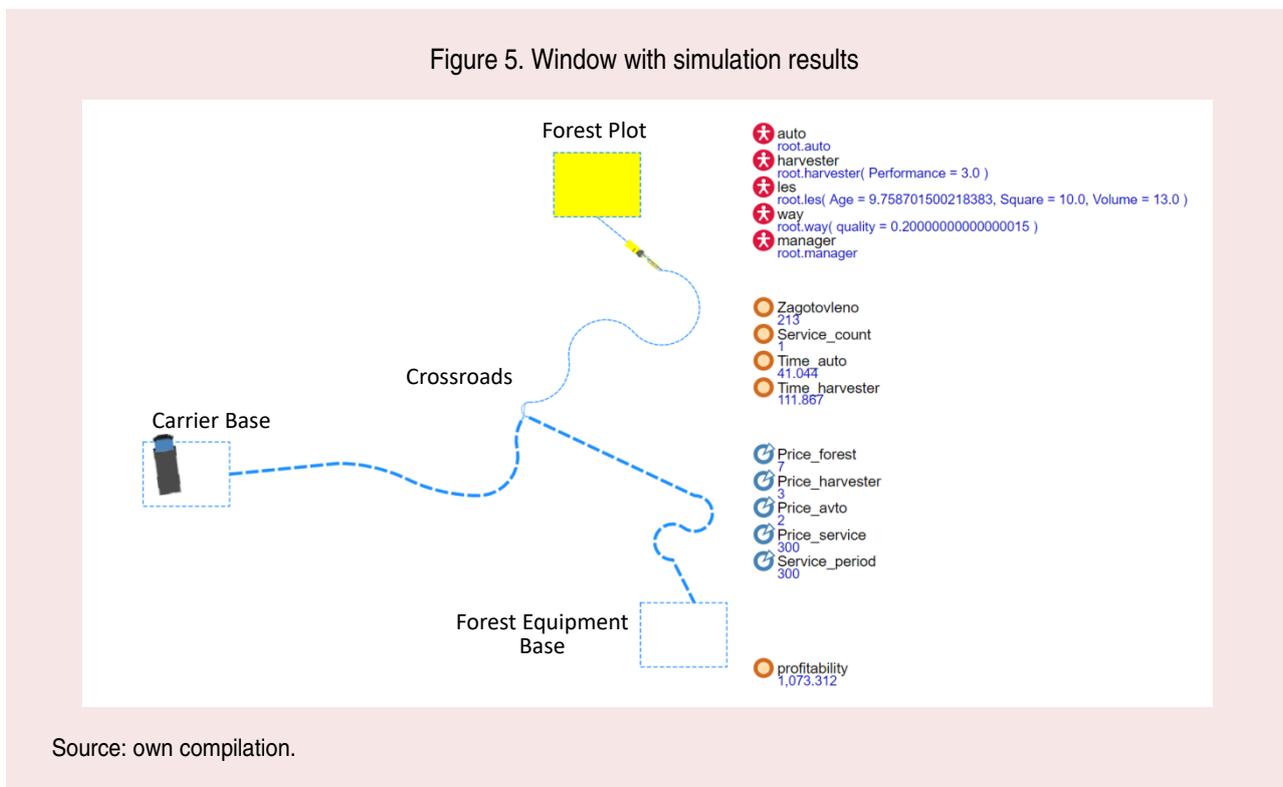
The adjustable parameters in the model prototype are the cost of harvested timber per unit volume (Price\_forest); cost of using a truck per unit time (Price\_avto); cost of using a harvester per unit time (Price\_harvester); cost of forest road maintenance (Price\_service); period of forest road maintenance (Service\_period).

Profitability of the logging process is the target indicator for the created prototype of the model. To calculate it we introduce profitability variable into the model. It is updated at each step

of model time:  $profitability = P_{r_{price\_forest}} \times Zagotovleno - (P_{r_{price\_harvester}} \times Time\_harvester + P_{r_{price\_avto}} \times Time\_avto + Service\_count \times P_{r_{price\_service}})$ .

Using the created prototype model, we conducted a number of experiments (Fig. 5).

The Table shows the results of experiments related to changes in the forest road service period parameter while the other parameters remain unchanged. The total simulation time is 300 model time units.



Experiment results

No.	Service period, model time units	Volume of harvested wood, conventional units of volume	Profitability, conventional monetary units
1	300	213	1073.312
2	250	213	773.312
3	200	213	783.558
4	150	213	658.366
5	100	213	381.426
6	50	219	-419.146

Source: own compilation.

According to the results of the simulation, the following facts are noteworthy. The best result, in terms of profitability, was obtained with a service period equal to the model time. At the same time, the worst result in terms of profitability turned out to be the best in terms of the volume of harvested timber. I.e., due to better maintenance of the forest road, the speed of harvester movement along it to the place of harvesting increased. And this, in turn, provided a greater volume of logging during the simulated period.

### **Discussion**

Analyzing the obtained results, in general we can say that the goal of the research has been achieved. Using the practical implementation of the model prototype, we have conducted an interpretation and testing of the service-oriented approach to building agent-based models, which ensures the formation of an effectively functioning territorial network of forest roads. In particular, we have thought out and tested mechanisms to ensure the definition of target indicators and criteria for assessing the performance of the system in the presence of mobile elements; we have designed a spatial graph of the system functioning, taking into account the existing infrastructure, capable of reflecting the mobility of system elements; we have defined the composition and parameters of the system objects in accordance with the service-oriented paradigm; we have defined behavior models of system objects, taking into account their mobility and focus on the provision/consumption of services; distribution of system objects in the nodes of the spatial graph; the possibility of manipulating the parameters of objects and primary distribution of objects in the nodes of the spatial graph. At the same time, it is worth noting that the study did not interpret the mechanisms of formation of competitive behavior of model elements. This is

due to the desire to present a simplified version of the prototype model in order to consider it more efficiently. At the next stage of research, we are planning to develop a prototype model on the example of the real system. This will help to eliminate existing gaps in the interpretation of developed approaches to the creation of such a system, as well as to clarify them. Besides, the presented prototype in its current form is not intended for conducting experiments, according to the results of which one can make meaningful conclusions about the system under consideration. The obtained results can be interpreted only in terms of assessing their overall compliance with the simulated processes. At the same time, we should take into account that the created prototype model can be a foundation for building agent-based models of real systems. In developing the prototype, we are planning to take into account many factors affecting the structure of the transport network and the location of its individual component roads in the forest area, including (Ivanova, 2011; Chernyshova et al., 2019) the existing road network; natural and climatic conditions of the area; taxation characteristics of forest stands; relief, soil and hydrological features of the forest resource base area; provision of the area with local road construction materials, location of quarries; duration of winter and summer periods This will enable meaningful and practical interpretation of the modeling results.

### **Conclusion**

Currently, an urgent task for the Russian Federation is to use the enormous potential of available forest resources. At the same time it is necessary to solve the problem of their accessibility, in connection with which it is necessary to plan the formation of the most cost-effective network of transport routes in any project for the development

of forests in a certain territory. The long-term nature of investments should also be taken into account. The complexity of the problem lies in the fact that to solve it, it is necessary to work through many possible options, operate with a large set of various parameters, and predict the change in the system over time. We are working on the development of methodology for creating agent-based models, which provide decision-making support for the formation of an effective territorial network of forest roads. The presented research is devoted to eliminating the existing gap in the use of unified concept of formalization of the subject area, which is observed in the creation of such models. The results obtained will help to design a complete

mechanism for creating agent-based models, providing a consistent and complete cycle of stages, from the analysis of the subject area to the practical implementation and use of models. They are of practical significance in terms of interpretation of the concept of building agent-based models of forestry infrastructure formation and confirmation of the possibility of building models of real systems with its help, providing their evaluation and decision-making on development.

Thus, the work contributes to the development of theoretical and applied aspects related to creating agent-based models for the formation of an effectively functioning territorial network of forest roads.

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## International and Russian Approaches to Studying the Sustainable Development of Urban Environment: From Theory to Practice



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**Abstract.** We consider international and Russian approaches to the definition of sustainable development. The report *Our Common Future* was based on a triune concept of the sustainable development – environmental, social and economic. Gradually the emphasis of sustainable development has shifted from the global problems of continents, separate states and regions to studying the sustainable development of urban environment, as currently more than half of the world's population lives in cities. On the one hand, cities determine living standards, the improvement of which is a prerequisite for meeting basic needs for employment, housing, health care, education, and rest; on the other hand, they face problems such as lack of financial resources and jobs, increasing homelessness and poverty, widening the gap between the rich and the poor. We present an analysis of the accepted documents of the UN-Habitat on sustainable human settlements development on the Vancouver Declaration on Human Settlements (1976) to the *World Cities Report 2022: Envisioning the Future of Cities*. We present the European way

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through the European Charter. The main points and concepts of the sustainable development of big and small cities of Europe are considered from the Aalborg Charter (Denmark, 1994) to the Mannheim Message (Germany, 2020). We analyze northern city ranking, which has been implemented by the Rating agency SGM since 2013. We propose a methodology for assessing the sustainable development of northern cities on eight demographic and labor indicators; conduct a grouping of 115 cities of the Russian North on the types and indicators of the sustainable development, and mark 10 most sustainable cities and 10 – with the worst ranking. The considered theoretical provisions and practical results can be used for comparative studies and planning of territorial development. We suggest the directions for improving the sustainable development of Russia's northern cities.

**Key words:** UN-Habitat, European Charter, sustainable development of cities, Russian North, demographic and labor sustainability, rating score.

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### Introduction

Despite the wide range of relevant literature, it is hard to say with certainty, who and when first proposed the vision and rationale for sustainable development. Suffering appalling losses from drought or, conversely, from abundant rainfall, lack of breeding and insufficient use of fertilizer in growing crops, ancient farmers concluded that the farming process should be sustainable and it should be managed. In competition with wild animals for meat and game, primitive hunters recognized the necessity to domesticate animals to supplement plant-based diet with meat products in a permanent way. Statesmen understood the desirability of respecting both the rights of all groups of citizens and the rights and sovereignty of economically and politico-military weak states for the purpose of sustainable development (SD).

For the first time, the members of the Club of Rome started speaking systematically about sustainable development. Its first president Aurelio Peccei wrote: “Demographic crisis, unemployment, resource scarcity and mismanagement, pollution,

destruction of the biosphere and many other problems have intertwined like the tentacles of a giant octopus and entangled the entire planet”. A chain of gradual transitions was proposed: “growth in general – acceptable growth – dynamic equilibrium”. Particular attention was paid to the reasonable satisfaction of human needs. “The concept of need must be related to the possibility of its satisfaction, and human demands should be subordinated to the possibility of their reasonable provision. Otherwise we have nothing but chaos and disappointment ahead” (Peccei, 1985).

At the international stage, the concept of sustainable development appeared after the publication *Our Common Future* in 1987, the report of the UN World Commission on Environment and Development<sup>1</sup>. It first introduced the basic formulation “sustainable development

<sup>1</sup> *Our Common Future: Report of the World Commission on Environment and Development*. UN. Available at: <http://www.un.org/ru/ga/pdf/brundtland.pdf> (accessed: November 20, 2022).

is the development in which the needs of present generations are met without compromising the ability of future generations to meet their own needs". It contains the key idea of sustainable development as a balance between generations.

The concept of sustainable development has many aspects. It began with studying ecological, social and economic problems and then moved on to a more detailed study of social problems, including demographic, labor and migration aspects (Demographic and Labor Factors..., 2018), since this is where many of the most important challenges of the 21st century are concentrated. There is rapid population growth in some continents and depopulation in others, uncontrolled migration to European countries has increased. The fight against poverty and indigence has not yielded the necessary results. According to the World Bank, about 46% of the world's population lived on less than 5.50 dollars a day.

At the same time the issues of sustainable development of entire continents or their parts, states and regions began to be considered in relation to the sustainable development of urban space, separate cities. And it was not an idle interest – more and more people on planet Earth began living in cities. In the 1960s, C. Tilly drew attention to the increasing pace of urbanization: "In 100 B.C., less than 1% of the world's population lived in cities; in 1800 it was less than 5%, and only the 20th century is becoming the century of urbanization" (Tilly, 1968). According to Report UN-Habitat's State of the World's Cities – 2022, as "the urban population continues increasing due to higher fertility, especially in lower-income countries, it is projected that the urban population share of the total world population will rise from 56% in 2021 to 68% in 2050"<sup>2</sup>. In recent years, urban populations have been growing at an "average rate of 1.5 million people per week. Although cities occupy only 1% of

the landmass, they are responsible for 80% of energy consumption (and carbon dioxide emissions). For this reason, it is cities that are at the forefront of the fight against climate change" (Gil'en, 2022).

With growing importance of cities, the world community has begun adopting a number of fundamental documents on the sustainable development and condition of cities: UN-Habitat (1976), the European Charter of Local Self-Government (1985), the Aalborg Charter (1994) and others. In the Russian Federation, special attention is paid to the development and management of cities. In 2002, the Moscow Declaration was adopted, and in 2003 the Federal Law "On general principles of organization of local self-government in the Russian Federation" was published. In 2016 the passport of the priority program "Integrated development of single-industry towns" was approved. Every year ratings of cities by living standards, wages, amenities, development rate, climate, population, etc. are created. Since 2013 a rating of sustainable development of Russia's cities is published, and since 2022 a ranking of sustainable development of Russia's regions is made.

In the study of social sustainability, we proposed to single out demographic sustainability and labor sustainability into separate research fields, as in the long run they will have a determining influence on social development. Demographic sustainability proceeds from the fact that the quantity and quality of the population determine other types of sustainability; and labor sustainability determines the quality of life and human attitude to ward nature and society. Consequently, increasing the degree of demographic and labor sustainability will raise the overall sustainability of urban space.

The methodology was tested in relation to the northern and Arctic regions. The indicators used and the results obtained are presented in the papers (Fauzer et al., 2018a; Fauzer et al., 2018b). The next research step is supposed to move from the study of regions to urban space and sustainable development of cities.

<sup>2</sup> World Cities Report 2022. Envisaging the Future of Cities. Nairobi: United Nations Human Settlements Programme.

The focus of attention is on the cities of Russia's northern regions. The goal is to assess the labor and demographic sustainability of the cities of the Russian North based on international and Russian approaches to assessing the sustainable development of urban space. For its disclosure, we have set the following tasks:

- to systematize approaches to studying and assessing sustainable development of cities;
- to define a set of demographic and labor indicators to assess sustainable development of cities;
- to work out a methodology for assessing urban sustainable development by labor and demographic indicators;
- to rank the northern cities by demographic and labor sustainability; to give a brief description of the cities of leaders and outsiders in sustainable development, to identify the most important factors promoting sustainability for different groups of cities.

The information base is the data of municipal statistics.

The considered theoretical provisions, the proposed methodology and practical results can be used for cross-country comparisons. The first experience of such a study was obtained when working with colleagues from Kazakhstan<sup>3</sup> (Fauzer, Al'zhanova, 2022).

### **Theoretical provisions of sustainable development**

There are quite a lot of monographic works and research articles on sustainable development from the point of view of environmental, economic and social problems. There are significantly fewer studies on the assessment of demographic and labor sustainability, although these two areas, in our opinion, are key for social development. Without claiming to cover all monographs and dissertations

in full, we will name those that have fallen into the sphere of our attention. Earlier in the collective monograph, we made a fairly complete review of publications on sustainable development, including those posted on the platform of the scientific electronic library eLIBRARY.RU (Demographic and labor factors..., 2018).

The first works covering the northern territories include monograph of T.V. Uskova *Managing the Sustainable Development of the Region*, which examines theoretical and methodological aspects of sustainable development; reveals modern approaches to assessing the sustainability of regional socio-economic systems; shows the role of local self-government in ensuring sustainable development and increasing the regional competitiveness (Uskova, 2009).

The multidimensional monograph of the team of authors *Factors in Sustainable Development of the Russian Regions* is of interest. It gives approaches to the typology of regions by SD for various reasons, notes that ensuring regions' sustainable development is possible on the basis of stimulating the regional industrial complex, provides experience in studying the SD of Yakutia, the Saratov Oblast and Primorsky Krai (Borisova et al., 2015).

The monograph *Social Stability of the Region: Diagnostics and Development Problems* reveals the essence, structure, goals, principles and drivers of social stability of the region; systematizes modern approaches to the definition and study of social stability of territories. The rating of Russian's territories on the level of social stability and its components has been compiled. A complex of objective and subjective threats to social stability has been identified (Social Stability..., 2017).

In relation to the North of Russia, the monograph *Social Sustainability of the Russian North and the Arctic Regions: Assessment and Ways to Achieve* was published. The authors proposed an original methodology for assessing the social

<sup>3</sup> Program BR10965247 "Study of drivers, features and dynamics of demographic processes, migration, urbanization in Kazakhstan, development of digital maps and forecasts".

sustainability of the regions of the North and the Arctic, compiled their ratings, and performed mapping. To achieve social sustainability, a specific mechanism and algorithm of actions were proposed (Social Sustainability..., 2018).

Closer to the topic of our research is the monograph *Demographic and Labor Factors Promoting Sustainable Development of the Northern Regions of Russia*. It presents the world's systems of indicators for monitoring the Sustainable Development Goals at the intercountry, country and local levels; identifies factors and indicators for assessing demographic and labor sustainability; all northern regions are ranked by the degree of sustainability (high, medium, low, critical); shows the role and impact of population migration on the SD of the northern territories (*Demographic and labor factors...*, 2018).

The urban theme is raised in the work *Sustainable Development of Cities*, where a wide range of issues from "territorial and sectoral organization of society" to "accommodation of the population, industries and assessment of the environmental situation" are considered. The research focuses on the study of the "Nature – Man – Production" system and on the problems of the development of single-industry towns (*Sustainable development...*, 2019).

Of interest is the monograph of I.A. Verzhinina *Modern Theories of the City: Sociological Analysis*, devoted to the analysis of the theories most significant for the sociological understanding of urban space. The author presents a retrospective analysis of the development of urban studies, demonstrating in what perspective social issues were reflected in them, and then proceeds to consider theoretical developments in the field of urban studies that contribute to the enrichment of modern sociological knowledge. The monograph reconstructs the representations of the city as a social phenomenon characteristic of modern urbanism (Verzhinina, 2019).

The dissertations of Y.D. Yurkov<sup>4</sup> and M.Y. Osipova<sup>5</sup> are devoted to sustainable development.

There are works on demographic sustainability in foreign scientific literature (Roca et al., 2002; Camarinha-Matos, Afsarmanesh, 2010; Stern, 2013). For example, sustainability characteristics such as population size and density, urbanization degree, migration, gender ratio, age composition, level of education and employment are studied (Roca, Roca, 2014). From the point of view of labor factors, sustainable development is considered in the work of K. van Treeck. The analysis of the distribution of total income between the factors of production makes it possible to assess the degree of achievement of the sustainable development goal "decent work for all"<sup>6</sup>. However, this approach has some disadvantages, since other sustainability factors are ignored.

#### **Principles, concepts and programs of sustainable development of cities**

The study of urban space is based on the principles, concepts and programs set out in the documents of the United Nations, the European Charter and regulatory legal acts of the Russian Federation. Let us start with the general UN provisions and finish with the documents of the Russian Federation.

The first document on sustainable development of human settlements was the United Nations Human Settlements Programme, UN-HABITAT to promote sustainable human settlements development. In 1976, the First Habitat I Conference was held in Vancouver, Canada. It was emphasized

<sup>4</sup> Yurkov D.V. (2017). Migration management as a mechanism of sustainable development of territories: Doctor of Sciences (Economics) thesis. Kazan.

<sup>5</sup> Osipova M.Yu. (2017). Development of a static-dynamic approach to the assessment and management of sustainable development of the region: Candidate of Sciences (Economics) thesis. Perm.

<sup>6</sup> van Treeck K. (2017). The Role of Labor in Sustainable Development. Doctoral Thesis. Available at: <https://ediss.uni-goettingen.de/handle/11858/00-1735-0000-0023-3FB0-A> (accessed: December 1, 2022).

that there is an extremely difficult situation in the field of human settlements, primarily in developing countries; that “the situation in settlements determines the quality of life and determines the possibility of meeting such basic needs as employment, housing, medical care, education and recreation”. It was stressed that there is an “uncontrolled urban growth and the resulting conditions of overpopulation, pollution, environmental degradation and psychological tension in large cities”<sup>7</sup>.

In 1996, the Second Human Settlements Conference, Habitat II, was held in Istanbul (Turkey). It adopted two resolutions: the Istanbul Declaration on Human Settlements and the Habitat Agenda. The conference was devoted to two topics: “Adequate housing for all” and “Sustainable human settlements development in an urbanizing world”. The declaration notes that “among the most serious problems faced by cities and their residents are the lack of financial resources and jobs, the increase in the number of homeless and the proliferation of squatter settlements, the growth of poverty and the ever-widening gap between the rich and the poor, the deterioration of the security situation and the increase in crime, the deterioration of the housing stock, quality of services and infrastructure, lack of healthcare and education institutions, irrational land use, unreliability of land tenure laws, congestion of the road network, increased environmental pollution and a number of others”.

To address the highlighted problems, it is necessary to resolve the contradiction between “consumption and production”; “uneven settlement and concentration of population in limited areas, accompanied by an increase in poverty, destitution, unemployment, social isolation and a number of other social ills of urban communities”.

<sup>7</sup> Declaration of Principles: Vancouver Declaration on Human Settlements. Available at: [https://www.un.org/ru/documents/decl\\_conv/declarations/pdf/vancouver.pdf](https://www.un.org/ru/documents/decl_conv/declarations/pdf/vancouver.pdf) (accessed: November 20, 2022).

The SD goals require creating conditions for economic growth, social development and environmental protection<sup>8</sup>.

In June 2001, the 25th Special Session of the UN General Assembly “Istanbul + 5” was held in New York City, where the Declaration on Cities and Other Human Settlements in the New Millennium was adopted, reaffirming the commitment to the Istanbul Declaration on Human Settlements and the Habitat Agenda, which address “adequate housing for all, sustainable human settlements development, promotion and participation, gender equality, financing of housing and human settlements development, international cooperation and assessment of progress”. New initiatives in the spirit of the United Nations Millennium Declaration were also outlined. It was noted that “large and small cities have the potential to maximize the benefits and smooth out the negative effects of globalization. Rationally managed cities can provide an economic environment capable of generating employment opportunities for the population, as well as provide a variety of goods and services”<sup>9</sup>.

A new urban agenda was adopted at the UN Conference on Housing and Sustainable Urban Development (Habitat III), held October 17–20, 2016 in Quito, Ecuador. Habitat III members agreed that “cities will be the source of problems rather than their cause. If intelligently planned and efficiently organized, urbanization can be a meaningful tool for achieving SD in both developed and developing countries”. The program Habitat III would help “end poverty and hunger; reduce inequality; ensure economic growth and gender equality; increase resilience and protect the

<sup>8</sup> Report of the United Nations Conference on Human Settlements (Habitat II) (1996). Available at: [https://www.un.org/ru/documents/decl\\_conv/declarations/pdf/vancouver.pdf](https://www.un.org/ru/documents/decl_conv/declarations/pdf/vancouver.pdf) (accessed: November 20, 2022).

<sup>9</sup> Declaration on Cities and Other Human Settlements in the New Millennium. Available at: <http://www.unhabitat.ru/assets/files/publication/dg.pdf> (accessed: November 20, 2022).

environment”. The conference asked the Secretary-General to report every four years on the progress of the New Urban Agenda<sup>10</sup>.

The new UN-Habitat report (Katowice, Poland, June 29, 2022) *World Cities Report 2022: Envisaging the Future of Cities* aims to “provide greater clarity and understanding of the future of cities based on current trends, challenges and opportunities, and disruptive conditions, including valuable lessons from the COVID-19 pandemic”. The report’s time frame is defined as the “Decade of Action” window (2020–2030). For sustainable development of cities (SDC), “in low-income countries, urban density should be planned and managed so that future growth does not put pressure on existing open land, infrastructure, and services and result in crowding on the one hand, or unsustainable sprawl on the other”. It is noted that “cities create wealth but also concentrate poverty and inequality”. Sustainable development of cities will be facilitated by “integration of urban–rural connections”. The future of cities will be based “on knowledge, largely through innovation and the widespread use of new technologies, as well as the digitization of virtually every aspect of urban life”<sup>11</sup>.

The European states went their own way – through creating charters. The first document on sustainable development of cities can be considered the European Charter of Local Self-Government (Strasbourg, France, October 15, 1985). It emphasized that “local self-government is one of the main foundations of any democratic system”, and that “the right can only be exercised at the local level”. The document defines local self-government as “the right and real ability of local authorities to regulate and manage a considerable part of public affairs, acting within the framework of the law, under their

own responsibility and in the interests of the local population. The charter emphasizes that “changes in the boundaries of territories in which local self-governance is exercised are allowed only by taking into account the opinion of the population of the respective territories, including by holding a referendum where permitted by law. Finally, the principles of financial activity are defined, providing for financial equalization between weak and strong local governments; it is noted that “the subsidies provided are distributed by local governments within their competence and should not come under specific programs”<sup>12</sup>. Russia signed the charter on February 28, 1996.

The foundations of sustainable development of cities and towns were laid during the First European Conference on Sustainable Urban Development in the charter European Cities & Towns Towards Sustainability (Aalborg Charter, Denmark, May 27, 1994). It notes that “achieving the current level of resource consumption in industrialized countries is impossible for all living people, and even more so for future generations, without destroying natural capital. To realize the idea of SDCs, it is necessary “to strive for social justice, a sustainable economy and environmental sustainability. Social justice should inevitably be based on economic sustainability and equality, which requires environmental sustainability”. It is noted that “sustainability on the Earth is ensured by the sustainability of local communities”. It is suggested that emerging problems be solved at the city level, and if that is impossible, then to take them beyond its borders<sup>13</sup>. In Russia, 16 cities have joined the Aalborg Charter, including Izhevsk, Orel, Perm, Rostov-on-Don, Smolensk, and Stavropol.

<sup>10</sup> New City Development Program. Available at: <http://www.unhabitat.ru/assets/files/publication/Documents/NUA-Russian.pdf> (accessed: November 20.11.2022).

<sup>11</sup> World Cities Report 2022. Envisaging the Future of Cities. Available at: <https://unhabitat.org/wcr/#chapter-1> (accessed: November 20, 2022).

<sup>12</sup> European Charter of Local Self-Government. Available at: <https://rm.coe.int/168007a088> (accessed: November 20, 2022).

<sup>13</sup> Charter European Cities & Towns Towards Sustainability (Aalborg Charter). Available at: [http://www.ecology.donbass.com/articles-pdf/aalborgcharter\\_russian.pdf](http://www.ecology.donbass.com/articles-pdf/aalborgcharter_russian.pdf) (accessed: November 20, 2022).

In 1996, the Second European Conference on Sustainable Cities & Towns was held in Lisbon, Portugal, which adopted the Lisbon Action Plan: From Charter to Action, including the principle of negotiation, management tools, created North-South and West-East alliances<sup>14</sup>.

Further conferences on the sustainable development of European cities and towns were held in Hanover (Germany, 2000); Aalborg (Denmark, 2004); Seville (Spain, 2007); Dunkirk (France, 2010); Geneva (Switzerland, 2013); Basque Country (Spain, 2016).

The last conference was held in Mannheim, Germany, from September 30 to October 2, 2020, online. It discussed the European Green Deal. The central question of Mannheim 2020 was whether Europe could achieve a sustainable transition with the new European Green Deal. The European Commission conference presented the **Mannheim Message**, a local response to the European Green Deal<sup>15</sup>.

In the Russian Federation, considerable attention is paid to sustainable development of cities – June 5, 2002 in the State Kremlin Palace in Moscow, Russia held a national meeting “Ensuring the sustainable development of cities in Russia”, which adopted the “Moscow Declaration”. Legislative framework is actively being created. In 2003, the Federal Law “On General Principles of Organization of Local Self-Government in the Russian Federation” was published. In 2004 the City Planning Code was adopted, and the CIS City Planning Charter (2000) was ratified. In 2016 the passport of the priority program “Integrated development of single-industry towns”

was approved. Annual ratings of cities by living standards, wages, amenities, development rate, climate, population, etc. are carried out.

#### **Ratings and indicators of sustainable development of cities**

The compilation of ratings and indicator systems is one of the most important activities of international organizations, states, and scientists in the framework of sustainable development policy formation. Ratings make it possible to identify the strengths and weaknesses of different countries, territories and settlements, to track progress in achieving the sustainable development goals. They are used in the elaboration of strategic documents of socio-economic development.

Much experience has been accumulated in the field of compiling and scientifically substantiating ratings and indices of sustainable development of cities<sup>16</sup> (Arustamov, 2017; Bobylev et al., 2020). Many methods and approaches have been developed. For example, UN entities have considerable experience in this direction. Back in 1996, the Urban Development Index was developed by the UN Human Settlements Program (UN-Habitat)<sup>17</sup>. Another system of indicators was developed by the UN Commission on Sustainable Development<sup>18</sup>.

Based on the UN Sustainable Development Goals adopted in 2015, many countries began creating national systems of indicators. For example, the U.S. evaluated the sustainable development of 124 cities, and a group of Russian and Finnish scientists developed a system of indicators for the Arctic territories (Bobylev et al., 2018).

<sup>14</sup> The Lisbon Action Plan: From Charter to action. Available at: <http://www.ecology.donbass.com/articles-pdf/lisbon.pdf> (accessed: November 20, 2022).

<sup>15</sup> Program of 9th European conference on sustainable cities & towns. Available at: <https://conferences.sustainablecities.eu/mannheim2020/programme/> (accessed: November 23, 2022).

<sup>16</sup> Davis K.E. et al. (Eds.). (2012). *Governance by Indicators: Global Power through Quantification and Rankings*. Oxford: Oxford University Press.

<sup>17</sup> City Development Index. Available at: <https://unhabitat.org/> (accessed: November 23, 2022).

<sup>18</sup> *Indicators of Sustainable Development: Guidelines and Methodologies*. Third Edition. New York: United Nations, 2007.

In Russian publications, a significant place is given to the set of indicators and justification of their selection criteria for assessing the degree of sustainable development of cities. Three articles (Shabunova, Leonidova, 2011; Bobylev et al., 2014; Dolgikh et al., 2019) can be referred to as comprehensive works, and two articles – to Arctic topics (Gutman, Basova, 2017; Sergunin et al., 2021).

In Russia, the SGM Rating Agency has been compiling a ranking of sustainable development of cities since 2013, based on the principles of SD and international experience. The rating covers 185 large cities with population over 100 thousand people; it is aimed at highlighting the strengths and weaknesses of municipalities, setting guidelines for authorities and residents, creating incentives to achieve sustainable development goals, highlighting cities-leaders for potential investors.

The number and composition of sustainability indicators in the ranking has changed several times: 2012 – 32, 2013 – 30, 2014 – 32, 2015 – 31, 2016–2018 – 42, 2019–2020 – 43. The system of indicators includes three groups: economy and urban economy, social sphere and environmental situation. The choice of indicators was based on several principles: the openness of data (posting only on the official websites of cities and statistical bodies), completeness (for each indicator data are available for at least 95% of cities) and relevance – compliance with the objectives of sustainable development. We sifted out indicators with low reliability<sup>19</sup>.

In 2012 SGM rating base included 19 cities located in the Russian North (Khanty-Mansiysk was excluded – 85.0 thousand), in 2020 – 20 cities (Magadan remained in the base – 98.7 thousand). According to the ranking of the first 50 cities included nine northern cities, and in the top ten

– Khanty-Mansiysk and Yuzhno-Sakhalinsk. Except Syktyvkar, eight cities are located in the Asian North. In the rank from 51 to 100 included five cities, except Petropavlovsk-Kamchatsky, four are located in the European North. Five cities are in the 101–150 ranking. Kyzyl, ranked 165, is at the bottom of the ranking scale. We also can note that the ranking and sustainable cities development indices (SCDI) are closely correlated with each other. Only two cities in the first group worsened their ranking and SCDI: Nizhnevartovsk and Novy Urengoy (*Tab. 1*).

In 2020, 14 out of 20 northern cities exceeded the median value in Russia (0.491). However, nine northern cities have worsened their positions; six of the seven leaders are located in the oil and gas producing regions of Western Siberia. Their high indicators are provided mainly by the resource economy, which does not guarantee sustainability in the long term.

It is worth noting that since 2022 SGM Agency for the first time has compiled the Ranking of Sustainable Development of Russian Regions at the regional level. It evaluates all 85 Russian regions on the basis of 43 indicators, united in five blocks: economic development (including innovation), urban infrastructure, demography, social infrastructure and ecology. Of the northern regions, the best position is taken by Khanty-Mansi Autonomous Okrug – 6, the middle by the Republic of Sakha (Yakutia) – 39 and the worst by the Republic of Tyva – 81<sup>20</sup>.

Since the existing ratings do not assess the sustainability of small and medium-sized cities, they do not allow drawing conclusions about the vast majority of cities in the Russian North. In addition, they do not adequately represent demographic and labor components, especially important in

<sup>19</sup> Rating of sustainable development of cities of the Russian Federation. Available at: <https://www.agencysgm.com/ratings/> (accessed: November 23, 2022).

<sup>20</sup> Ranking of Sustainable Development of Russian Regions. Available at: <https://agencysgm.com/upload/iblock/05b/05b0bd931bf3a3023229ca5c429293b5.pdf> (accessed: November 20, 2022).

Table 1. Rating and index of sustainable development of cities of the Russian North, 2012 and 2020

City	SGM rating – 2012			SGM rating – 2020			Dynamics, 2012–2020		
	rank	population, thousand people	SCDI	rank	population, thousand people	SCDI	rank	population, %	SCDI
Khanty-Mansiysk	-	85.0	-	2	101.5	0.671	-	19.4	-
Yuzhno-Sakhalinsk	122	186.3	0.468	10	207.3	0.624	112	11.3	0.156
Surgut	34	316.6	0.559	11	387.2	0.618	23	22.3	0.059
Nefteyugansk	24	125.2	0.572	14	128.2	0.604	10	2.4	0.032
Nizhneartovsk	17	258.8	0.588	19	278.7	0.578	-2	7.7	-0.010
Novy Urengoy	3	112.2	0.642	26	118.1	0.567	-23	5.3	-0.075
Noyabrsk	64	109.2	0.520	30	108.4	0.563	34	-0.7	0.043
Yakutsk	124	278.4	0.465	40	347.2	0.538	84	24.7	0.073
Sykt'yvkar	112	254.5	0.476	42	259.3	0.535	70	1.9	0.059
Petropavlovsk-Kamchatsky	146*	179.8	0.394*	65	179.4	0.516	81	-0.2	0.122
Murmansk	126	305.0	0.463	68	282.9	0.512	58	-7.2	0.049
Arkhangelsk	113	356.5	0.476	69	352.0	0.511	44	-1.3	0.035
Ukhta	115	121.7	0.475	71	112.3	0.511	44	-7.7	0.036
Petrozavodsk	65	265.3	0.518	82	280.7	0.504	-17	5.8	-0.014
Magadan	118	102.1	0.472	120	98.7	0.467	-2	-3.3	-0.005
Norilsk	107	178.1	0.482	134	183.3	0.452	-27	2.9	-0.030
Severodvinsk	119	191.3	0.471	135	181.8	0.452	-16	-5.0	-0.019
Bratsk	139	243.9	0.445	140	225.0	0.448	-1	-7.7	0.003
Komsomolsk-on-Amur	103	260.3	0.484	146	241.1	0.444	-43	-7.4	-0.040
Kyzyl	148	112.0	0.428	165	120.1	0.420	-17	7.2	-0.008

Ranked by SCDI for 2020.  
\* 2013 data.  
Source: Rating of sustainable development of cities of the Russian Federation. Available at: <https://www.agencysgm.com/ratings/>

the conditions of the North due to the long-term migration outflow of the population and the large number of single-industry towns.

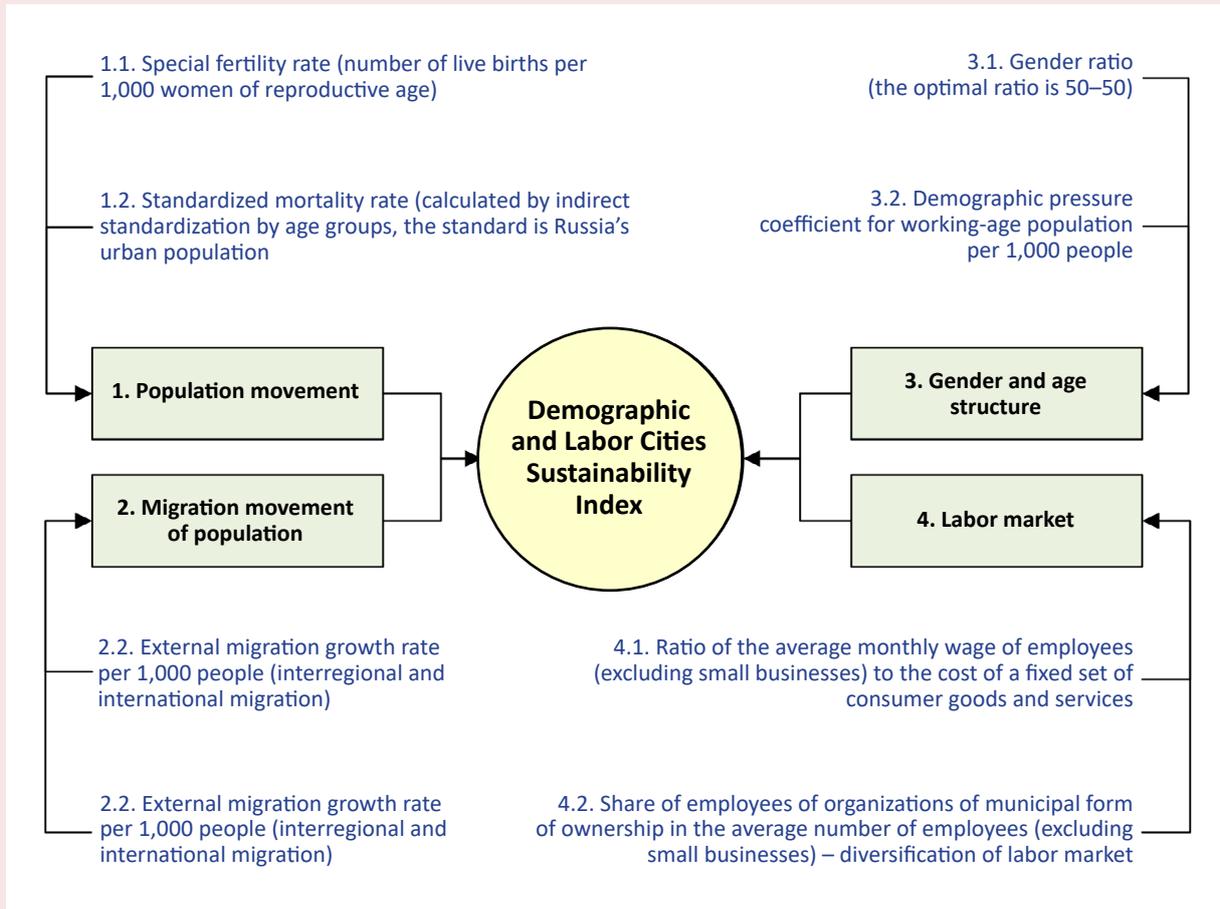
#### Methodology for studying sustainable development of cities by demographic and labor indicators

The cities of the Russian North are the research object. In addition to 13 regions, the territories of which are referred to the Far North and equivalent areas, we also considered six northern cities of Krasnoyarsk Krai (Norilsk, Lesosibirsk, Yeniseisk, Dudinka, Kodinsk and Igarka). In 2020, there were 123 towns in the regions under study, of which 107 were small and medium-sized; it means that their population did not reach 100 thousand people, and 16 towns were big and large. Since the statistics on closed administrative-territorial formations

is limited, eight cities were excluded from consideration: Severomorsk, Polarny, Gadzhievo, Snezhnogorsk, Zaozyorsk, Ostrovnoy, Mirny and Vilyuchinsk.

For the remaining 115 cities, we calculated eight indicators reflecting the main demographic and labor characteristics of the cities in terms of their sustainable development. The indicators are divided into four thematic blocks (*Fig. 1*). They are selected on the basis of the availability of official statistical data at the city level and compliance not only with the sustainable development goals, but also with the problems of development of the Northern cities. In particular, such problems are the migration outflow of population, which is revealed by two indicators, and insufficient diversification of labor markets – the share of extractive industries is very high.

Figure 1. Indicators of the demographic and labor sustainability index of the Russian North cities



Source: own compilation.

The main source of data for calculating the values was the database of indicators of municipalities of Rosstat. Since the data earlier than 2012 are fragmentary, the study is limited to nine years – from 2012 to 2020. The missing values were determined by interpolation or extrapolation from the nearest known values. Since the database does not contain data at the city level, we made calculations using the most detailed data available. The indicators of the first two blocks are calculated at the level of urban settlements and urban districts, while the rest are calculated at the level of municipal districts, municipal districts and urban districts in which cities are located.

Cities were assigned a rating value between -1 and 1 for each indicator. To reduce the impact on the analysis of statistical outliers, we decided not to take into account the 10% of the lowest and highest values of each indicator. Thus, a rating of -1 corresponds to the 5th percentile of the sample, and a rating of 1 corresponds to the 95th percentile. The zero rating value corresponds to the median value of the sample for all cities (except for migration indicators, where zero migration growth is taken as zero). We used a linear interpolation method to determine the value between -1 and 0 and between 0 and 1. If values were outside the interval, they were equated to 1 or -1. Three indicators (1.2, 3.2, and

4.2) are inverse (the higher their value, the worse). Therefore, their ratings were inverted by multiplying by -1. The final index of each city or group of cities was determined by summing up the corresponding rating values for the eight indicators. The maximum possible value of demographic and labor cities sustainability index (DLCSI) is 8, with any sign.

### Research results

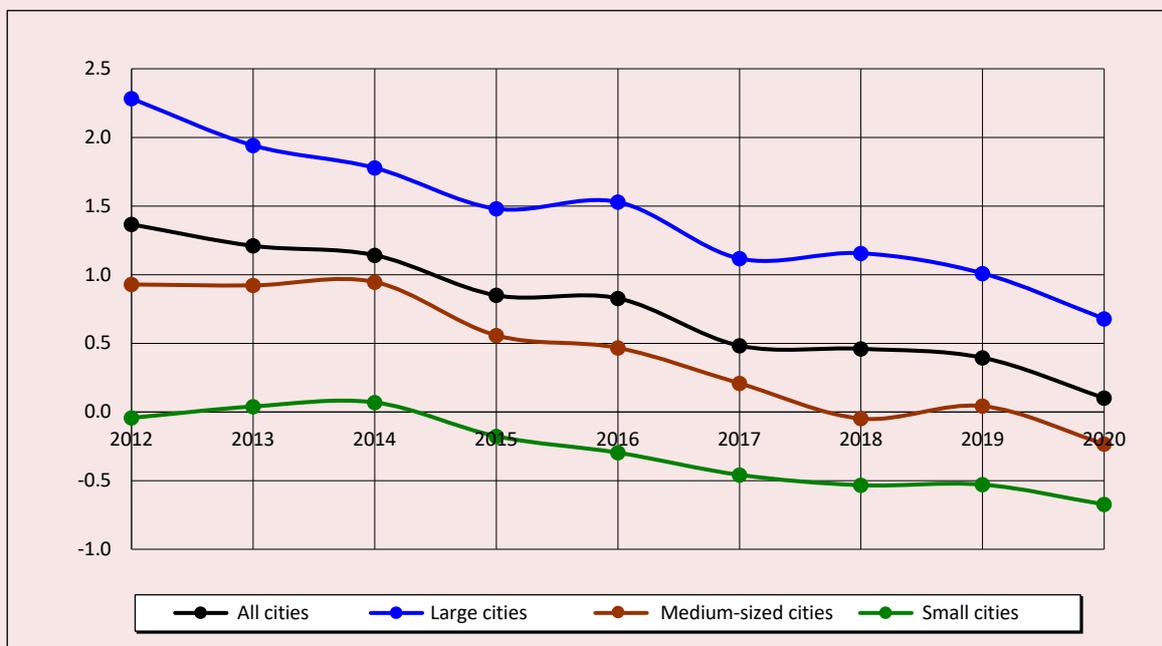
The obtained data on the demographic and labor sustainability of the northern cities by administrative formations showed that the sustainable development index decreases from large and big to medium and from medium to small cities. There is also a decline in the index in the dynamics from 2012 to 2020. We can also note that the sustainability of big cities is higher than average (Fig. 2).

Despite the decrease in the DLCSI, the northern cities as a whole retained positive

sustainability, including large and large cities. For small and medium-sized cities, sustainability periodically changed the sign. From 2012 to 2020, all groups of cities worsened their indices, especially big and large cities.

The lowest index of cities by administrative units (less than -1.0) was noted in the Republic of Karelia (-1.89), the Murmansk Oblast (-1.63), the Arkhangelsk Oblast (-1.46) and the Komi Republic (-1.19). All four subjects are located in the European North. Among the regions with a high positive DLCSI we can point out Nenets AO - 2.56, Yamalo-Nenets AO - 2.33, the Republic of Sakha (Yakutia) - 2.09 and Khanty-Mansi AO - 1.94. Out of the top four regions, only Nenets Autonomous Okrug improved its DLCSI by 0.38. The Sakhalin Oblast also improved, with its DLCSI increasing by 0.32. The palm of victory from 2012 to 2020 has passed from Yamalo-Nenets AO to Nenets AO (Tab. 2).

Figure 2. Dynamics of demographic and labor cities sustainability index by subjects of the Russian North, 2012–2020



Source: own compilation.

Table 2. Demographic and labor cities sustainability index by subjects of the Russian North, 2012–2020

Subject	Year									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	Dynamics, 2012–2020
<b>All cities, including by population</b>	<b>1.37</b>	<b>1.21</b>	<b>1.14</b>	<b>0.85</b>	<b>0.83</b>	<b>0.48</b>	<b>0.46</b>	<b>0.40</b>	<b>0.10</b>	<b>-1.27</b>
big and large	2.28	1.94	1.78	1.48	1.53	1.12	1.16	1.01	0.68	-1.60
medium	0.93	0.92	0.95	0.56	0.47	0.21	-0.05	0.04	-0.23	-1.16
small	-0.04	0.04	0.07	-0.18	-0.30	-0.46	-0.53	-0.53	-0.67	-0.63
<b>By Russia's entities:</b>										
Nenets AO	2.18	1.89	3.10	2.85	1.98	1.64	1.72	2.51	2.56	0.38
Yamalo-Nenets AO	3.65	2.76	2.75	2.07	2.91	2.94	3.06	2.99	2.33	-1.32
Republic of Sakha (Yakutia)	2.53	2.49	2.44	2.25	1.87	1.66	2.15	1.90	2.09	-0.44
Khanty-Mansi AO	3.61	2.74	3.01	2.61	3.05	1.99	2.06	2.03	1.94	-1.67
Krasnoyarsk Krai	1.43	1.11	0.99	1.21	0.94	0.90	0.90	0.89	0.90	-0.53
Kamchatka Krai	2.17	1.90	1.28	1.48	1.17	1.45	1.24	1.04	0.82	-1.35
Chukotka AO	2.66	2.99	2.65	2.85	2.90	2.08	1.25	3.16	0.38	-2.28
Magadan Oblast	0.78	0.85	0.57	0.17	1.18	0.72	0.29	0.56	0.22	-0.56
Sakhalin Oblast	-0.35	0.00	0.15	0.19	0.35	0.24	0.07	0.25	-0.03	0.32
Republic of Tyva	0.51	0.15	-0.51	-0.06	-1.09	-0.62	-0.56	-0.13	-0.39	-0.90
Komi Republic	0.00	0.54	0.40	0.05	-0.17	-0.68	-1.04	-1.20	-1.19	-1.19
Arkhangelsk Oblast without NAO	-0.41	-0.66	-0.47	-0.57	-0.75	-1.23	-1.24	-1.27	-1.46	-1.05
Murmansk Oblast	-0.51	-0.57	-0.81	-1.08	-0.96	-1.08	-1.09	-1.40	-1.63	-1.12
Republic of Karelia	-0.32	-0.44	-0.42	-0.96	-1.08	-1.65	-1.59	-1.40	-1.89	-1.57

Source: Database of indicators of municipalities Rosstat. Available at: <https://gks.ru/dbscripts/munst/>

The leading cities in terms of demographic and labor indicators of sustainable development are unevenly distributed in space. The greatest concentration is observed in Western Siberia. The outsiders are located mainly in the European North, as well as in the Tuva Republic and Sakhalin. Only 39 (33.9%) out of 115 cities improved their rating value in 2020 relative to the 2012 level, 10 of them are located in the Sakhalin Oblast, 6 – in Yakutia, 4 – in Yamalo-Nenets Autonomous Okrug (*Fig. 3*).

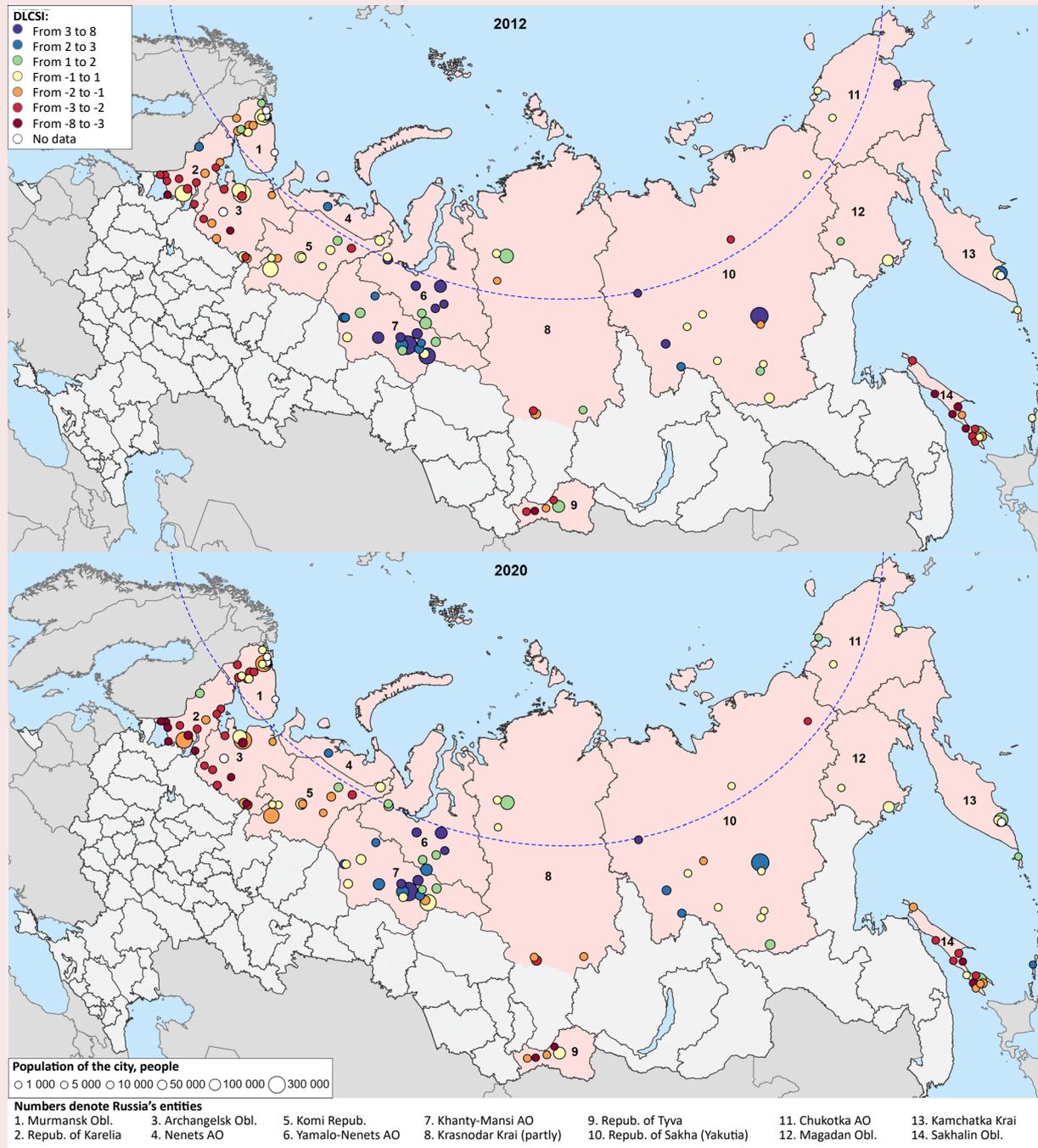
In each northern region, it is possible to identify a leader in DLCSI (2020): in the Murmansk Oblast it is Polarnye Zori (nuclear power plant), in the Republic of Karelia – Kostomuksha, in the Arkhangelsk Oblast (without NAO) – Severodvinsk, in Nenets AO – Naryan-Mar, in the Komi Republic – Usinsk, in Khanty-Mansi AO – Lyantor, in Yamalo-Nenets AO – Tarko-Sale, in the Republic of Tyva – Kyzyl, in the Republic of Sakha (Yakutia) – Udachny (diamond

mining), in the Magadan Oblast – Magadan, in the Chukotka Oblast – Pevek (floating nuclear power plant), in the Kamchatka Krai – Petropavlovsk-Kamchatsky, in the Sakhalin Oblast – Kurilsk, and in the Krasnoyarsk Krai – Norilsk.

Similarly, let us single out the outsider cities: in the Murmansk Oblast it is Olenegorsk, in the Republic of Karelia – Lahdenpokhya, in the Arkhangelsk Oblast – Solvychevodsk, in the Komi Republic – Inta, in Khanty-Mansi AO – Megion, in Yamalo-Nenets AO – Muravlenko, in the Republic of Tyva – Turan, in the Republic of Sakha (Yakutia) – Srednekolyomsk, in the Magadan Oblast – Susuman, in the Chukotka AO – Bilibino, in the Kamchatka Krai – Elizovo, in the Sakhalin Oblast – Makarov, and in the Krasnoyarsk Krai – Lesosibirsk.

Along with the leaders and outsiders in each northern region, let us distinguish the cities in the top ten, and the ten cities closing the SDC rating. Having confidently taken the first position in 2012,

Figure 3. Demographic and labor cities sustainability index in the context of constituent entities of the Russian North, 2012 and 2020



Khanty-Mansiysk by 2016 dropped to the eighth position, and in 2020 it took the 12th place. Kogalym, Novy Urengoy, Surgut, Lyantor, Tarko-Sale and Mirny remained in the top ten in 2020.

Only three cities from the bottom ten could not improve their position: Olonets remained in 110th place, and Solvychevodsk and Pudozh worsened their rating (Tab. 3).

Table 3. Leaders and outsiders of the demographic and labor sustainability rating of cities of the Russian North, 2012, 2016, and 2020

No.	2012	2016	2020
1	5.19 – Khanty-Mansiysk	5.56 – Novy Urengoy	4.52 – Udachny
2	4.85 – Kogalym	4.96 – Kogalym	4.28 – Lyantor
3	4.81 – Novy Urengoy	4.79 – Mirny	3.89 – Kogalym
4	4.51 – Surgut	4.78 – Surgut	3.72 – Tarko-Sale
5	4.35 – Lyantor	4.58 – Tarko-Sale	3.49 – Nadym
6	4.34 – Salekhard	4.46 – Udachny	3.23 – Novy Urengoy
7	3.99 – Anadyr	4.30 – Anadyr	3.05 – Surgut
8	3.62 – Gubkinsky	3.69 – Khanty-Mansiysk	2.88 – Mirny
9	3.44 – Tarko-Sale	3.43 – Lyantor	2.76 – Noyabrsk
10	3.41 – Mirny	2.77 – Nadym	2.56 – Naryan-Mar
...			
106	-2.88 – Solvychevodsk	-3.00 – Inta	-3.16 – Turan
107	-2.91 – Pudozh	-3.02 – Poronaysk	-3.24 – Kholmok
108	-2.98 – Belomorsk	-3.10 – Kondopoga	-3.30 – Makarov
109	-3.46 – Poronaysk	-3.21 – Pitkyaranta	-3.33 – Sortavala
110	-3.49 – Olonets	-3.22 – Belomorsk	-3.37 – Olonets
111	-3.56 – Tomari	-3.38 – Uglegorsk	-3.44 – Kondopoga
112	-3.73 – Chadan	-3.40 – Pudozh	-3.52 – Pudozh
113	-3.77 – Uglegorsk	-3.43 – Chadan	-3.54 – Pitkyaranta
114	-4.40 – Shenkursk	-3.69 – Alexandrovsk-Sakhalinsky	-3.74 – Solvychevodsk
115	-5.06 – Alexandrovsk-Sakhalinsky	-3.93 – Ak-Dovurak	-4.16 – Lahdenpohya

Source: Rosstat database of indicators of municipalities. Available at: <https://gks.ru/dbscripts/munst/>

The leading cities, although located in different regions (KMAO, YNAO, NAO and Yakutia), almost all specialize in oil and gas production, while Udachny and Mirny specialize in diamond mining. Salaries, excluding small businesses, in 2020 in urban districts where these cities are located, averaged 106 thousand rubles (from 82 thousand in Kogalym to 141 thousand in Nadym), with the median value of 72 thousand rubles for all the cities in the North. Employment opportunities in high-income industries make these cities attractive for migration, which also affects the age composition, fertility and other indicators. In contrast, in 10 cities from the bottom of the rating the average salary was only 49 thousand rubles (in Turan – 33 thousand). If a number of towns in the Tuva Republic were able to compensate for this with good birth rates, in the Republic of Karelia, where most of the outsider towns are located, the demographic situation is also critical: a high demographic pressure is combined with low birth rates and imbalance in the composition of the population by gender.

Let us consider how sustainable development of the cities was affected by this or that indicator. In 2012, high DLCSI for all cities was provided by demographic burden – 0.677, internal migration – 0.366, labor market diversification – 0.198, life expectancy (LE) – 0.181, wages – 0.147, and slightly fertility – 0.039. In 2020, two of the six indicators (fertility and life expectancy) changed the sign. For the entire group of cities, the value of the DLCSI decreased significantly. From 2012 to 2020, only three indicators had positive gains: external migration – 0.139, wages – 0.190 and labor market diversification – 0.097. Demographic pressure (-0.601), fertility (-0.583), and internal migration (-0.317) influenced the decrease from 2012 to 2020.

In 2012, a high DLCSI of large and big cities was provided by demographic pressure, internal migration, and labor market diversification; medium-sized cities – demographic pressure and internal migration; and small cities received a negative value from demographic pressure. Most of the other indicators either had a negative value or

changed insignificantly. In 2020, big and large cities were provided with the DLCSI by the diversification of the labor market and wages, while the medium-sized cities reduced the negative value of these two indicators. The change in the indicators from 2012 to 2020 shows that for all cities only three indicators had a positive increase: wages, labor market diversification and external migration, and for big and large cities, it was also gender ratio, for small cities – internal migration (*Tab. 4*).

### Conclusion

The general line of population settlement around the world is related to the migration of people from rural to urban areas, growing urbanization, and the formation of northern urban agglomerations, a new trend of the 21st century (Fauzer et al., 2021). Along with progress and innovation, cities create problems such as housing shortages and overcrowding, the stratification of society into the poor and the rich, the formation of elite and bedroom communities – slums, shortage of quality water, high concentrations of harmful substances in the air and a number of others.

In the second half of the 20th century, the world community turned its attention to the problem of sustainable development, gradually moving from general issues to the study of sustainable development of urban space. The UN considers the problem of sustainable development more broadly, in the first documents it included all human settlements, and as experience and practice

accumulated, it moved exclusively to cities. At the same time, UN-Habitat documents note that sustainable development of cities cannot succeed without the development of adjacent rural areas, since the latter provide cities with food and labor.

In the European charters on sustainable development of cities, at conferences different problems are raised: from the local government and the indivisibility of areas to the New Urbanism Manifesto, from the Lisbon Action Plan to the Mannheim Message – a response to the European Green Deal. Nowadays there are more than a dozen international forums and experimental sites on the problems of sustainable development of cities and they have been created in Russia.

Due to limited municipal statistics, this article considers eight indicators that form the basis for calculating the DLCSI. It is possible to increase the DLCSI by improving the ratio of age groups, birth rate growth and increasing the financing of the resettlement program for persons of retirement age and people with chronic diseases; improving the level and quality of medical care, creating safe working conditions, reducing the number of jobs with harmful and dangerous working conditions, which will have a positive impact on the life expectancy of the population. Regulation of external migration flows by age and education of migrants, attraction of qualified specialists will have a positive impact on demographic and labor sustainability.

Table 4. Indices of demographic and labor indicators of sustainable development of cities of the Russian North, 2012 and 2020

Indicator	2012			2020			Dynamics, 2012–2020		
	big	medium	small	big	medium	small	big	medium	small
<b>General index</b>	<b>2.283</b>	<b>0.929</b>	<b>-0.043</b>	<b>0.679</b>	<b>-0.233</b>	<b>-0.673</b>	<b>-1.603</b>	<b>-1.162</b>	<b>-0.630</b>
1.1. Fertility	0.012	-0.060	0.119	-0.564	-0.787	-0.409	-0.576	-0.727	-0.528
1.2. Life expectancy	0.342	0.015	-0.058	0.110	-0.032	-0.158	-0.232	-0.046	-0.100
2.1. Internal migration	0.685	0.501	-0.216	0.123	0.131	-0.083	-0.563	-0.370	0.133
2.2. External migration	-0.010	-0.437	-0.332	0.046	-0.038	-0.062	0.056	0.399	0.271
3.1. Gender ratio	-0.173	-0.007	0.057	-0.155	-0.037	0.015	0.017	-0.030	-0.042
3.2. Demographic pressure	0.777	0.676	0.468	0.213	0.017	-0.153	-0.564	-0.659	-0.621
4.1. Salary	0.210	0.109	0.030	0.404	0.268	0.224	0.195	0.158	0.194
4.2. Labor market diversification	0.439	0.132	-0.110	0.504	0.245	-0.047	0.065	0.113	0.063

Source: Rosstat database of indicators of municipalities. Available at: <https://gks.ru/dbscripts/munst/>

In the 21st century, a new step in improving the sustainability of cities will be the transition to “smart cities” designed to solve such problems as “safety, social security, environmental well-being, economic justice” (Popov, Semyachkov, 2020). The development of “smart cities” involves the widespread use of information and communication technologies, the accumulation of the latest advances in digital technology, and the efficient use of resources. Widespread implementation of new technologies and innovations in the management of cities can contribute to their sustainable development.

The presented theoretical approaches to the study of sustainable development of cities allowed looking at the problem comprehensively, to move from theoretical provisions to the rating assessment of sustainable development of northern cities, to identify strengths/weaknesses of demographic dynamics and the labor sphere.

In practical terms, the article can be useful for executive authorities to assess the demographic and labor sustainability of urban space and cities in the territories entrusted to them.

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## Methodology for Assessing Scenarios of Tourism Industry Development in Kamchatka Krai on the Basis of Digital Twin Technology



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**Abstract.** In the rapidly changing conditions of the current technological paradigm new methodological approaches are required to assess effective management using modern digital tools (digital twins) that help to increase the quality and efficiency of economic processes to make timely and balanced management decisions. The purpose of the study is to develop a methodology for assessing scenarios for the development of the tourism industry in Kamchatka Krai on the basis of digital twin technology. Scientific novelty of the proposed methodology is the use of structural and situational dynamics methods with the involvement of data processing statistical methods in AnyLogic environment. The developed model is a modern digital tool that helps to convert a set of diverse data into a timely and balanced management decision based on an understanding of the current state of the industry and the prospects for its development.

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The theoretical significance lies in the scientific justification of the digital twin concepts and their application in simulation modeling in relation to the tourism industry. The practical significance is that the digital twin allows simulating different scenarios of Kamchatka Krai tourism industry development, thereby reducing the number of routine business processes and the influence of human factor on the quality of service. Using the assessment results, we have identified optimal scenarios for the development of the tourism industry in Kamchatka Krai, its bottlenecks, and determined that the introduction of scenario simulation modeling will regularly calculate the basis the tourist expenses and, consequently, the tourist industry income, and through multipliers – the regional budget income, and other integral indicators to improve the competitiveness of the tourism industry in the region. In contrast to the traditional analytics of processes based on tables and linear dependence, the developed digital twin makes it possible to observe the detailed behavior of the system in time, to keep track of tourist preferences and the capacity of tourist attraction points, to give recommendations on the placement of new objects. The obtained results can be used in the formation of proposals for the development of the tourism industry, and the monitoring of its condition and efficiency.

**Key words:** tourism, tourism industry, digitalization, digital model, simulation modeling, digital twin, Kamchatka Krai.

### Introduction

One of the main strategic technological trends of economic growth in the Russian Federation today is digitalization, which involves the creation of scientific, technological, legal, financial and organizational conditions that support the development of the digital economy in the country<sup>1</sup>. Digital technology exponentially increases the state of the information space, and thus the scale of the transformation of economic activity<sup>2</sup>. In this regard, the structure of the economic system is changing, and with it its dynamic properties, as a key element of the digital transformation process is the transition from analog or physical technologies to digital tools based on Big Data (Shpak et al., 2020). In 2021, global digital investment reached

\$4.24 trillion<sup>3</sup>. The emergence of digital simulation 3D models and Digital Twin is one of the results of the development of digital manufacturing, Industry 4.0 and the Internet of Things (IoT) (Shpak et al., 2020).

Conceptually, the basics of the digital twin were presented as early in 2003 in the works of M. Grieves (Grieves, 2005; Grieves, 2016). Before 2015, the term “digital twin” (DT) was usually mentioned in cases of industrial twins. Further issues of DT implementation were studied by R. Söderberg (Söderberg et al., 2017), F. Tao (Tao et al., 2018), R. Bolton (Bolton et al., 2018), A.E. Saddik (Saddik, 2018) and others. These authors give a broader interpretation of the concept, according to which the digital twin is “... a digital copy of a living or non-living physical entity.

<sup>1</sup> On the Strategy for Scientific and Technological Development of the Russian Federation: Presidential Decree 642, dated December 1, 2016 (ed. March 15, 2021 143). Available at: <http://www.kremlin.ru/acts/bank/41449>

<sup>2</sup> Nosova S., Norkina A., Makar S., Fadeicheva G. (2021). Digital transformation as a new paradigm of economic policy. *Procedia Computer Science*, 190(4), 657–665. DOI: 10.1016/j.procs.2021.06.077

<sup>3</sup> Digital transformation is going to step up in coming years. Available at: <https://www.comnews.ru/content/218463/2022-01-26/2022-w04/cifrovaya-transformaciya-podnazhmet-blizhayshe-gody>

Connecting the physical and virtual worlds, data is transferred, allowing the virtual entity to exist simultaneously with the physical entity” (Saddik, 2018); “...using a digital copy of the physical system for real-time optimization” (Söderberg et al., 2017); “...a real life representation of all components in the product life cycle using physical data, virtual data and interaction data between them” (Tao et al., 2018), “...a dynamic virtual lifecycle representation of a physical object or system using real-time data for understanding, learning, and reasoning” (Bolton et al., 2018).

According to the data<sup>4</sup>, 89% of all IoT platforms will use digital twin technology by 2025, and by 2027 it will become a standard feature of IoT solutions. 36% of executives from various industries note the benefits of the DT, and 53% of them plan to implement the DT by 2028. Credence Research predicts that the global DT market will reach \$57.38 billion by 2027 (it was \$3.76 billion in 2018; up more than 15-fold) (Prokhorov, Lysachev, 2020).

Simulation modeling allows us to forecast, calculate and make the most effective financial and investment decisions, taking into account a variety of factors that affect economic development (Molodetskaya, 2020; Novysh, Yurcha, 2020). In this regard, the methodology for assessing scenarios for the tourism industry based on digital twin technology is of particular importance.

Currently, under our leadership, the Eastern State Planning Center (FASI “Vostokgosplan”)<sup>5</sup> is actively working to create a digital twin (simulation model) in relation to regional tourism. Kamchatka

acts as a pilot region, the tourism potential of which at present is not fully realized<sup>6</sup>. According to expert data, the share of tourism in GRP of Kamchatka Krai is extremely small and amounts only to 2%<sup>7</sup>. Constraints for tourism development in Kamchatka are insufficient recognition and “media publicity” of Kamchatka Krai in domestic and foreign markets; low level of development of the industry material base and weak development of transport infrastructure and service facilities; low investment activity of business structures; difficult transport accessibility of the region; short tourist season. To solve these problems, the priority areas of the Strategy in the field of digital transformation of Kamchatka Krai<sup>8</sup>, actually serving as a starting point for future promising technological breakthroughs in the tourism industry, correlated with national projects “Tourism and the hospitality industry” and “Digital Economy”<sup>9</sup> and corresponding implementation of the program “Industry 4.0”.

In turn, the introduction of a “digital twin” includes effective scenario planning for the development of tourism and related industries in the region. FASI “Vostokgosplan” acts as an operator of the statistical monitor and aggregator of open statistical data; data received from public authorities of all levels; big data provided on a contractual basis

<sup>4</sup> The future of the digital twins industry to 2025 in manufacturing, smart cities, automotive, healthcare and transport. Available at: <https://www.prnewswire.com/news-releases/the-future-of-the-digital-twins-industry-to-2025-in-manufacturing-smart-cities-automotive-healthcare-and-transport-301028858.html>

<sup>5</sup> Federal Autonomous Scientific Institution “Eastern State Planning Center” (FASI “Vostokgosplan”). Available at: <https://vostokgosplan.ru/wp/about/>

<sup>6</sup> Generalized analysis of the tourism industry in Kamchatka Krai. Analytical report. (2021). Federal Autonomous Scientific Institution “Eastern State Planning Center” (FASI “Vostokgosplan”). Available at: <https://vostokgosplan.ru/wp/about>

<sup>7</sup> The share of tourism in GRP of Kamchatka is only 2%. Available at: [https://kamchatinfo.com/news/economics\\_and\\_business/detail/48885/](https://kamchatinfo.com/news/economics_and_business/detail/48885/)

<sup>8</sup> Strategy for the digital transformation of the economy, social sphere and public administration in Kamchatka Krai: adopted by Kamchatka Krai Government Resolution 575-P, dated December 23, 2021. Available at: <https://digital.gov.ru/uploaded/files/strategiya-final-kamchatskij-kraj-podpisan-20082021.pdf>

<sup>9</sup> The “Digital Economy of the Russian Federation” program was approved by RF Government Resolution 1632-r, dated July 28, 2017. Available at: <http://government.ru/govworks/614/events/>

by their suppliers. The list of indicators displayed on the statistical monitor and the frequency of data updates depend on cooperation with big data providers. Obtaining relevant statistical data on a regular basis and in a variety of sections directly affects the degree of detail modeling of the tourism industry.

The article presents the methodological aspects of assessing scenarios of tourist industry development on the basis of digital twin technology. The peculiarity of the proposed simulation scenario-forecast model of regional tourism is the use of methods of structural and situational dynamics with the involvement of statistical data processing methods in AnyLogic environment.

The purpose of the study is modeling scenarios of tourism industry development based on digital twin technology on the example of Kamchatka Krai.

In accordance with the purpose of the study we set and solved the following tasks:

- 1) development and testing of a simulation scenario-forecast model of the tourist services implementation on the example of Kamchatka Krai, based on the principles of system dynamics;
- 2) calculation of scenarios for the tourism industry development in the region, a description of the modeling results.

The scientific novelty of the proposed assessment methods is the use of methods of structural and situational dynamics, involving statistical methods of data processing in AnyLogic environment.

The theoretical significance lies in the scientific justification of digital twin concepts and their application in simulation modeling in relation to the tourism industry.

The practical significance lies in the fact that the digital twin can simulate different scenarios of Kamchatka Krai tourism industry, reducing thereby the number of routine business processes and the impact of human factors on service quality.

## Materials and methods

The concept of digital twins has been proposed relatively recently, but the significance and importance of this study is supported by an appropriate base of literature. The basic tenets of the digital twin concept originated in the engineering paradigm and have been applied mainly in industrial sectors, in which a clear link between the digital model and the real object is evident at all stages of manufacturing (Boschert, Rosen, 2016; Kritzinger et al., 2018; Mittal et al., 2018).

Scientifically, the foundations of the digital twin concept were laid in 2003 in the M. Grieves' works (Grieves, 2005). Before 2015, the term "digital twin" (DT) was usually mentioned in cases of industrial twins. In particular, W. Wong<sup>10</sup> introduced the concept of an intellectual product and identified its main characteristics. K. Hribernik and co-authors (Hribernik et al., 2006) put forward the concept of a product avatar, according to which a product can have a virtual digital copy and be able to access data collected during the product life cycle, optimize the parameters of operation, maintenance, repair, etc. The term "digital twin" first got its official scientific meaning in the research of M. Grieves and D. Vickers (Grieves, Vickers, 2017). Between 2010 and 2014, the DT concept developed with close attention from the aerospace industry, and the term was applied in industrial product design primarily for the transportation industry (Shafto et al., 2010; Glaessgen, Stargel, 2012). Later, the implementation of digital twins in various industries of the economy was studied by R. Bolton (Bolton, 2018), K. Boschert (Boschert, Rosen, 2018), P. Coronado (Coronado et al., 2018), J. Lee (Lee et al., 2015), A. Saddik (Saddik, 2018), R. Söderberg (Söderberg, et al., 2017), F. Tao (Tao et al., 2018).

<sup>10</sup> Wong W. (2018). What's the difference between a simulation and a digital twin? Available at: <https://www.electronicdesign.com/embeddedrevolution/what-s-difference-between-simulation-and-digital-twin>

With the development of virtual models in engineering, the characteristics and behavior of the virtual apparatus began to be predicted through mathematical modeling based on a numerical model (Belinha et al., 2009; Lawson and Marion, 2008).

Referring to the currently available Russian studies (Azrapkin, 2022; Gorelova, 2020; Katalevskii, Suslov, 2022; Savostyanov, 2021), it is easy to note that mathematical models of economic systems and simulation modeling tools are used mainly to predict the development of economic processes in time and the state in which the economy will be, the characteristics of the studied economic system under certain conditions. However, the established methods of describing the state and evolution of the economy sectors use a small set of indicators, the values of which change relatively smoothly, and the list remains unchanged (Olenev, 2008). Also problematic is the choice of variables that adequately reflect the structure of the economic system, which leads to the impossibility of a detailed description of all processes, which raises difficulties with the typology and mathematical description of typical economic processes.

Despite the great interest to the DT topic, we should note that in fact this technology, as well as solutions based on it, is at an early stage of development, when the professional community has not yet developed generally accepted definitions and standards, experts argue on many issues: what a digital twin is, what types there are, in which industry solutions this term is applicable, etc.

Our study is supposed to eliminate all the above-mentioned gaps in this direction of economic science. It is necessary to develop and implement a program to calculate the characteristics of the studied economic process (in our case the potential of the regional development of the tourism industry), to identify the model, that is to determine

the external values contained in it (coefficients, parameters, factors), to verify the model, in other words, to ensure that it gives practically acceptable forecasts.

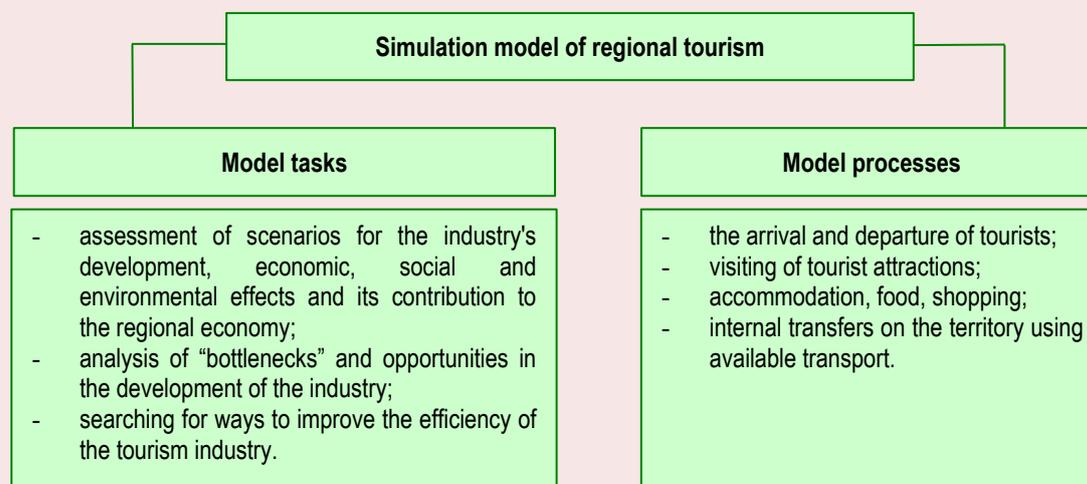
The article presents our simulation scenario-forecast model of the implementation of tourist services in Kamchatka Krai, based on the principles of system dynamics (Akopov, 2019; Sidorenko, 1998; Forrester, 1958; Meadows et al., 2005). The main provisions of structural and situational analysis with the involvement of statistical methods of data processing have been applied.

The developed model of tourist industry development is a modern digital tool that converts a set of diverse data into a timely and balanced management decision, based on an understanding of the current state of the industry and the prospects of its development. The main goal of creating a digital model of the tourism industry is effective scenario planning for the development of tourism and related industries in the region. Schematically, the tasks and simulated processes are shown in *Fig. 1*.

The model is developed in AnyLogic software environment and is supplied as a jar file. Runs as part of the Java virtual machine and requires jar files of AnyLogic platform, a local HyperSQLDB and a Web server. The user works with the model through a standard browser. Data input-output in the current version of the model is carried out through xls files (modeldata.xlsx for input data and results.xlsx, resultsTData.xlsx for output data), it is also possible to export calculation results to the database PostgreSQL.

MS Excel files are used to enter data and configure simulation model scenarios, and to output and save the results. Moreover, two additional MS Excel files were created in the model: "Connector" (for processing, systematization and formatting of AnyLogic model output data to be uploaded to the "results" file for further

Figure 1. Tasks and processes of the regional tourism simulation model



Source: own compilation.

calculations) and “Scenario” (for calculation of integral socio-economic indicators for tourism and formation of data in the required structure for further visualization in the BI-system – Yandex DataLens).

Among the indicators calculated in the “Scenario” file are the volume of gross value added (GVA) of tourism industry; the share of GVA of tourism industry in the planned gross regional product (GRP) of the region; tax revenue from the functioning of tourism industry; shortage of accommodations; number of jobs provided by tourism industry; average tourist spending. The indicators are calculated for the whole period of modeling. The article presents a detailed calculation of each indicator.

#### *GVA calculation*

The methodology used to calculate the gross value added created by the tourism industry in Kamchatka Krai, consistent with the methodology approved by Rosstat Order 267<sup>11</sup>.

GVA, created in the tourism industry, is determined by the formula (1):

$$GVA_i^t = O_i^t \times S\_GVA_i^t, \quad (1)$$

where:

$GVA_i^t$  – the gross value added created in year  $t$  by providing the  $i$ -th type of tourist services;

$O_i^t$  – the output of the  $i$ -th type of tourist services in the year  $t$ ;

$S\_GVA_i^t$  – the share of gross value added in the output of the  $i$ -th type of tourist services in year  $t$ .

The output of goods and services in this methodology is accounted for the  $i$ -th type of tourism services provided by the simulated objects of the tourism industry in Kamchatka Krai. The output for the  $i$ -th type of service in year  $t$  is determined by the formula (2):

$$O_i^t = P_i^t \times Cost_i^t, \quad (2)$$

where:

$P_i^t$  – the number of provided services of the  $i$ -th type in year  $t$  (in appropriate units);

<sup>11</sup> On approval of the Methodology of indicators calculation “Gross Value Added of the Tourism Industry” and “Share of Gross Value Added of the Tourism Industry in the Gross Domestic Product of the Russian Federation”: Rosstat Order 267, dated May 14, 2019. Available at: [https://rosstat.gov.ru/storage/mediabank/met\\_vds.pdf](https://rosstat.gov.ru/storage/mediabank/met_vds.pdf)

$Cost_i^t$  – the unit cost of providing the  $i$ -th type of service in year  $t$ .

The cost of services is a scenario parameter. The number of provided services is determined in the simulation modeling with the input scenario parameters of the tourist flow in Kamchatka Krai and other infrastructure parameters.

Gross value added is defined as the value of goods and services output minus the value of intermediate consumption. The term “gross” indicates that the indicator is defined before deducting consumption of fixed capital<sup>12</sup>. The share of GVA in the output of the  $i$ -th type of services in year  $t$  is determined by the formula (3):

$$S\_GVA_i^t = 1 - S\_IC_i^t, \quad (3)$$

where:

$S\_IC_i^t$  – the share of intermediate consumption expenditures<sup>13</sup> in the output of the  $i$ -th type of service in year  $t$ .

In accordance with p. 37 of the Methodological Recommendations<sup>14</sup>, the estimate of GVA in current prices of forecast years is recommended to be formed as the difference between the output in current basic prices of forecast years and the costs of intermediate consumption in current prices of buyers taking into account the forecasted indices-deflators of output and indices-deflators of costs for intermediate consumption. Then the share of intermediate consumption costs in the output of

the  $i$ -th type of product in year  $t$  should be determined by the following formula (4):

$$S\_IC_i^t = \frac{\sum_{k=1}^n K_{ki}^t \times D_k^t}{PI_i^t}, \quad (4)$$

where:

$K_{ki}^t$  – the amount of costs (in rubles) for the intermediate consumption of products of the  $k$ -th type of activity per ruble of output during the provision of the  $i$ -th type of service (the coefficient of the direct cost matrix);

$D_k^t$  – the accumulated deflator for the products of the  $k$ th type of activity relatively to the base period by the year  $t$ . The base period within the model is 2018 (according to the year of the tables of the use of goods and services, within which the direct cost matrix is calculated);

$n$  – the amount of production by type of activity, net taxes and other components of intermediate consumption; within the model, products and services are grouped by type of economic activity according to OKVED-2 classification (by sections A-T); the amount of taxes minus subsidies is not taken into account due to lack of data and also due to the small share of this component in intermediate consumption expenditures;

$PI_i^t$  – the accumulated price index for services of the  $i$ -th type relatively to the base period by year  $t$ ; within the framework of modeling coincides with the value of the accumulated deflator for the aggregated industry, providing the service of the  $i$ -th type.

<sup>12</sup> Rosstat Order 267, dated May 14, 2019.

<sup>13</sup> Intermediate consumption is the total value of goods and services consumed as costs in the process of production, excluding fixed assets, the consumption of which is reflected as the consumption of fixed capital (Rosstat Order 267, dated May 14, 2019).

<sup>14</sup> On the approval of methodological recommendations for the development, adjustment and monitoring of the medium-term forecast of socio-economic development of the Russian Federation and on the invalidation of Order 492 of the Ministry of Economic Development of the Russian Federation dated November 30, 2009: Order 423 of the Ministry of Economic Development of the Russian Federation, dated June 30, 2016. Available at: [https://www.economy.gov.ru/material/directions/makroec/normativnye\\_dokumenty\\_po\\_voprosam\\_analiza\\_i\\_prognozirovaniya/prikaz\\_minekonomrazvitiya\\_rossii\\_ot\\_30062016\\_n\\_423\\_ob\\_utverzhenii\\_metodicheskikh\\_rekomendaciy\\_po\\_razrabotke\\_korrektirovke\\_monitoringu\\_srednesrochnogo\\_proгноza\\_socialno\\_ekonomicheskogo\\_razvitiya\\_rossiyskoy\\_federacii\\_i\\_o\\_priznanii\\_utrativshim\\_silu\\_prikaza\\_m.html](https://www.economy.gov.ru/material/directions/makroec/normativnye_dokumenty_po_voprosam_analiza_i_prognozirovaniya/prikaz_minekonomrazvitiya_rossii_ot_30062016_n_423_ob_utverzhenii_metodicheskikh_rekomendaciy_po_razrabotke_korrektirovke_monitoringu_srednesrochnogo_proгноza_socialno_ekonomicheskogo_razvitiya_rossiyskoy_federacii_i_o_priznanii_utrativshim_silu_prikaza_m.html)

The costs of intermediate consumption of goods and services should be determined by a matrix of direct costs for the provision of a particular type of service. If such data are not available, the coefficients of the direct cost matrix are calculated on the basis of the basic “input-output” tables (symmetric “input-output” table)<sup>15</sup> or tables of goods and services use published by Rosstat<sup>16</sup>. The coefficients of the direct cost matrix are determined by the formula (5):

$$C_{ki} = \frac{IC_{ki}}{O_i}, \quad (5)$$

where:

$IC_{ki}$  – the amount of expenses (in rubles) for intermediate consumption of products of the  $k$ -th type of activity while providing services of the  $i$ -th type;

$O_i$  – the amount of output in providing services of the  $i$ -th type (in basic prices).

GVA of the entire tourism industry is calculated as the sum of the results of all economic activities, of the collective group “Tourism”.

To assess the contribution of tourism to the economic development of the region, the share of tourism GVA (tourism GVA is calculated in AnyLogic environment) in the planned GRP of Kamchatka Krai is calculated by the formula (6):

$$S\_GVA\_GRP_t = \frac{GVA_t}{GRP_t}, \quad (6)$$

where:

$S\_GVA\_GRP_t$  – the share of the gross value added of the tourism industry in relation to the gross regional product, calculated for the year  $t$ ;

<sup>15</sup> Input-output tables of the RF for 2016. Rosstat. Available at: <https://rosstat.gov.ru/storage/mediabank/comment-tzv-2016.htm>

<sup>16</sup> Input-output tables of the RF for 2017. Rosstat. Available at: <https://rosstat.gov.ru/storage/mediabank/comment-tzv-2016.htm>; <https://rosstat.gov.ru/storage/mediabank/comment-tri-2017.htm>; National Accounts of Russia in 2007–2014: Statistical Collection. (2015). Rosstat. Moscow.

$GVA_t$  – the gross value added of the tourism industry created in year  $t$ ;

$GRP_t$  – the gross regional product of Kamchatka Krai created in year  $t$ .

The values of the planned GRP were taken from the forecast of socio-economic development of Kamchatka Krai until 2024<sup>17</sup> and the forecast of socio-economic development of Kamchatka Krai until 2035<sup>18</sup>.

#### *Calculation of the number of jobs*

The number of jobs is calculated separately for guides and separately for other areas of employment in tourism. The number of required guides is calculated according to the guide capacity, the probability of using a guide in each tourist attraction point<sup>19</sup> and the number of tourists visiting it (the number of visitors to each tourist attraction point), in AnyLogic environment according to the formula (7):

$$qG_i^t = \frac{qT_i^t \times pUG_i}{GT}, \quad (7)$$

where:

$qG_i^t$  – the number of guides needed at the  $i$ -th attraction point in year  $t$ ;

$qT_i^t$  – the number of tourists who visited the  $i$ -th attraction point in the year  $t$ ;

$pUG_i$  – the probability of a tourist using a guide at the  $i$ -th attraction point;

$GT$  – the capacity of a guide (the number of tourists which take a guided tour per year).

<sup>17</sup> Input-output tables of the RF for 2016. Rosstat. Available at: <https://rosstat.gov.ru/storage/mediabank/comment-tzv-2016.htm>

<sup>18</sup> Input-output tables of the RF for 2017. Rosstat. Available at: <https://rosstat.gov.ru/storage/mediabank/comment-tzv-2016.htm>; <https://rosstat.gov.ru/storage/mediabank/comment-tri-2017.htm>; National Accounts of Russia in 2007–2014: Statistical Collection. (2015). Rosstat. Moscow.

<sup>19</sup> Forecast of socio-economic development of Kamchatka Krai until 2024. Information portal of the Kamchatka Krai Government. Available at: <https://kamgov.ru/minecon/prognozy>

Indicators of the probability of using a guide at the  $i$ -th attraction point and the capacity of one guide in the model are scenario-based and evaluated expertly.

For other types of tourism activities, the number of jobs in the base year is calculated according to labor productivity (calculated by the volume of GVA created by one worker) and the volume of GVA created separately by areas of activity. The labor productivity indicator for the base year is determined by the following formula (8):

$$k_{L_i}^{t_0} = \frac{qL_i^{t_0}}{GVA_i^{t_0}}, \quad (8)$$

where:

$k_{L_i}^{t_0}$  – the labor productivity for the  $i$ -th type of tourism services in the base year  $t_0$ ;

$qL_i^{t_0}$  – the average annual number of people employed in the  $i$ -th type of tourism services in the base year  $t_0$ ;

$GVA_i^{t_0}$  – the gross value added created in the  $i$ -th type of tourism services provided in the base year  $t_0$ .

Indicators of the average annual number of people employed in the  $i$ -th type of tourism services in the base year  $t_0$  and the gross value added created in the  $i$ -th type of tourism services in the base year  $t_0$ , for the calculation of the scenario indicator of labor intensity for the  $i$ -th type of tourist services in the base year  $t_0$  were taken according to Rosstat.

The number of jobs by type of tourist services for the base year is determined by the formula (9):

$$L_i^{t_0} = GVA_i^{t_0} \times k_{L_i}^{t_0}. \quad (9)$$

The number of jobs by type of tourist services for the forecast period is determined by the formula (10):

$$L_i^t = L_i^{t-1} \times \frac{I_{GVA_i}^t}{ILP_i^t}, \quad (10)$$

where:

$L_i^t$  – the number of jobs for the  $i$ -th type of tourism services in the year  $t$ ;

$L_i^{t-1}$  – the number of jobs for the  $i$ -th type of tourism services in the year  $(t-1)$ ;

$I_{GVA_i}^t$  – the ratio of the gross value added by the  $i$ -th type of tourist services in year  $t$  to the gross value added by the  $i$ -th type of tourist services in year  $(t-1)$ ;

$ILP_i^t$  – the index of labor productivity for the  $i$ -th type of tourist services provided in the year  $t$ .

The index of productivity indicator for the base year was a scenario and was calculated by the formula (11):

$$ILP_i^{t_0} = \frac{IAV_i^{t_0}}{IqL_i^{t_0}}, \quad (11)$$

where:

$ILP_i^{t_0}$  – the index of labor productivity for the  $i$ -th type of tourist services in the base year  $t_0$ ;

$IAV_i^{t_0}$  – the index of the physical volume of gross value added for the  $i$ -th type of tourist services of the base year  $t_0$  to the year  $(t_0-1)$ ;

$IqL_i^{t_0}$  – the index of total labor costs for the  $i$ -th type of tourism services of the base year  $t_0$  to the year  $(t_0-1)$ .

Forecast values of the productivity index were estimated based on the growth rate of this indicator according to the forecasts of socio-economic development of Kamchatka Krai until 2024 and 2035.

The total number of jobs created by the tourism industry is the sum of jobs by type of activity.

#### Calculation of tax deductions

The model calculates the volume of tax deductions to the budget for three types of taxes: value added tax (VAT), personal income tax (PIT) and income tax.

To calculate the income tax, we use the coefficient – the share of net income (NI) for the base year, which was calculated as the average between the shares of net income for 2016–2018.

Indicators of NI share for 2016–2018 were calculated as the ratio of net profit to output by type of services provided at basic prices according to the formula (12):

$$S\_NP_i^t = \frac{NP_i^t}{Output_i^t}, \quad (12)$$

where:

$S\_NP_i^t$  – the share of net profit for the  $i$ -th type of tourist services provided in the year  $t$ ;

$NP_i^t$  – the net profit on the  $i$ -th type of tourism services provided in the year  $t$ ;

$Output_i^t$  – the output for the  $i$ -th type of tourist services in basic prices in the year  $t$ .

The values of net profit for the  $i$ -th type of tourist services provided in year  $t$  and the output for the  $i$ -th type of tourist services provided in basic prices in year  $t$  are taken from the symmetric table “input-output” and the tables of goods and services use published by Rosstat. The values of the NP share for the forecast years are equal to the values of the NP share for the base year.

The amount of income tax is calculated as the product of the share of NP on revenue and the tax rate according to the formula (13):

$$ToP_i^t = S\_NP_i^t \times Revenue_i^t \times n_t, \quad (13)$$

where:

$ToP_i^t$  – the amount of collected taxes on profits for the  $i$ -th type of tourism services in the year  $t$ ;

$S\_NP_i^t$  – the share of net profit for the  $i$ -th type of tourist services provided in the year  $t$ ;

$Revenue_i^t$  – the amount of revenue for the  $i$ -th type of tourist services provided in the year  $t$ ;

$n_t$  – the income tax rate in the year  $t$ .

The values of revenues for the  $i$ -th type of tourist services in year  $t$  are calculated in AnyLogic environment. The values of the income tax rate are set equal to 20% for the entire simulation period.

The size of the tax rate is a scenario parameter and can be changed in each individual scenario.

Total income tax is the sum of deductions by type of activity.

VAT is calculated as the product of revenue by the tax rate (14):

$$VAT_i^t = Revenue_i^t \times n_t, \quad (14)$$

where:

$VAT_i^t$  – the amount of collected value added tax on the  $i$ -th type of tourist services in the year  $t$ ;

$Revenue_i^t$  – the amount of revenue for the  $i$ -th type of tourist services provided in the year  $t$ ;

$n_t$  – value added tax rate in the year  $t$ .

The values of the volume of revenue for the  $i$ -th type of tourist services in year  $t$  are calculated in AnyLogic environment. Values of the tax rate of value added tax are set equal to 20% for the entire simulation period.

PIT is calculated as the product of the average salary, the number of jobs in the tourism industry, the tax rate and the number of months per year (15):

$$PIT_t = AS_t \times qL_t \times n_t \times 12, \quad (15)$$

where:

$PIT_t$  – the volume of collected taxes on personal income in the year  $t$ ;

$AS_t$  – the average salary in the tourism industry in the year  $t$ ;

$qL_t$  – the number of jobs in the tourism industry in the year  $t$ ;

$n_t$  – the rate of personal income tax in the year  $t$ ;

12 – the number of months in a year.

The values of average salary are a scenario parameter for the model and is calculated on the basis of Rosstat data on average salaries by type of

tourist services provided. The indicator “Growth rate of nominal average monthly salary of employees of organizations” of the long-term forecast of socio-economic development of Kamchatka Krai (the base case) was used to predict the values of average salary<sup>20</sup>. The methodology for calculating the number of jobs in the tourism industry in the year  $t$  given above. The values of the tax rate of personal income tax are set equal to 13% for the entire simulation period.

*Calculation of the shortage of jobs in collective accommodation facilities*

The model provides for the calculation of the deficit of places in collective accommodation facilities (CAF). The deficit/excess of places in CAF is calculated by the formula (16):

$$nCAF_t^{\bar{d}} = \frac{dCAF_t^m}{30} - sCAF_t, \quad (16)$$

where:

$nCAF_t^{\bar{d}}$  – average daily deficit (with a positive value) / surplus (with a negative value) of places in collective accommodation in the most popular month of the year  $t$ ;

$dCAF_t^m$  – the average value of daily demand for beds in collective accommodation facilities in the most popular month of the year  $t$ ;

$sCAF_t$  – daily supply of beds in collective accommodation facilities in the year  $t$ .

Calculation of the average value of daily demand for places in collective accommodation facilities in the most popular month was based on the results of simulation in AnyLogic environment. Values of daily supply of places in collective accommodation facilities in year  $t$  were filled on the basis of Rosstat data on the planned number of places, as well as expert evaluation of the informal part of the CAF.

<sup>20</sup> Tables of resources and use of goods and services of the Russian Federation for 2018. Rosstat. Available at: [https://docviewer.yandex.ru/view/566230844/?\\*](https://docviewer.yandex.ru/view/566230844/?*)

The model also calculates the number of lacking CAF objects by the formula (17):

$$Add\_CAF_t = \frac{nCAF_t^{\bar{d}}}{Av\_P\_CAF}, \quad (17)$$

where:

$Add\_CAF_t$  – the number of collective accommodation facilities that cover the deficit of CAF places in the year  $t$ ;

$nCAF_t^{\bar{d}}$  – average daily deficit (with a positive value) / surplus (with a negative value) of places in collective accommodation in the most popular month;

$Av\_P\_CAF$  – the average number of CAF places in one CAF object.

The value of the average number of CAF places in one CAF object is a scenario parameter and set expertly.

*Calculation of average tourist spending*

The average cost per tourist of each cluster for the trip is calculated as the ratio of revenue (total for the cluster) to the volume of tourist flow (total for the cluster) according to the formula (18):

$$\bar{E}_i^t = \frac{E_i^t}{qT_i^t}, \quad (18)$$

where:

$\bar{E}_i^t$  – the average spending of one tourist of the  $i$ -th cluster during the whole stay in the year  $t$ ;

$E_i^t$  – total spending of all tourists of the  $i$ -th cluster in the year  $t$ ;

$qT_i^t$  – the number of tourists of the  $i$ -th cluster in the year  $t$ .

The value of the indicator number of tourists of the  $i$ -th cluster in year  $t$  is a scenario parameter and was set expertly on the basis of the data provided by the Ministry of Tourism of Kamchatka Krai. The values of the indicator total spending of all tourists of the  $i$ -th cluster in year  $t$  are calculated in AnyLogic environment.

A full calculation of economic indicators allows us to preliminarily assess the modeling occurs after unloading the output data of the results and is made on the basis of the total model in a separate model in MS Excel format. statistics on the tourists' number and their spending Simplified calculation of economic indicators (Tab. 1).

Table 1. Simplified calculation of economic indicators within the simulation model

Indicator	Source of information or calculation rules	Note
Volume of tourist flow	Of the simulated parameters (separately for Russian and foreign tourists)	
Gross value added of the industry (million rubles)	Number of tourists who visited attractors and infrastructure (accommodation, food, trade) × avcost × industry value added rate	Norm of VA = 0.55
Share of tourism in the region's GRP	GVA of the industry/GRP of the region	GRP is set by year according to the forecast of socio-economic development in the table general
The number of jobs created by the tourism industry	GVA × labor costs (labor intensity)	Labor costs = 1.12 jobs / 1 million rubles
Hotels, campsites	The number of tourists who visited the attractions and infrastructure group types "Accommodation" × avcost × labor costs (labor intensity)	
Cafes, restaurants	Number of tourists who visited the attractions and infrastructure group types "Food" × avcost × labor costs (labor intensity)	
Guide services	Number of tourists who visited attractions/guide productivity (100 people per guide)	
Integral level of tourist satisfaction, %	Share of visited tourist sites (50% more – xf less red 50-70% yellow above green)	
Completely satisfied	> 70% of successful days	
Partially satisfied	50–70% of successful days	
Unsatisfied	< 50% of successful days	
The average expenditure of clusters of tourists on a trip, thousand rubles	Sum (avcost of objects × number of visits of these objects by tourists in the cluster) / the value of the tourist flow of the cluster)	
Taxes, thousand rubles	The method of calculation for each tax is given below	
VAT	Number of tourists who visited attractions and infrastructure (accommodation, food, trade) × avcost × 0.2	
Income tax	Number of tourists who visited attractions and infrastructure (accommodation, food, trade) × avcost × net profit rate	Net profit margin = 0.289
PIT	AS by industry*Number of jobs created by the tourism industry × 0.13	AS by year is given in the table general
Source: own compilation.		

**Results and discussion**

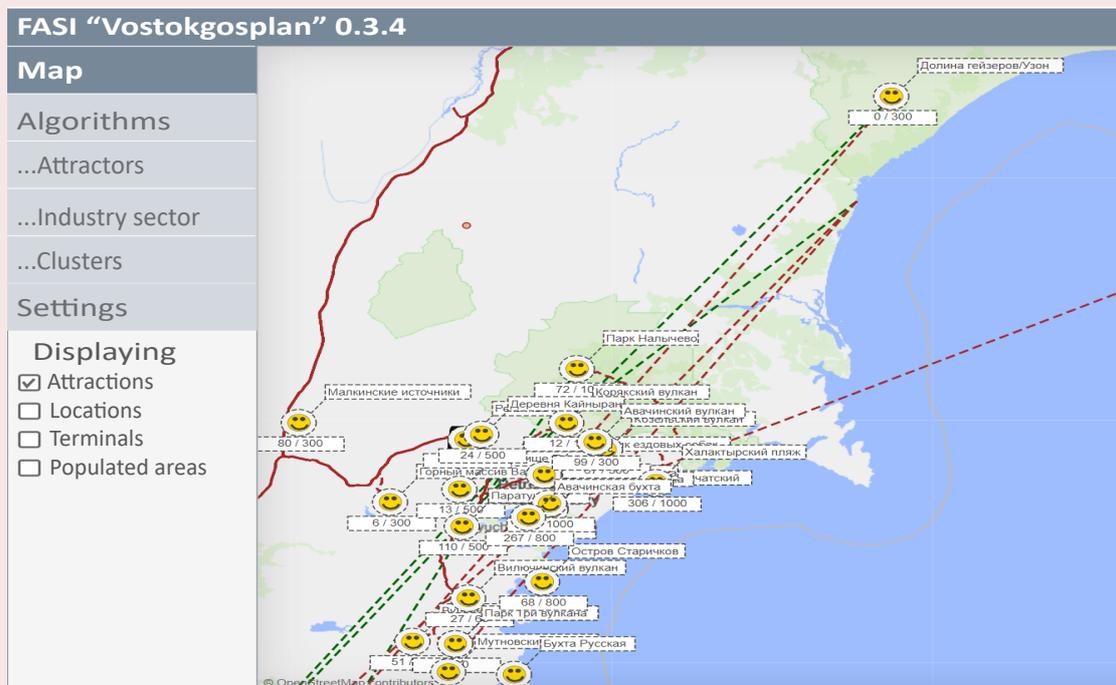
During the calculations of the main indicators, tables with data are formed, which are loaded into the PostgreSQL database, for subsequent visualization in the BI-system – Yandex DataLens, where a set of charts is formed, showing the results of modeling for each scenario: number of tourists by clusters; number of tourists by months, in the selected year; number of visitors of attraction points per year, by types of attraction points (thousand people), with the possibility of dipping to the level of individual attraction points; revenue of attraction points per year, by type of attraction points, with the possibility of dipping to the level of individual points of attraction; the number of visitors to attraction points by months in the selected year, by type of attraction points, with the possibility of dipping to the level of individual points of attraction; revenue of attraction

points by months in the selected year, by type of attraction points; share of GVA of tourist industry in GRP; GVA volume of the tourism industry; tax deductions from the tourism industry; jobs in the tourism industry; average cost per trip of one tourist, by cluster; level of tourist satisfaction; number of tourists transported by different types of transport; revenue from transportation by different types of transport; deficit of places in the CAF.

These charts are shown on a single dashboard (stand), with the ability to instantly switch between scenarios and visually compare calculation results for any two scenarios. Each dashboard chart provides the ability to export the visualized data, including MS Excel format. The list of information displayed on the dashboard is not final and can be expanded with further development of the model.

The main screen of the runtime model is shown in Fig. 2.

Figure 2. Main model screen in runtime mode



Source: own compilation.

In the simulation mode, the user can also select one of the tourist attractors by click to view detailed information about it (Fig. 3).

This article presents only the main conclusions from the modeling results. All the charts described above and detailed data of the simulation results for each scenario can be found in the dashboard of the BI-system Yandex DataLens with the possibility of data export.

The model includes the following simulation scenarios for the development of the tourism industry in Kamchatka Krai.

Conservative scenario (S1) provides for the continuation of the tourist flow growth trend at an average annual rate identical to the observed from 2014 to 2019 – by 5% per year, starting from 2021, where the volume of tourist flow is 210 thousand people per year. In this scenario, all objects of the

model retained their characteristics throughout the simulation period. There were no new points of tourist attraction, infrastructure was not developed, new routes were not created. The only variable in the simulation is the volume of tourist flow.

The base scenario (S2) provides for the growth of tourist flow at the level of 12% per year for the entire modeling period.

Optimistic scenario (S3) provides for an active growth of tourist flow from 2021 to 2027 by 15% and then by 25% by the end of the simulation period due to the introduction of several new major points of attraction of tourists.

Cyclical pandemic (S4) provides for a general trend of increasing tourist flow with a drop of 50% every 4 years due to the worsening of the pandemic and a recovery to the level of the year before the pandemic.

Figure 3. Statistics on the object



Note: The left side of this screen shows the integral indicators for the entire calculation time, the right side shows the occupancy forecast on a daily basis. The purple line represents the maximum number of simultaneous tourists received and the seasons during which the facility is open for visits.

Source: own compilation.

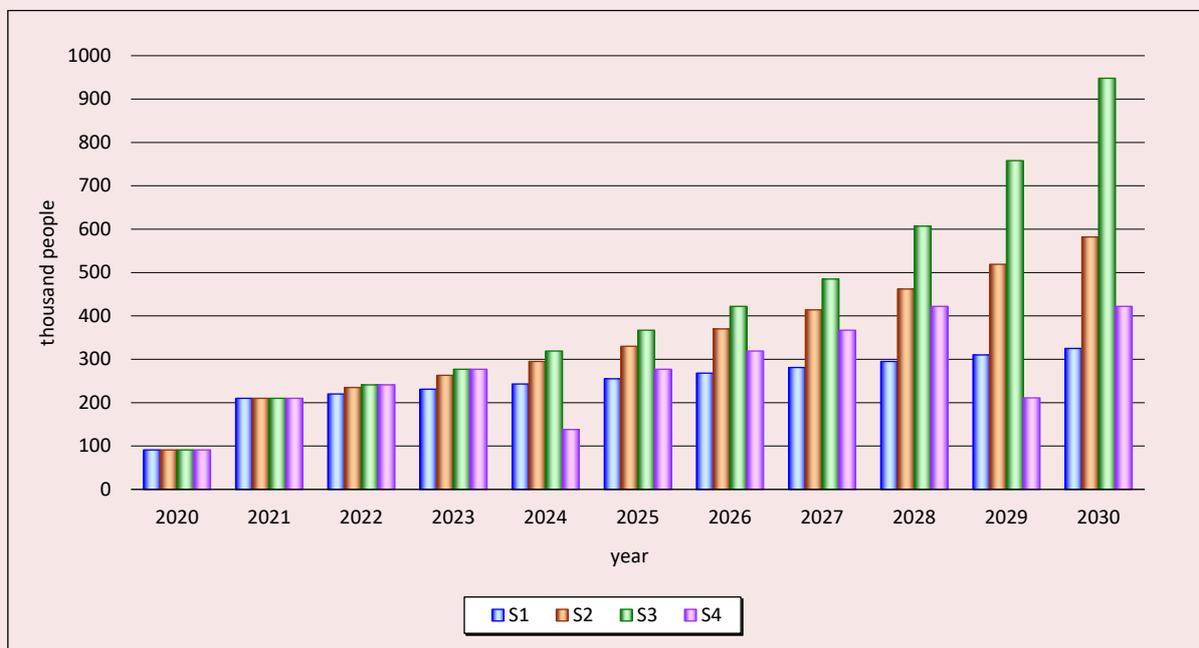
Indicators of simulation modeling scenarios for the development of the tourism industry in Kamchatka Krai are shown in *Tab. 2*. Comparative results of simulation scenarios of Kamchatka Krai tourism industry development are shown in *Fig. 4, 5*.

Table 2. Scenarios of simulation modeling of tourism industry development in Kamchatka Krai

Scenario	Tourist flow, people										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Conservative scenario (S1)	91,000	210,000	220,500	231,525	243,101	255,256	268,019	281,420	295,491	310,266	325,779
Basic scenario (S2)	91,000	210,000	235,200	263,424	295,035	330,439	370,092	414,503	464,243	519,952	582,346
Optimistic scenario (S3)	91,000	210,000	241,500	277,725	319,384	367,291	422,385	485,743	607,178	758,973	948,716
Cyclic Pandemic (S4)	91,000	210,000	241,500	277,725	138,863	277,725	319,384	367,291	422,385	211,193	422,385

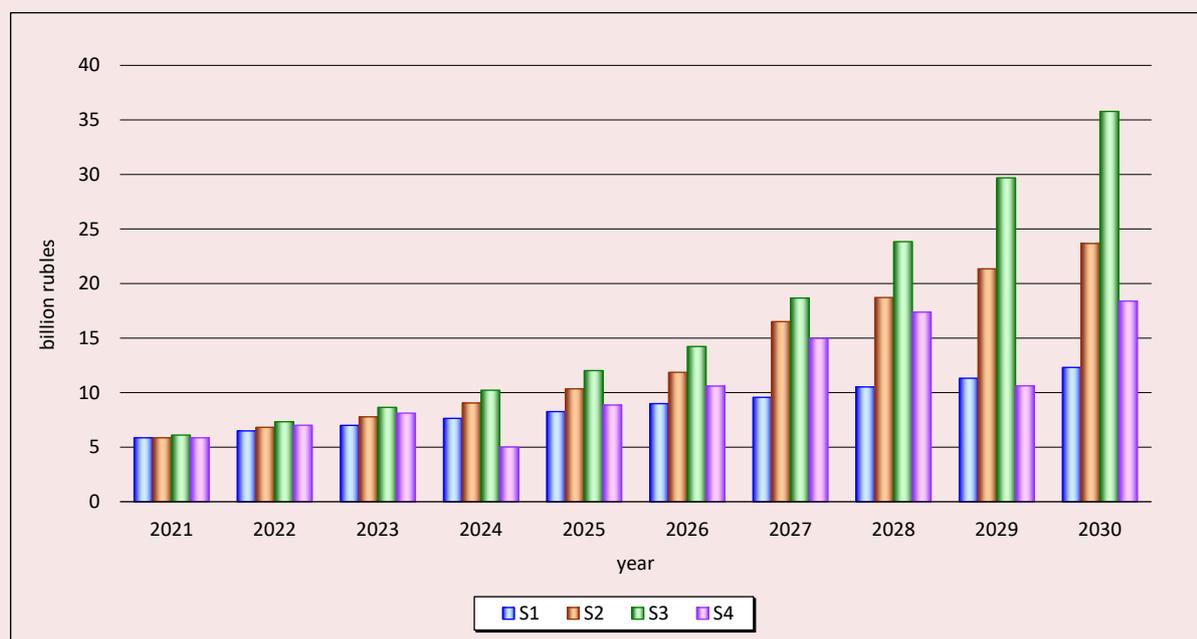
Note: The simulation period in all scenarios is 11 years – from 2020 to 2030. The starting year is 2020 (pandemic); the inclusion of 2020 allows for more accurate consideration of possible scenarios within a cyclic pandemic (S4).  
Source: own calculations.

Figure 4. Volume of tourist flow depending on the development scenario, 2020–2030, thousand people



Source: own compilation.

Figure 5. Volume of GVA of tourist industry, 2020–2030, billion rubles



Source: own compilation.

Comparative results of simulation scenarios show that with the development of a conservative scenario in 10 years, the volume of tourist flow in Kamchatka Krai will reach a peak and the slow development of the industry will be replaced by degradation. The share of tourism industry GVA in GRP in the conservative scenario increased slightly: from 2.11% to 2.47%. In the base scenario, the share of GVA of the tourism industry to GRP exceeds the values of the corresponding indicator in the conservative scenario almost 2-fold. In absolute terms, GVA of the tourism industry will increase from 5.86 billion rubles in 2021 to 23.67 billion rubles in 2030. Optimistic scenario shows that Kamchatka will be able to receive even 950 thousand tourists a year with a multiple increase in economic indicators of the tourism industry (increase in tourist flow by 15% from 2021 to 2027, and then by 25% by the end of the simulation period). At the same time,

it is necessary to consistently develop infrastructure to ensure a comfortable stay of tourists and reduce the negative impact on the landscape. In absolute terms, the volume of GVA of the tourism industry will grow by almost 6-fold and will amount to 35 billion rubles. In a cyclical pandemic, there is a general trend of increasing tourist flow with a drop of 50% every 4 years as the pandemic worsens and recovers to the level of the year before the pandemic. In post-recovery periods, the annual growth rate is 12%.

When considering the results of modeling different scenarios of tourist industry development on the example of Kamchatka Krai, the urgent need to develop infrastructure and tourist attraction points in Kamchatka Krai has been revealed. The most acute problems in increasing the tourist flow include the lack of CAF places and low capacity of most tourist attraction points.

### Conclusion

In the course of the study, the methodology for assessing scenarios of tourist industry development based on digital twin technology, developed by FASI “Vostokgosplan”, was designed and tested. We propose a model for the development of the tourism industry, which is a modern digital tool that converts a set of diverse data into a timely and balanced management decision based on an understanding of the current state of the tourism industry and the prospects for its development. Kamchatka Krai was chosen as a pilot region in the project for tourism industry digitalization.

The scientific novelty of the proposed assessment methods is the use of methods of structural and situational dynamics, involving statistical methods of data processing in AnyLogic environment. In contrast to traditional process analytics based on tables and linear dependence, the developed digital twin makes it possible to observe the detailed behavior of the system over time, to keep record of tourist preferences and point capacity, and to make recommendations for the placement of new facilities. After conducting the necessary experiments and obtaining the output data, the optimal scenarios of tourist industry development were found, the weak points were identified and it was determined that the implementation of scenario simulation modeling will allow us to calculate on a regular basis tourist expenditures and, consequently, the tourist industry income, and through multipliers, regional budget

income, and other integral indicators to improve the competitiveness of the tourism industry in Kamchatka Krai.

The proposed methodology of forming scenarios of tourism industry development on the basis of digital twin technology is of particular importance in modern conditions. We have identified a theoretical gap in scientific knowledge, which allows us to justify the need for the development of a simulation scenario-forecast model for the implementation of tourist services. The practical significance lies in the fact that the digital twin allows us to simulate different scenarios for the tourism industry development in Kamchatka Krai, thereby reducing the number of routine business processes and the impact of the human factor on the service quality. The sources of effects in this case are the indicators of attracted investments in commercial infrastructure, the financial results of commercial projects in the territory; investments made in the basic and supporting infrastructure of the region without reference to specific projects; natural indicators, indicating the development of tourism and socio-economic potential of the territory. In conjunction with the sum of budget and social effects, and qualitative indicators of territory attendance, the proposed methodology will strengthen the arguments in favor of the need to develop tourism infrastructure and create new tourist destinations in the region within the Strategy for Tourism Development in the Russian Federation.

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## Comparative Analysis of Trends in the Development of Finance of Large Corporations in the Metallurgical and Coal Industries in Russia in the Context of Global Challenges



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**Abstract.** Since the beginning of the escalation of the Ukrainian situation, the Collective West has imposed an unprecedented number of sanctions against the Russian economy. Restrictions in international trade operations and, in some cases, their full termination have forced large domestic businesses to look for “friendly” markets and develop new logistics routes. And if at the end of the first half of 2022, the oil and gas industry has shown significant growth, some Russian corporations of metallurgy and coal industry were under a jeopardy. Despite favorable conditions in the first months of 2022, the financial results of the second quarter are expected to be much more modest. The fall in revenues of metallurgy and the coal industry from spring 2022 was influenced by higher transportation costs as a result of the turn to the East, insufficient capacity of the Baikal-Amur Mainline and Trans-Siberian Railway, sales of products

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at a large discount to Asian consumers, and lower export revenues due to the strengthening of the ruble. All these factors will have a negative impact on the volume of the taxable base and revenues of regional budgets. The article was written using methods of vertical and horizontal data analysis, methods of comparison and forecasting, and the method of expert evaluations. The information base of the study was the domestic and foreign literature on the development of metallurgical and coal industries; financial statements and operating results of the largest Russian corporations of ferrous metallurgy (PJSC Severstal), nonferrous metallurgy (PJSC Nor Nickel) and coal industry (JSC CC Kuzbassrazrezugol); data of the Federal Tax Service in the Vologda and Kemerovo Oblasts, and Krasnoyarsk Krai; information of Forbes.ru; data of information and news portals.

**Key words:** sustainable development, ferrous metallurgy, nonferrous metallurgy, coal industry, global challenges, anti-Russian sanctions, socio-economic development of territories.

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### Introduction to the problematics

Sustainable socio-economic development of RF constituent entities is impossible without growth and stability of the revenue base of regional budgets. In turn, the key taxes in the formation of regional revenues are income tax and personal income tax from large corporations. And while personal income tax deductions from large industrial businesses are increasing due to periodic indexation of company management, the value of profit tax is extremely unstable. We should note that it is influenced by such factors as volume, price and currency of product sales, the level of production cost in revenue, commercial and management expenses, tax benefits and regimes. In addition, all lines of companies' financial results depend on the presence or absence of sanctions.

We should say that since February 24, throughout 2022, the countries of the European Union and the United States, and their satellites, have imposed various economic restrictions and bans on Russia. The sanctions affected almost all economic spheres: cessation of international trade; withdrawal of foreign companies from the market; arrest of foreign exchange reserves; restrictions in the field of investment, etc. While in November

2021 – February 2022, the average dollar exchange rate was 73–77 rubles, by March 11, the price of the U.S. currency had risen to 120.38 rubles. However, no matter how much the Collective West would have wanted the dollar at 200 rubles<sup>1</sup>, by April 9, the dollar had already fallen to 74.85 rubles (-37.8%). The key reasons for the strengthening of the Russian ruble were: the ban on exports of currency from the country of more than 10 thousand dollars; gas trade with unfriendly countries in rubles; the obligation for exporters to sell up to 80% of foreign currency earnings (*Fig. 1*).

After the April recovery, the ruble began to hit new records. Due to the loss of interest in and demand for the USD, caused by the impossibility to buy anything with it, and also due to the increased risk of holding this currency, because of Russia's gold reserves arrest<sup>2</sup>, by June 30 the price of the

<sup>1</sup> Two hundred rubles for a dollar: What the ruble exchange rate may be by the end of the year. Available at: <https://www.forbes.ru/mneniya/460107-operacia-rubl-kak-v-2022-godu-politika-stala-opredelat-kurs-rossijskoj-valuty>

<sup>2</sup> The Minister of Finance announced the freezing of \$300 billion in foreign currency reserves due to sanctions. Available at: <https://www.rbc.ru/economics/13/03/2022/622dd6ee9a7947081b63341c>

Figure 1. Dynamics of the USD/RUB exchange rate from November 2021 till September 2022



Source: USD – exchange rate of the Central Bank of RF. Available at: <https://invest.yandex.ru/catalog/quote/usd-cbr/>

USD fell down to 51.16 rubles, which is 57.5% lower than the April maximum. However, such a strong ruble is not profitable not only for exporters and the Russian budget, but also for import-substituting companies, which are afraid of losing market share due to the appearance of cheap goods from foreign countries<sup>3</sup>. According to Vice-Premier A. Belousov, the optimal dollar exchange rate is in the range of 70–80 rubles<sup>4</sup>.

The purpose of the article is to determine the prospects and directions of development of large corporations in the metallurgical and coal industries of Russia in the current context of global challenges. Accordingly, it is necessary to solve the following tasks:

- 1) to analyze the dynamics of financial results of large companies, to evaluate production efficiency, commercial, managerial and tax burden;
- 2) to determine the contribution of companies in the formation of revenues of the budget system through tax deductions (profit tax, VAT, personal income tax and property tax);

<sup>3</sup> The exchange rate is fake! Why the ruble strengthened despite the sanctions war. Available at: [https://www.dp.ru/a/2022/10/14/Prioritet\\_zabota\\_o\\_paci](https://www.dp.ru/a/2022/10/14/Prioritet_zabota_o_paci)

<sup>4</sup> Belousov called a comfortable dollar rate for Russia. Available at: <https://www.rbc.ru/economics/16/06/2022/62aa59d59a79476e1177f1fc>

3) to identify key problems of effective combination of private and public interests;

4) to analyze the current situation in the metallurgical and coal industries in the new conditions of restrictions and market conditions;

5) to determine the prospects for the development of major companies in the face of sanctions and restrictions.

Large private corporations PJSC Severstal (ferrous metallurgy, Vologda Oblast), PJSC Nornickel (nonferrous metallurgy, Krasnoyarsk Krai) and JSC CC Kuzbassrazrezugol (coal industry, Kemerovo Oblast) constitute the object of the study.

### Literature review on the subject of the research

#### *Metallurgical industry*

Researcher I.A. Budanov notes the inseparable influence of metallurgical production on the formation of socio-economic conditions in the country is noted. The author highlights the mainsocial functions carried out by metallurgy: maintenance of environmental safety at a proper level; improvement of working conditions of employees; participation in the development of local communities. The consequence of social expenditures of metallurgical companies is the public recognition of the results of their activities,

and the changes in the level of their capitalization (Budanov, 2021). P.A. Degtyarev notes that under the current conditions of tough sanctions restrictions, difficult access to capital markets, the intense fall of the Russian currency many enterprises of the industrial sector of the economy were faced with a difficult choice of priorities. The greatest success was achieved by those metallurgical companies that initially organically integrated environmental and social objectives into the overall development strategy (Degtyarev, 2022). Yu.Yu. Kostyukhin devoted his work to the strategic management of the Russian metallurgy in the face of challenges and risks. According to the author, sanctions against Russia will cause the need for greater concentration in the domestic steel market, and government support associated with the provision of various kinds of tax and other benefits (Kostyukhin, 2022).

The article by O.A. Romanova and D.V. Sirotin substantiates the importance and highlights the drivers of resilience of metallurgy in the new reality. The increasing role of structural policy in the basic sectors of the economy, particularly in metallurgy, with a focus on the intellectualization and servicization of production is noted (Romanova, Sirotin, 2022). According to D.V. Bazhenov, a leading analyst of the brokerage company Kit Finans, ferrous metallurgy is the most affected industry from the sanctions pressure as a result of the events in Ukraine. The fall in demand and steel prices, the strengthening of the Russian ruble, production decline, growth in supply chain costs and loss of markets will lead to a decrease in revenue and a lack of net profit. It is expected a negative free cash flow and growth of the debt burden, which will not allow Russian steelmakers to pay dividends soon. This, in turn, will lead to a negative revaluation of steel companies due to the downward dynamics of quotations (Bazhenov, 2022).

Over the years, scholars of RAS Vologda Research Center of have published numerous

articles and monographs concerning the interaction between the government and large corporations in the metallurgical industry, determining the role in the formation of budget revenues, the level of social responsibility, features of distribution policy and tax burden, giving the characteristics of export and import activities (Ilyin, Povarova, 2014–2019; Ilyin et al. (2021); Malyshev (2021); Pechenskaya-Polishchuk, Malyshev, 2021a; Pechenskaya-Polishchuk, Malyshev, 2021b; Pechenskaya-Polishchuk, Malyshev, 2022).

#### *Coal industry*

There are a significant number of publications on the Russian coal industry in the economic literature. For example, N.V. Vasil'eva analyzes the current state of the Russian coal industry in terms of production levels, exports, and price changes. The leading positions of the Russian Federation in production and export of coal are noted. Particular attention is paid to the global trend to reduce coal production due to environmental motives, which, in turn, negatively affects consumer demand (Vasil'eva, 2020). O.I. Khokhrina studies the issues affecting the transformation of the established model of development of Russia's leading coal mining center – Kuzbass – under the influence of external and internal risks. The author identifies five key factors of influence: decarbonization of the world economy; falling coal prices; the COVID-19 pandemic; long-term reduction of coal consumption in Russia; and the formation of new coal mining centers in eastern Russia. It is noted that as a result of the decrease in global demand for hydrocarbons, the volume of coal production in Kuzbass will fall by 70–100 million tons per year, which will provoke a deep socio-economic crisis in the region (Khokhrina, 2020). Scientists of Voronezh State Agrarian University tried to analyze the state and trends of development of the coal industry of the Russian Federation in the context of the transition of the global economy to carbon neutrality. In this case, the tool to achieve the goal will be a carbon tax, which will directly

affect the export of Russian hydrocarbons (oil, gas and coal). It is not easy for Russia to reorient itself to new markets in Asia; it needs serious investments in infrastructure to increase the capacity of the Trans-Siberian Railway and the Baikal-Amur Mainline (Salnikova, Grineva, 2022).

*Review of English-language sources about the subject of the research*

In the foreign economic literature, a considerable number of studies related to the events in Ukraine and the sanctions against Russia have already appeared. Thus, K. Mahlstein used CGE modeling to analyze the short- and medium-term economic consequences of the trade embargoes imposed by allied countries on Russia. The trade sanctions consider restrictions in imports, exports, and trade costs between Russia and non-allied countries. According to the researcher, the Russian economy would suffer significant losses, over 14% of real GDP. In addition, it is noted that Russia would have incurred much greater losses if it had accepted the counter-sanctions instead of accepting the fact that it was the object of sanctions (Mahlstein et al., 2022). P. Beauregard noted that transatlantic politicians were short-sighted and “were empowered by intense emotions”<sup>5</sup> when adopting economic sanctions against Russia. According to the author, the scientific community of the EU and the U.S. understood the negative consequences of the implementation of various restrictions. Western economic experts predicted serious costs for several European countries and were surprised when the sanctions were eventually adopted. The incitement of EU countries by the U.S. to impose sanctions has caused tensions between these political “allies” (Beauregard, 2022). S.H. Allen notes that in response to the special operation, a wide range of countries imposed a series of sanctions against the Russian President and his supporters. However, according to the author,

<sup>5</sup> EU and U.S. politicians.

the future success of sanctions in deterring Russia is highly doubtful, even though they are targeted. In addition, restrictive measures could affect prices worldwide (Allen, 2022).

We should also note the publication of Chinese scientists, who analyzed the business activity of the Russian Federation at night based on observations of nighttime lighting. The researchers found a correlation between economic sanctions and regional differences. As sanctions increased, lighting in Moscow, Saint Petersburg and provincial capitals, and industrial cities became brighter than in the rest of the country. However, under the sanctions, coverage of Russia’s mining regions was dimmer. Finally, areas close to the Chinese border recorded relatively more economic activity. The lights of Blagoveshchensk were brighter compared to the rest of the country (Li, Li., 2022). D. Siegel argues that U.S. sanctions were designed to change Russian foreign policy by exploiting the political conflict between the oligarchs and the government elite. However, after nearly eight years of sanctions, Russian elites seem more united than ever. The author believes that Russian oligarchs can sometimes show cohesion, especially when their wealth is threatened by external rather than internal sources (Siegel, 2022). A collective publication by Geneva and Washington researchers notes that as part of the sanction’s regime, the United States has announced the imposition of import duties on 570 product groups from Russia. The European Union may follow suit and impose sanctions on Russia that mirror U.S. sanctions in scale and scope. Using a partial equilibrium model, the researchers estimated the damage to the Russian economy at \$996 million per year. At the same time, the losses for the EU would be about \$150 million per year. Thus, in keeping with the spirit of international coordination and harmonization, the EU might consider adjusting the tariff sanctions package instead of simply adopting the U.S. package (Latipov et al., 2022).

### Research methods

During the work, we used methods of dynamic (horizontal) and specific-weighted (vertical) data analysis. In addition, methods of comparison, forecasting, and the method of expert evaluations were used.

The information base of the study includes domestic literature on the development of the metallurgical and coal industries, and foreign publications describing the impact of sanctions on the economy of Russia and European countries. In addition, we used financial statements and operating results of the largest Russian corporations of ferrous metallurgy (PJSC Severstal), nonferrous metallurgy (PJSC Nor Nickel) and coal industry (JSC CC Kuzbassrazrezugol), data of the Federal Tax Service in the Vologda and Kemerovo oblasts, and Krasnoyarsk Krai, information from Forbes.ru website, data from information and news portals (Kommersant, RBC, Yandex Investments, Tinkoff magazine, Interfax, RIA Novosti).

### Research results

The role of Russian metallurgy in the structure of GDP is small (about 5%), but very important because three basic sectors of the economy depend on metallurgy: industry, construction, and the fuel and energy complex, which together account for 58% of GDP<sup>6</sup>.

The coal industry makes a significant contribution to the economy of the Russian Federation, including the country's energy security. Even though its share in the structure of GDP is 1%, it provides more than 150 thousand jobs, the fate of about 140 large settlements (single-industry towns) depends on the development of coal mining. Production of a quarter of electricity and about 70% of steel products depends on the situation in the fuel and energy sector. Also coal is a valuable export commodity, it accounts for 3–4% of all revenues

<sup>6</sup> Metallurgy became the basis for three industrial sectors that contribute 58% of GDP in total. Available at: <https://www.kommersant.ru/doc/3947600>

from export activities, and there are high hopes for the effect of the development of the industry<sup>7</sup>.

Speaking of the financial results of the corporations specified in the object of the study, we should note that in 2012–2021, the outpacing growth of revenue over cost of sales led to a decrease in its share by 20.5 p. p. at PJSC Severstal and by 30.2 p. p. at JSC CC Kuzbassrazrezugol. In general, Nor Nickel's cost of sales also decreased, but production suspension at Oktyabr'skii and Taimyrskii mines in 2021 due to waterlogging led to lower revenues and higher costs for elimination of the consequences. As a result, the share of expenses in the cost of production in revenue became 44.9%, which is 11.5 p.p. higher than in 2020. The total 10-year cost-to-income ratio for PJSC Severstal amounted to 2.62 trillion rubles, or 70.3% of its revenues, while costs as a percentage of revenues for PJSC Nor Nickel and JSC CC Kuzbassrazrezugol were 37.8 and 52.8%, respectively. This difference is due to the higher cost of products manufactured by Nor Nickel (*Tab. 1*).

In the first half of 2022, the average selling price of cast iron at PJSC Severstal decreased by 41%, the price of slabs decreased by 2,4-fold, the cost of hot-rolled and bar iron products decreased by 13 and 17% respectively relative to the 1st quarter<sup>8</sup> (*Tab. 2*).

Speaking about the changes in nonferrous metals prices in the first half of 2022, we should note the growth of nickel prices by 47%, while copper prices increased by only 9%. The cost of precious metals such as platinum and palladium has decreased by 12% and 17% respectively in comparison with the same period of 2021<sup>9</sup> (*Tab. 3*).

<sup>7</sup> Prospects for the development of the coal industry in Russia: Export potential, financial situation, socio-economic effects. Available at: <https://www.csr.ru/upload/iblock/fd6/fd69a69529035a5127eb498dfcc7d565.pdf>

<sup>8</sup> Semi-annual operating results of Severstal. Available at: <https://journal.tinkoff.ru/news/review-chmf-1h2022/>

<sup>9</sup> Who paid the dividends. Review of Nor Nickel's results. Available at: <https://journal.tinkoff.ru/news/review-gmkn-2h2022/>

Table 1. Production efficiency of major corporations of ferrous, nonferrous metallurgy and coal industry in 2012–2021

Period	PJSC Severstal (Vologda Oblast)			PJSC Nor Nickel (Krasnoyarsk Krai)			JSC CC Kuzbassrazrezugol (Kemerovo Oblast)		
	Revenue	Cost	Share	Revenue	Cost	Share	Revenue	Cost	Share
	Billion rub.		%	Billion rub.		%	Billion rub.		%
2012	224	182	81.5	289	112	38.7	67	44	65.7
2013	213	174	81.8	273	119	43.5	52	41	78.4
2014	234	171	73.3	346	127	36.7	58	43	73.9
2015	279	187	67.0	401	124	31.1	73	48	65.7
2016	305	210	68.9	423	171	40.4	69	50	72.2
2017	360	261	72.7	456	187	41.1	86	56	65.7
2018	433	297	68.7	609	237	38.8	137	62	45.3
2019	458	349	76.3	878	292	33.2	151	69	45.6
2020	451	318	70.4	924	309	33.4	127	66	51.6
2021	770	470	61.0	856	384	44.9	264	93	35.5
<b>Total for 2012–2021</b>	<b>3725</b>	<b>2620</b>	<b>70.3</b>	<b>5454</b>	<b>2062</b>	<b>37.8</b>	<b>1085</b>	<b>573</b>	<b>52.8</b>
2021 to 2012	3.45-fold	2.58-fold	-20.5 p.p.	2.97-fold	3.44-fold	+6.2 p.p.	3.96-fold	2.14-fold	-30.2 p.p.

Source: Own compilation based on data of corporate financial reporting.

Table 2. Dynamics of sales prices of PJSC Severstal products in the first and second quarters of 2022

Products	1st quarter of 2022	2nd quarter of 2022	Change, fold
	thousand rubles per 1 ton		
Cast iron	41.9	24.7	0.59
Slabs	45.2	19.1	0.42
Hot-rolled steel	67.3	58.5	0.87
Bar iron	58.8	48.9	0.83

Source: Own calculation based on data from journal.tinkoff.ru

Table 3. Dynamics of PJSC Nor Nickel's product sales prices in the first half of 2021 and 2022

Heavy metals	1st half of 2021	1st half of 2022	Change, fold
	thousand dollars per oz.		
Nickel	17.6	25.9	1.47
Copper	8.9	9.7	1.09
Noble metals	1st half of 2021	1st half of 2022	Change, fold
	thousand dollars per oz.		
Palladium	2.5	2.2	0.88
Platinum	1.2	1	0.83

Source: Own calculation based on data from journal.tinkoff.ru

Over the last 10 years, the share of management expenses of PJSC Severstal and JSC CC Kuzbassrazrezugol decreased by 2.6 and 5.6 p.p., respectively, while PJSC Nornickel increased by only 0.3 p.p. The steel company has the best managerial efficiency, which is confirmed by the share of management expenses at 3.5% of total revenues. For the other two companies, the total management burden amounted to 5.5% and 6.4% of revenue, respectively.

Commercial expenses of PJSC Severstal increased by 3.6-fold, and its share in revenues increased by 0.2 p.p., in PJSC Nornickel expenses increased by 28%, and its share decreased by 3.3 p.p., in JSC CC Kuzbassrazrezugol commercial expenses increased by 26.6-fold, and the commercial load increased by 23.1 p.p. in comparison with the revenues. PJSC Nornickel has the best commercial efficiency – the total commercial expenses of the company for 10 years amounted to 1.9% of the total revenue, which is also associated with a higher added value of products and

lower costs for transportation and packaging due to lower production volumes. The steel and coal companies' commercial expenses for the period were 6 and 22.3%, respectively.

During 2019 and 2020, OJSC Russian Railways has repeatedly reported that coal companies do not meet the parameters formed by the development of the first phase of the Baikal-Amur and Trans-Siberian Mainlines' expansion. It was initially supposed that coal transportation from Kuzbass to the Eastern polygon will make up only 39 million tons by 2020; in fact, it reached 55 million tons in 2020. Transportation from deposits in Eastern Siberia and the Far East will be only 33 million tons instead of 65 million tons. As a result, OJSC "Russian Railways" lost about 7.3 billion rubles due to the imbalance of freight flows.

We should note that the growth of commercial and managerial burden of major private companies negatively affects both the state and the companies themselves due to the reduction of the taxable base and net profit (*Tab. 4*).

Table 4. Commercial and managerial burden of major corporations in the ferrous, nonferrous metallurgy and coal industries for 2012–2021

Period	PJSC Severstal (Vologda Oblast)				PJSC Nornickel (Krasnoyarsk Krai)				JSC CC Kuzbassrazrezugol (Kemerovo Oblast)			
	Selling expenses	Share	Manage- ment expenses	Share	Selling expenses	Share	Manage- ment expenses	Share	Selling expenses	Share	Manage- ment expenses	Share
	Billion rub.	%	Billion rub.	%	Billion rub.	%	Billion rub.	%	Billion rub.	%	Billion rub.	%
2012	13.9	6.2	11.8	5.3	16.6	5.8	15.7	5.4	2.7	4.0	6.1	9.2
2013	14.2	6.7	9.4	4.4	11.2	4.1	19.9	7.3	2.1	3.9	6.1	11.7
2014	13.8	5.9	8.8	3.8	8.5	2.5	17.4	5.0	3.6	6.2	5.3	9.1
2015	16.8	6.0	9.4	3.4	8.8	2.2	22.6	5.6	2.9	4.0	5.97	8.1
2016	15.6	5.1	11.4	3.7	9.0	2.1	25.8	6.1	2.7	4.0	6.6	9.5
2017	17.3	4.8	11.7	3.3	5.1	1.1	30.7	6.7	3.6	4.1	7.01	8.2
2018	21.6	5.0	12.8	3.0	6.7	1.1	37.9	6.2	32.3	23.6	7.6	5.6
2019	29.7	6.5	15.6	3.4	7.8	0.9	41.3	4.7	67.1	44.3	7.4	4.9
2020	31.7	7.0	18.4	4.1	8.1	0.9	41.8	4.5	59.9	47.0	8.2	6.5
2021	49.6	6.4	20.4	2.7	21.2	2.5	48.96	5.7	71.5	27.1	9.5	3.6
<b>Total for 2012–2021</b>	<b>224.2</b>	<b>6.0</b>	<b>129.8</b>	<b>3.5</b>	<b>103.1</b>	<b>1.9</b>	<b>302</b>	<b>5.5</b>	<b>248.5</b>	<b>22.9</b>	<b>69.8</b>	<b>6.4</b>
2021 to 2012	3.56-fold	+0.2 p.p.	1.74-fold	-2.6 p.p.	1.28-fold	-3.3 p.p.	3.12-fold	+0.3 p.p.	26.61-fold	+23.1 p.p.	1.56-fold	-5.6 p.p.

Source: Own compilation based on data of corporate financial reporting.

Profit before taxation of PJSC Severstal increased 19-fold, and the profit tax itself – 15.7-fold. For 10 years its volume amounted to 87 billion rubles, i.e. 8.9% of the total tax base of the company. The current tax rate has decreased by 2.4 p.p., from 14% in 2012 to 11.5% in 2021. PJSC Nor Nickel's total income tax was 0.5 trillion rubles, equivalent to 20.9% of total profit before tax. The tax rate was reduced by 8.8 p.p., from 28.1% to 19.4%. JSC CC Kuzbassrazrezugol's tax share in total revenue was 24.4% and increased by 4.3 p.p. over the period (Tab. 5).

When analyzing the data of the Federal Tax Service, the growth of profit tax receipts from PJSC Severstal to the budget of the Vologda Oblast was noted by 47.5-fold – from 0.69 to 32.5 billion rubles. It increased the contribution of ferrous metallurgy by 21.5 p.p. to the budget incomes and by 49.5 p.p. to the total incomes of profit tax. The profit tax from PJSC Nor Nickel to the budget of the Krasnoyarsk Krai was reduced by 76% – from 21.4 to 5.1 billion rubles. At the same time, the

contribution of profit tax to the budget revenues decreased by 10.8 p.p., while the share of profit tax in total revenues decreased by 38.3 p.p. Coal mining in the Kemerovo Oblast increased profit tax allocations 4.8-fold – from 9.6 to 46.3 billion rubles, the share in total revenues increased by 11.6 p.p., in the total profit tax by 7 p.p. (Tab. 6).

According to the analysis of corporations' calculations with the federal budget, for 10 years the total VAT refund in favor of ferrous metallurgy of the Vologda Oblast was 18 billion rubles, in favor of nonferrous metallurgy of the Krasnoyarsk Krai – 155 billion rubles. The coal industry of Kemerovo Oblast paid a total of 6 billion rubles of VAT to the budget system. Income tax receipts to the federal budget from PJSC Severstal exceeded the VAT refund costs by 17 billion rubles. The refund of VAT in favor of Nor Nickel exceeded the amount of profit tax paid to the federal budget by 108 billion rubles. Profit tax from coal mining was 33 billion rubles (Tab. 7).

Table 5. Income tax receipts to the federal budget and VAT from major corporations in the ferrous, nonferrous metallurgy and coal industries in 2012–2021

Period	PJSC Severstal (Vologda Oblast)			PJSC Nor Nickel (Krasnoyarsk Krai)			JSC CC Kuzbassrazrezugol (Kemerovo Oblast)		
	Profit before tax	Current income tax	Current income tax rate	Profit before tax	Current income tax	Current income tax rate	Profit before tax	Current income tax	Current income tax rate
	Billion rub.		%	Billion rub.		%	Billion rub.		%
2012	16.3	2.3	14.0	99.3	27.9	28.1	12.7	2.3	17.8
2013	9.2	0.0	0.0	97.7	19.8	20.3	-1.8	0.0	0.0
2014	-37.7	0.0	0.0	64.2	24.4	38.0	-13.3	0.0	0.0
2015	44.3	0.0	0.0	171.6	24.9	14.5	5.0	0.8	16.7
2016	106.5	6.8	6.4	166.7	43.5	26.1	3.6	0.2	6.1
2017	146.0	6.5	4.5	173.0	37.6	21.7	12.3	1.0	8.3
2018	138.4	14.1	10.2	211.9	46.0	21.7	30.9	4.4	14.1
2019	119.7	14.5	12.1	625.4	110.7	17.7	0.5	0.9	185.7
2020	122.4	7.1	5.8	382.9	87.8	22.9	-8.5	2.2	-25.8
2021	310.8	35.8	11.5	386.0	74.7	19.4	72.1	15.9	22.1
<b>Total for 2012–2021</b>	<b>976</b>	<b>87</b>	<b>8.9</b>	<b>2379</b>	<b>497</b>	<b>20.9</b>	<b>113</b>	<b>28</b>	<b>24.4</b>
2021 to 2012	19.02-fold	15.72-fold	-2.4 p.p.	3.89-fold	2.67-fold	-8.8 p.p.	5.68-fold	7.04-fold	+4.3 p.p.

Source: Own compilation based on data of corporate financial reporting.

Table 6. Income tax receipts from major corporations in the ferrous, nonferrous metallurgy and coal industries to the budgets of the base regions in 2012–2021

Period	PJSC Severstal (Vologda Oblast)			PJSC Nor Nickel (Krasnoyarsk Krai)			JSC CC Kuzbassrazrezugol (Kemerovo Oblast)		
	Income tax to the regional budget	Share in total budget revenues	Share in total income tax	Income tax to the regional budget	Share in total budget revenues	Share in total income tax	Income tax to the regional budget	Share in total budget revenues	Share in total income tax
	Billion rub.	%	%	Billion rub.	%	%	Billion rub.	%	%
2012	0.69	1.3	6.3	21.4	12.1	40.7	9.6	7.9	39.1
2013	0.77	1.4	12.8	15.4	8.8	36.2	2.2	2.0	14.8
2014	0.61	1.1	8.0	26.4	13.8	53.1	3.6	2.8	18.5
2015	0.36	0.6	5.5	30.9	14.6	46.5	7.7	5.8	33.4
2016	2.6	3.9	22.6	24.2	10.8	33.1	8.3	6.1	32.5
2017	5.5	7.6	35.4	25.9	10.6	32.9	26.8	16.0	53.3
2018	13.4	15.0	54.0	0.35	0.1	0.4	33.5	16.4	50.1
2019	12.9	12.3	49.1	1.9	0.6	1.4	21.0	10.8	42.1
2020	8.3	7.2	44.1	2.9	0.9	2.4	7.1	3.5	23.4
2021	32.5	22.8	55.8	5.1	1.3	2.3	46.3	19.5	46.0
<b>Total for 2012–2021</b>	<b>78</b>	<b>9.5</b>	<b>41.7</b>	<b>155</b>	<b>7.5</b>	<b>6.0</b>	<b>166</b>	<b>10.2</b>	<b>41.0</b>
2021 to 2012	47.44-fold	+21.5 p.p.	+49.5 p.p.	0.24-fold	-10.8 p.p.	-38.3 p.p.	4.82-fold	+11.6 p.p.	+7.0 p.p.

Source: Own calculation based on data from the Federal Tax Service.

Table 7. Income tax receipts to the federal budget and VAT from major corporations in the ferrous, nonferrous metallurgy and coal industries in 2012–2021

Period	PJSC Severstal (Vologda Oblast)			PJSC Nor Nickel (Krasnoyarsk Krai)			JSC CC Kuzbassrazrezugol (Kemerovo Oblast)		
	Income tax to the federal budget	VAT	Sum	Income tax to the federal budget	VAT	Sum	Income tax to the federal budget	VAT	Sum
	Billion rub.			Billion rub.			Billion rub.		
2012	0.89	-0.59	0.3	6.1	-16.6	-10.5	1.7	-0.5	1.2
2013	0.57	-2.93	-2.4	9.0	-28.1	-19.1	0.3	-6.2	-5.9
2014	1.6	1.5	3.2	3.9	-26.4	-22.5	0.4	-5.4	-4.9
2015	1.6	5.8	7.4	4.5	-31.6	-27.1	0.7	-2.4	-1.7
2016	1.8	3.5	5.3	0.5	-27.5	-27.0	1.2	-3.8	-2.6
2017	5.9	0.5	6.4	1.8	-26.4	-24.7	5.8	10.9	16.7
2018	4.4	1.2	5.6	5.0	-32.5	-27.6	7.1	10.0	17.1
2019	3.9	-3.8	0.0	6.2	-8.4	-2.3	3.9	-1.9	2.0
2020	2.6	-11.1	-8.5	5.9	42.5	48.4	1.5	-10.2	-8.7
2021	11.0	-11.9	-0.9	4.1	-0.3	3.8	10.5	15.8	26.3
<b>Total for 2012–2021</b>	<b>34</b>	<b>-18</b>	<b>17</b>	<b>47</b>	<b>-155</b>	<b>-108</b>	<b>33</b>	<b>6</b>	<b>39</b>
2021 to 2012	12.39-fold	20.24-fold	x	0.67-fold	0.02-fold	x	6.09-fold	x	21.72-fold

Source: Own calculation based on data from the Federal Tax Service.

In the period 2012–2021 there was a characteristic increase in personal income tax revenues by 2.23-fold from ferrous metallurgy in the Vologda Oblast, by 2.15-fold from nonferrous metallurgy in Krasnoyarsk Krai and by 81% from coal mining in the Kemerovo Oblast. Such a change indicates the growth of salaries in these industries. However, the reason why the growth rate of personal income tax in metallurgy is 2.65-2.75-fold higher than in coal mining sector is the successful modernization of coal mining companies, which leads to a permanent reduction in their need for labor resources. The redundant workers are forced to look for jobs in much less prosperous industries, which causes more problems for both the population and the

regional authorities (Ivanter et al., 2018). The growth of personal income tax revenues led to an increase in the contribution of industries in the total personal income tax of each region by 1.2–2.3 p.p. Property tax decreased by 31% from PJSC Severstal, and its share in the total property tax for the region fell by 7.8 p.p. Property tax from nonferrous metallurgy and coal mining increased by 32 and 22% respectively, but its share decreased by 2.1 and 2.6 p.p. (Tab. 8).

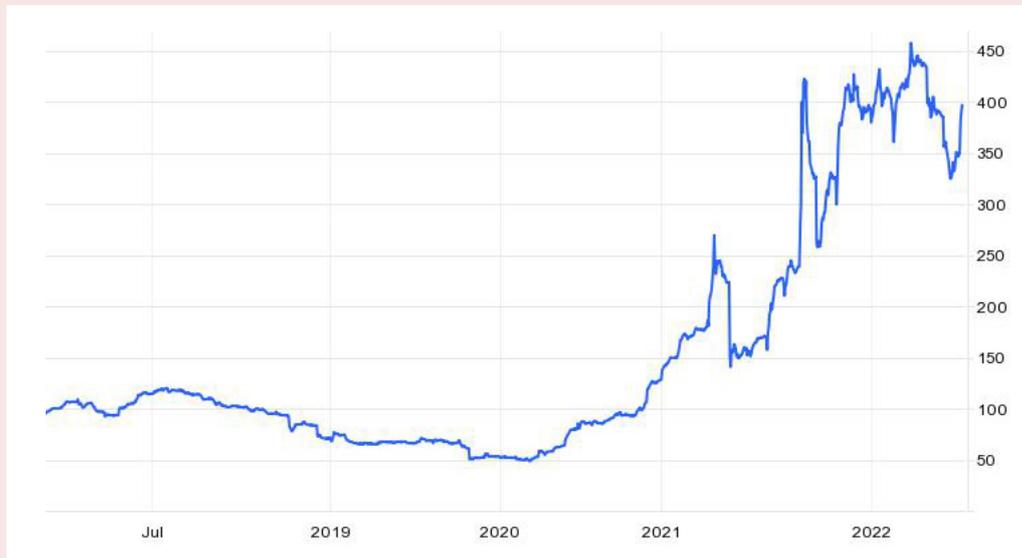
Of course, the sanctions also affected the tax payments of these corporations to the budget system of the country. In the first half of 2022, profit tax receipts from PJSC Severstal to the budget system amounted to 14.5 billion rubles, which is 18% less compared with the same period of 2021.

Table 8. Personal income tax and property tax receipts from major corporations of the ferrous, nonferrous metallurgy and coal industries to the budgets of the base regions for 2012–2021

Period	PJSC Severstal (Vologda Oblast)				PJSC Nornickel (Krasnoyarsk Krai)				JSC CC Kuzbassrazrezugol (Kemerovo Oblast)			
	PIT	Share	Property tax	Share	PIT	Share	Property tax	Share	PIT	Share	Property tax	Share
	Million rub.	%	Million rub.	%	Million rub.	%	Million rub.	%	Million rub.	%	Million rub.	%
2012	1.7	10.3	1.1	14.3	3.8	7.8	2.1	13.1	6.5	17.6	3.5	40.6
2013	1.7	10.2	1.3	13.0	4.4	8.1	2.3	11.6	6.7	17.8	4.3	43.0
2014	1.8	10.4	1.0	10.2	4.6	8.2	2.4	12.8	6.6	15.6	3.5	39.7
2015	2.2	12.8	1.3	10.9	5.2	9.2	2.6	11.8	6.9	17.7	4.6	44.5
2016	2.5	13.4	1.2	9.5	5.4	8.8	2.5	10.6	7.4	18.8	3.1	36.4
2017	2.8	14.0	1.2	8.7	6.6	10.3	3.5	13.9	8.6	19.9	3.5	38.6
2018	3.0	13.9	1.1	7.0	6.4	9.1	3.9	13.7	10.9	21.5	5.0	40.6
2019	3.0	12.6	0.8	5.3	7.0	9.1	3.5	13.4	10.6	19.4	3.7	36.1
2020	3.2	11.9	0.6	5.8	7.0	8.4	2.6	10.9	9.7	17.7	3.9	38.4
2021	3.7	12.6	0.7	6.5	8.3	9.0	2.7	11.1	11.8	19.2	4.3	38.0
<b>Total for 2012–2021</b>	<b>25</b>	<b>12.3</b>	<b>10</b>	<b>8.7</b>	<b>59</b>	<b>8.9</b>	<b>28</b>	<b>12.3</b>	<b>86</b>	<b>18.7</b>	<b>40</b>	<b>39.6</b>
2021 to 2012	2.23-fold	+2.3 p.p.	0.69-fold	-7.8 p.p.	2.15-fold	+1.2 p.p.	1.32-fold	-2.1 p.p.	1.81-fold	+1.5 p.p.	1.22-fold	-2.6 p.p.

Source: Own calculation based on data from the Federal Tax Service.

Figure 2. Dynamics of average prices for coal per 1 ton from July 2018 to December 2022, USD



Source: Coal – Futures Contract – Prices. Available at: <https://ru.tradingeconomics.com/commodity/coal>

Profit tax from nonferrous metallurgy in Krasnoyarsk Krai decreased by 20% – from 6.6 to 5.3 billion rubles, mainly due to a fourfold increase in other expenses of PJSC Nor Nickel and the growth in management expenses and interest payable by 60 and 88%, respectively.

The 13.7-fold growth of Kemerovo Oblast's coal production tax is due to an intensive increase in coal supplies to India and China. Deliveries of coal anthracite to India increased by 1,300-fold and reached 419 thousand tons. Exports of coking coal increased 1,400-fold and reached 572 thousand tons. It is worth mentioning that Russia supplies coal to India at a discount of up to 50% because the ban on trade with the European Union forced to redirect 36.6% of coal production (63 out of 172 million tons of coal). Coal supplies from Russia to China in the first 10 months of 2022 amounted to 53 million tons, which is approximately 23% of China's total imports. According to the General Customs Administration of the PRC, coal imports from

Russia to China in 2022 increased by 57% compared to 2021. In August, Beijing purchased \$1.4 billion worth of coal from the Russian Federation, twice as much as during the same period in 2021.

In addition to the intensive increase of coal supplies to the largest Asian countries, the growth of income tax is inextricably linked to an increase in prices for this raw material. Thus, in the first 11 months of 2022 the price of coal rose 2.5-fold, from \$157 to \$397 per ton (Fig. 2).

The increase in personal income tax receipts from ferrous metallurgy in the Vologda Oblast was 12%, from nonferrous metallurgy in Krasnoyarsk Krai – 61% and from coal mining in the Kemerovo Oblast – 45%. Such changes are associated with periodic indexation of the payroll, as well as an increase in the number of personnel. For example, in 2021, the number of employees in the Russian production segment of Norilsk Nickel grew by 2.3% against 2020. Moreover, according to PJSC Nor Nickel's corporate management, the number of

Table 9. Comparative analysis of tax revenues from ferrous, nonferrous metallurgy and coal corporations to the budget system for the first half of 2021 and 2022

Corporation (region)	Income tax			PIT		
	1st half of 2021	1st half of 2022	Change	1st half of 2021	1st half of 2022	Change
	Billion rub.			Billion rub.		
PJSC Severstal (Vologda Oblast)	17.7	14.5	0.82	1.7	1.9	1.12
PJSC Nornickel (Krasnoyarsk Krai)	6.6	5.3	0.80	4.6	7.4	1.61
JSC UK Kuzbassrazrezugol (Kemerovo Oblast)	6.9	94.6	13.71	5.3	7.7	1.45
Corporation (region)	VAT			Severance taxes		
	1st half of 2021	1st half of 2022	Change	1st half of 2021	1st half of 2022	Change
	Billion rub.			Billion rub.		
PJSC Severstal (Vologda Oblast)	-9.4	-0.317	0.03	0.0036	0.013	3.61
PJSC Nornickel (Krasnoyarsk Krai)	5.8	-6.1	x	12.6	40.9	3.25
JSC UK Kuzbassrazrezugol (Kemerovo Oblast)	1.3	52.8	40.62	3.5	17.8	5.09

Source: Own calculation based on data from the Federal Tax Service.

employees in project offices by 2023 should reach 2.9 thousand people, which is 2.3-fold more than in 2019<sup>10</sup>.

The cessation of steel products exports to the EU from PJSC Severstal led to a 31.3-fold reduction of VAT refundable from the federal budget. While over the first 6 months of 2021 the steelmaker's VAT refund amounted to 9.4 billion rubles, by the end of the first half of 2022, its amount was only 317 million rubles. VAT payments to the budget from Nornickel in the amount of 5.8 billion rubles have been replaced with a refund of 6.1 billion rubles in favor of the company. VAT receipts from the Kemerovo Oblast's coal industry increased 40.6-fold.

Speaking about the dynamics of severance tax, we should note that there are no coal mines and surface mines in the Vologda Oblast, and the

activity of PJSC Severstal, despite the inclusion of Vorkutaugol until December 2021<sup>11</sup>, is associated mainly with the production of steel and ferroalloys, so the value of severance tax in the first half of 2022 from the company was only 13 million rubles, which is 3.6-fold more than in the previous period. Severance tax revenues from nonferrous metallurgy in Krasnoyarsk Krai increased 3.3-fold – from 12.6 to 40.9 billion rubles. The growth of this tax from coal mining in the Kemerovo Oblast was 5.1-fold – from 3.5 to 17.8 billion rubles. The increase of severance tax revenues from metallurgy was achieved through application of 3.5 rent coefficient<sup>12</sup>. Such measures were introduced due to the desire of the government to withdraw part of the super incomes of metallurgists, obtained due to the growth of metal prices on the world market (Tab. 9).

<sup>10</sup> Annual Report 2021 of PJSC Nornickel's. Strategic Report. Expansion of the investment cycle. Available at: [https://www.nornickel.ru/upload/iblock/53b/k7mqjhb1n9o0y8eieu0adzgn3b98z8xg/NN\\_AR\\_2021\\_Book\\_RUS\\_26.09.22.pdf](https://www.nornickel.ru/upload/iblock/53b/k7mqjhb1n9o0y8eieu0adzgn3b98z8xg/NN_AR_2021_Book_RUS_26.09.22.pdf)

<sup>11</sup> Severstal drops coal. Available at: <https://www.kommersant.ru/doc/5103528>

<sup>12</sup> The State Duma raised the mineral extraction tax for metals and mineral fertilizers 3.5-fold. Available at: <https://www.interfax.ru/business/729337>

In September 2022, the Russian Finance Ministry decided to ease the burden on the steel sector, which has lost its marginal European market and is trying to find new export destinations. The cut-off price when levying excise tax on steel will be increased to 30 thousand rubles per ton instead of \$300 retroactively from August 1. Besides, the Ministry is also planning a temporary increase of severance tax only on coal from January 1 to March 31, 2023: rates for anthracite, coking coal and steam coal will increase by 380 rubles per ton. This will bring an additional 30 billion rubles a year into the budget<sup>13</sup>.

Bans on coal supplies from Russia to Europe have led to increased consumption of more expensive Australian coal. In addition, it is worth noting that the EU has been actively fighting against coal mines in recent years, considering them unprofitable and environment-unfriendly. For example, the last mine in Germany was ceremonially closed in 2019, and now, instead of feeding its own miners, the EU is feeding Australian ones. In response to the ban on Russian coal imports to the EU, Russia redirected the released volumes to the Asian market, primarily China and India. However, one of the main problems of the turn to the East is the underdeveloped transport infrastructure of central and eastern Siberia<sup>14</sup>.

To conclude the study, let us identify the key prospects for the development of the metallurgical and coal industries in Russia under current conditions. For the development of the metallurgical and coal industries it is extremely important effective interaction between the authorities and corporations, which can be achieved by implementing the following measures.

<sup>13</sup> Coal will take a beating. Available at: <https://www.kommersant.ru/doc/5581349>

<sup>14</sup> A 180-degree turn. The West decides to give Russia a chance to get rich. Available at: <https://ria.ru/20220827/ugol-1812396247.html>

***1. Increasing the attractiveness and reliability of special administrative areas<sup>15</sup>, and intensifying incentives for global Russian companies to move to Russian jurisdiction will attract capital and investment into the Russian economy, form favorable financial and administrative conditions for business development, and stop the outflow of capital from Russia.***

The existing conditions offered by Russian SARs are quite attractive: confidential ownership and management of companies, the possibility of applying the rules of foreign law, the possibility of expressing the nominal value of shares of an international company in foreign currency<sup>16</sup>.

In addition, the following tax incentives apply in the SAR: dividends received by an international holding company are subject to income tax at a zero rate; dividends paid by an international holding company to foreign persons are subject to income tax at the rate of 5%<sup>17</sup>. Minister of Economic Development of Russia Maksim Reshetnikov said that in the 5 months of 2022 there were 26 companies registered in the SAR. They are often the head structures of large holdings, and their redomiciliation in Russia is the stability of management of Russian business, the preservation of jobs and the continuation of investment projects<sup>18</sup>.

<sup>15</sup> The Special Administrative Region (SAR) is an area with a flexible tax and currency regulation regime for companies that decide to transfer from a foreign jurisdiction to a Russian one.

<sup>16</sup> Advantages for residents of special administrative regions. Available at: [https://www.economy.gov.ru/material/directions/investicionnaya\\_deyatelnost/specialnye\\_administrativnye\\_rayony/preimushchestva\\_dlya\\_rezidentov\\_sar/](https://www.economy.gov.ru/material/directions/investicionnaya_deyatelnost/specialnye_administrativnye_rayony/preimushchestva_dlya_rezidentov_sar/)

<sup>17</sup> Tax incentives for residents of special administrative regions. Available at: [https://www.consultant.ru/document/cons\\_doc\\_LAW\\_303607/dbf5d9a352f7ee61b5842d7cf24d753d8458d463/](https://www.consultant.ru/document/cons_doc_LAW_303607/dbf5d9a352f7ee61b5842d7cf24d753d8458d463/)

<sup>18</sup> Maksim Reshetnikov reported on the registration of 26 new companies in the SAR of the RF in the first 5 months of 2022. Available at: [https://www.economy.gov.ru/material/news/maksim\\_reshetnikov\\_sobshchil\\_o\\_registracii\\_26\\_novyh\\_kompaniy\\_v\\_specialnyh\\_administrativnyh\\_rayonah\\_rf\\_za\\_5\\_mesyacev\\_2022\\_goda.html](https://www.economy.gov.ru/material/news/maksim_reshetnikov_sobshchil_o_registracii_26_novyh_kompaniy_v_specialnyh_administrativnyh_rayonah_rf_za_5_mesyacev_2022_goda.html)

**2. *Providing inspection agencies with the ability to bring representatives of private companies to administrative (criminal) liability in case of their refusal or resistance when trying to check the condition of industrial hazardous facilities.***

As an example, we can cite the situation with Nor Nickel, where Rostekhnadzor since 2016 has had no access to the tank from which the fuel subsequently spilled. By decision of the administration of Norilsk-Taimyr Energy Company (NTEC), the tank was taken out of service, and in this case Rostekhnadzor had no opportunity to inspect the facility. According to NTEC's annual production control reports, this tank continued to be under repair<sup>19</sup>. Also, in 2020, an unscheduled inspection at one of PJSC Nor Nickel's subsidiaries revealed 139 violations of mandatory requirements<sup>20</sup>.

**3. *Development of import substitution and domestic demand for the products of these companies, which will support export-oriented business under the ban on trade with unfriendly countries, and the strong ruble.***

This requires an ambitious plan for the gradual development of a more knowledge-intensive industry in the country, and the development of state support measures to facilitate the transition of Russian metallurgy to higher-value-added production. It is important to note that over the

<sup>19</sup> Rostekhnadzor has not inspected Nor Nickel's emergency reservoir for five years. Available at: <https://www.rbc.ru/business/05/06/2020/5eda7e429a7947585eac5b7e>

<sup>20</sup> WWF-Russia review "Disputable situations, accidents and incidents at Russian mining enterprises in 2020 PJSC MMC Norilsk Nickel". Available at: <https://wwf.ru/upload/iblock/511/NORNIKEL-2020.pdf>

past eight years the average cost of imported tons of nonferrous metals has been significantly higher than of exported (Pechenskaya-Polishchuk, Malyshev, 2022). Thus, by developing and introducing new technologies and equipment, it is possible to increase the level of income of metallurgical companies, which will favorably affect both business and the state.

We would like to pay special attention to the released volumes of steel products and further loading of domestic steelmaking facilities through domestic demand. In a situation when the European market is closed, the government and steel corporations should think about the development of railway infrastructure in the Asian direction, since the capacity of the Baikal-Amur Mainline and the Trans-Siberian Railway is not enough now. Considering that 1 km of rail track weighs 130 tons, the construction of 1,000 km of two-way railroad will require 260,000 tons of rails. Meanwhile, the construction of new branches and expansion of the Asian-Russian railroads network will lead to new joint projects, growth of trade turnover and development of tourism. Also, the production of additional units of freight cars, mainly for the coal industry, will increase the workload of the Russian steel industry.

Besides increasing production to meet the needs of Russian Railways, it is necessary to expand domestic production of metal-intensive products in general, including ships, machine, cars, road and construction equipment, etc. This is especially relevant for PJSC Severstal, which specializes more in rolled sheet products.

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## Determinants of Life Expectancy in Heterogeneous Constituent Entities of the Russian Federation



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**Abstract.** Low life expectancy is one of the main factors hindering national economic development. Finding a solution to this problem is complicated by enormous differentiation of life expectancy among constituent entities of the Russian Federation. Therefore, assessing the factors increasing life expectancy in heterogeneous regions of the country and developing methodological tools for the application of territorial defragmentation in terms of policy to improve regional health systems are major tasks for public administration. The research aims to find a solution to these problems. On the basis of a detailed analysis of the relevant literature we form a statistical base of indicators influencing life expectancy in RF constituent entities for 10 years; with the help of “hierarchical clustering” we arrange RF constituent entities into eight groups according to the specifics of forming conditions for a long and healthy life; through econometric modeling we assess and identify the impact of individual indicators on life expectancy in different groups of RF constituent entities; on the basis of the modeling results we formulate areas of further research and priorities of the state regional policy in the field of health care. We use general scientific and special methods, including statistical, cartographic, typological, econometric, and cluster methods during the analysis of regional health systems. Statistical data processing and econometric modeling are carried out using statistical packages SPSS Statistics and Gretl. Scientific novelty of the study consists in the clustering of RF constituent entities according to the specifics of forming conditions for increasing life expectancy, which has fundamental importance for improving the effectiveness of territorial management and planning in the field of health care. Practical significance

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of the work is determined by the tasks of regional policy of Russia and its constituent entities in the sphere of increasing the life expectancy. The results of the study can be useful to the state regional authorities and local authorities for the formation of a set of measures to improve life expectancy.

**Key words:** regional health care system, heterogeneous regions, life expectancy, strategic planning, clustering.

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### Introduction

Life expectancy is the most important criterion of public administration efficiency and the guarantee of progressive development of territorial social systems. That is why one of the priority national goals of the Government of the Russian Federation is “to increase life expectancy to 78 years by 2024 and to 80 years by 2030”<sup>1</sup>. Objectively questioning the attainability of this target by 2024, we note that at the time of its planning, the world was not yet aware of the coming pandemic, which has actualized the issue of prioritizing budget investment in health care. For example, the effects of underfunding health infrastructure in a number of countries have led to excess mortality, lagging vaccine working out and, ultimately, slower economic growth and more uneven development.

Due to the coronavirus pandemic, public health spending in Russia rose to 4.6% of GDP in 2020<sup>2</sup>. Despite this, according to 2018–2020 comparative analysis of health care financing models across 31 foreign countries by the Russian Accounts Chamber, “the Russian Federation has the lowest level of health care spending, including public spending, among all countries under review, with the highest share of off-budget spending among all

the countries”<sup>3</sup>. A similar conclusion is that “in the absolute majority of countries with an economic development level close to the Russian one, states allocate more funds for health care than in Russia” was made by E.G. Potapchik (Potapchik, 2020). Insufficient investment in public health causes low values of the main indicator of the health care system quality – life expectancy. While people in developed countries live up to 80 years, the average life expectancy in Russia is less than 72 years.

At the same time, these aggregated macrodata do not fully reflect all the complexities of the functioning of the health care system in Russia, the most important of which is the enormous differentiation of the country’s constituent entities by life expectancy (from 66 to 81 years). For instance, according to Rosstat data for 2020, life expectancy at birth (for the entire population sample) is the highest in the regions of the North Caucasian Federal District (for example, the Republic of Ingushetia – 81.5 years; the Republic of Dagestan – 76.5 years; the Karachay-Cherkessia Republic – 75 years, etc. etc.), the lowest is in the regions of the Far Eastern Federal District (for example, Chukotka Autonomous Okrug –

<sup>1</sup> On the national goals and strategic objectives of the development of the Russian Federation for the period through to 2024: Presidential Decree 204, dated May 7, 2018.

<sup>2</sup> Official website of the Russian News Agency. Available at: <https://tass.ru/obschestvo/13207941> (accessed: August 10, 2022).

<sup>3</sup> Report of the results of the expert-analytical event “Analysis of the effectiveness of the compulsory health insurance system in the Russian Federation”: Approved by the College of the Accounts Chamber of RF, dated March 30, 2021.

66 years; the Amur Oblast – 67 years; the Jewish Autonomous Oblast – 67.5 years, etc.)<sup>4</sup>. At the same time, such high differences are observed in many groups of indicators of territorial development. Significant spatial heterogeneity not only complicates the implementation of a unified state policy in the field of health care, but also requires taking into account regional specifics in the plans, forecasts and programs of territorial development and strategizing. Proceeding from the above, it is objectively possible to conclude that estimation of factors promoting increasing life expectancy in heterogeneous regions of the country, and also development of methodical tools of application of territorial defragmentation in a part of the policy of improvement of regional public health systems are the major tasks of public administration. Our research is devoted to their solution.

Agreeing that “a characteristic feature of the modern development stage of economics is its mathematization, which manifests itself in the replacement of the studied economic process with an adequate economic model and the subsequent study of the properties of this model either by apathetic methods or on the basis of computational experiments” (Zang, 1999, p. 6), we note that the solution of the research tasks formulated by us earlier, which are of high applied importance for strategizing the development of regional health systems, objectively requires the formation and processing of a significant array of regional statistical data; the choice of the functional form of the model and the evaluation of coefficients using mathematical and econometric tools and programs; the appropriate interpretation of the results in order to form scientifically sound directions increase in life expectancy.

The article contains four main sections. In the first section, “Theoretical aspects of the problem

and the main hypotheses”, we consider relevant scientific works. At the same time, in order to formulate research hypotheses, we carry out a detailed analysis of statistical indicators characterizing the quality of regional health systems. The second section of the work “Research methodology” contains methodological tools for determining regionally differentiated determinants of life expectancy based on the author’s clustering of Russia’s entities. We pay special attention to the justification of the choice and analysis of statistical indicators for clustering and modeling, as well as the formalization of the hypotheses put forward. The third section “Results” includes the methods obtained in the process of testing, the results and interpretation of the estimated coefficients. The fourth section “Discussions” substantiates the consistency of the author’s statements, assessments and results with the conclusions presented in the studies of other scientists, and also notes the objective shortcomings and limitations of the model. In conclusion, we highlight the most important results in brief, and formulate the scientific novelty and practical significance of the research.

#### **Theoretical aspects of the problem and the main hypotheses**

Good public health is the most important condition for the sustainable development of any territory. In this regard, there is no doubt that life expectancy is not only an indicator of the quality of life, but also an objective criterion for assessing the success of ongoing political, social and economic reforms. The high role of financial investments in the health care sector, which have a direct positive impact on labor productivity, has been proven by many scientists<sup>5</sup> (Zubarevich, 2009; Demidova et al., 2021).

<sup>4</sup> Regions of Russia. Socio-economic indicators. 2021: Statistical Collection. Rosstat, Moscow, 2021. Pp. 78–80.

<sup>5</sup> Biryukova S.S. et al. (2018). *How to Increase Human Capital and Its Contribution to Economic and Social Development: Abstracts*. Moscow: Izd. dom Vyshei shkoly ekonomiki.

Despite the awareness of the critical importance of the health care system on the part of scientists and the state, “the concept of efficiency in health care continues to be multidimensional, while remaining a relative value” (Arkhipova, Dvoynikov, 2018, p. 26). The reason, in our opinion, is that the health care system is a multifunctional and multilevel system that is constantly influenced by internal and external factors. Its objective complexity generates the emergence of diverse research areas, among which the following groups can be conditionally distinguished: first, studying the activities of medical organizations in order to “independently assess the quality of medical care and the effectiveness of the activities of medical organizations providing medical care” (Mikhailova

et al., 2016); second, the study of regional health systems, the purpose of which is “measuring the activity of the health care system in Russia in the regional context” (Kislitsyna, Chubarova, 2021); third, the study of health care as the leading branch of the social infrastructure of the national economy, which has an impact on the economic and social development of the country (Tatarkin et al., 2015).

We will focus on the previously updated problem of heterogeneity of indicators of regional development in Russia, including such an important indicator as life expectancy. The value of life expectancy, as well as the mortality rate, are referred in the scientific literature to social indicators of the effectiveness (efficiency) of the health care system

Table 1. Examples of social indicators of health care system performance

No	Authors	Country, analysis period	Statistical indicators
1	A. Bhargava et al. (Bhargava et al., 2001)	Developing countries, 1965–1990	Life expectancy at birth
2	D.E. Bloom, P.N. Malaney (Bloom, Malaney, 1998)	Russia, 1989–1994	
3	R. Barro (Barro, 2013)	100 world countries, 1960–1990	
4	Y. Wang, C. Ni (Wang, Ni, 2015)	China, 1987–2007	
5	D. Barthold (Barthold, 2014)	27 OECD countries, 1991–2007	Life expectancy for men/women
6	S. Asiskovitch (Asiskovitch, 2010)	27 OECD countries, 1990–2005	
7	L.I. Vlasyuk, P.V. Stroev (Vlasyuk, Stroev, 2017)	Russia, 2002–2015	1. Number of registered patients diagnosed for the first time in their lives 2. Life expectancy at birth
8	E. Jaba, C.B. Balan, I.-B. Robu (Jaba et al., 2014)	175 world countries, 1995–2010	1. Life expectancy 2. Infant (under 1 year old) mortality
9	K.A. Muldoon (Muldoon, 2011)	136 world countries, 2001–2008	1. Infant mortality 2. Child mortality 3. Maternal mortality
10	E. Brainerd, D.M. Cutler (Brainerd, Cutler, 2005)	24 countries, 1989–2002	Mortality rates
11	J.C. Anyanwu, A.E.O. Erhijakpor (Anyanwu, Erhijakpor, 2009)	47 countries in Africa, 1999–2004	1. Infant mortality 2. Child mortality

Source: own compilation based on the analysis of literary sources.

(Orlov, Sokolova, 2010; Tuaeve, Sugarova, 2013), reflecting “the degree of achievement of socially significant goals related to the provision of medical services”<sup>6</sup>. As a rule, social indicators are the target indicators in various programs and strategies of country and regional development, which explains their choice as endogenous variables in modeling (Kolosnitsyna et al., 2019). *Table 1* gives an overview of the use of social indicators of the effectiveness of the health care system in the scientific literature.

The analysis of the research papers revealed two main groups of factors for increasing life expectancy: economic indicators of the effectiveness of the health care system and medical indicators of its quality (Kalashnikov, 2011; Panasyuk, Dasaeva, 2014; Tatarkin et al., 2015; Krivenko et al., 2019; Ulumbekova et al., 2019). Let us focus in more detail on the content and structure of these indicators.

***Economic indicators of the effectiveness of territorial health care systems*** traditionally characterize the dependence of results on the resources expended (Jaba et al., 2014) and include in general terms such indicators as the share of health care expenditures in GDP (GRP), investments in health care, private health care spending and others.

For instance, N.V. Akindinova, A.V. Chernyavskii, A.A. Chepel (Akindinova et al., 2018) emphasize the importance of defining health care costs as part of “productive” budget expenditures, since they affect labor productivity. In this context, it is important to note that the level of health that determines a person’s ability to fully use their human capital can serve as a limiter of economic growth and bring economic benefits not only at

the level of individual citizens, but also at the state level. Stolbov notes that “health care, along with its main task of improving people’s health, contributes to the growth of production efficiency” (Stolbov, 2016). The paper (Kalashnikov, 2011) proposes a method for calculating the scale of lost profits in the production of GRP as a result of premature mortality. The research of I.A. Erzyleva (Erzyleva, 2020) is devoted to “the analysis of the main trends and problems shaping the current health status of the Russian population, and the assessment of the impact of this factor on the socio-economic development of the state”. The author notes that Russia has a larger number of human resources, but they are unable to show and realize their labor and intellectual potential due to low life expectancy and low development level of the health care sector. M.A. Kaneva assesses the impact of the level of “health on regional growth in the framework of an approach that takes into account the costs of health care to maintain the human capital quality” (Kaneva, 2019). The results obtained indicate that “an increase in government spending on health care as a share of GRP by 1% is associated with an increase in the growth rate of GRP per capita by 1.34%”. At the same time, the results are of particular interest, according to which private spending on health care, reflecting the consumption of paid medical services, has a negative impact on economic growth.

Thus, most of the studies emphasize the need to increase public spending on health care, which will improve the quality of life and increase life expectancy. In turn, it will lead to an increase in the number of workers and labor productivity growth, positively affecting the total output. *Table 2* gives an overview of the use of economic indicators of the effectiveness of health care systems in the scientific literature.

<sup>6</sup> Kucherenko V.Z., Flek V.O., Putin M.E. et al. (2004). *Evaluation of the Effectiveness of Medical Organizations: Educational and Methodological Guide*. Moscow: GEOTAR-Med.

Table 2. Examples of economic indicators of the effectiveness of the health care system

No.	Authors	Country, analysis period	Statistical indicators
1	O.A. Demidova, E.V. Kayasheva, A.V. Dem'yanenko (Demidova et al., 2021)	Russia, 2005–2017	Share of expenditures on health care, physical education and sports in GRP
2	L.I. Vlasyuk, P.V. Stroev (Vlasyuk, Stroev, 2017)	Russia, 2002–2015	Expenditures of consolidated budgets on health care
3	G.E. Ulumbekova, A.B. Ginoyan, E.A. Chaban (Ulumbekova et al., 2016)	Russia, 2011–2014	Per capita government spending on health care
4	G.E. Ulumbekova et al. (Ulumbekova et al., 2019)	Russia, 2011–2016	
5	E. Brainerd, D.M. Cutler (Brainerd, Cutler, 2005)	24 countries, 1989–2002	
6	E.M. Andreev, V.M. Shkol'nikov (Andreev, Shkol'nikov, 2018)	Russia, 2010	Financing under the program of state guarantees for provision of free medical care to Russian citizens in the context of Russia's entities
7	M.A. Kaneva (Kaneva, 2019)	Russia, 2005–2013	1. Government spending on health care 2. Private health care costs 3. Total health care costs
8	N.S. Gorchakova (Gorchakova, 2020)	Russia, 1995–2017	Health care expenditure share in GDP
9	S. Gupta, M. Verhoeven, E.R. Tiongson (Gupta et al., 2003)	76 countries, 1990–1999	1. Government spending on health care 2. Private health care costs
10	A.V. Komarova, E.V. Kritsyna (Komarova, Kritsyna, 2012)	Russia, 1974–2009	Investments in health care system

Source: own compilation based on the analysis of literary sources.

**Medical quality indicators** of territorial health care systems are used to assess the availability of medical care, expressed in the provision of doctors/secondary medical personnel, provision of hospital beds, etc. We believe that these indicators have shaped the current levels of life expectancy in various countries of the world for centuries (Erakhtina, 2019).

The importance of studying medical indicators of the quality of health care systems in relation to the regions of the national economy is gaining additional relevance in connection with the health care reform in Russia since 2010, which “consisted in optimizing costs by closing inefficient hospitals and expanding the use of high-tech medical institutions” (Grishina, Karpova, 2020, p. 172). According to the calculations of specialists of the Center for Economic and Political Reforms, in the period from 2000 to 2015, the number of hospitals in Russia decreased by half – from 10.7 to 5.4 thousand. The number of polyclinics

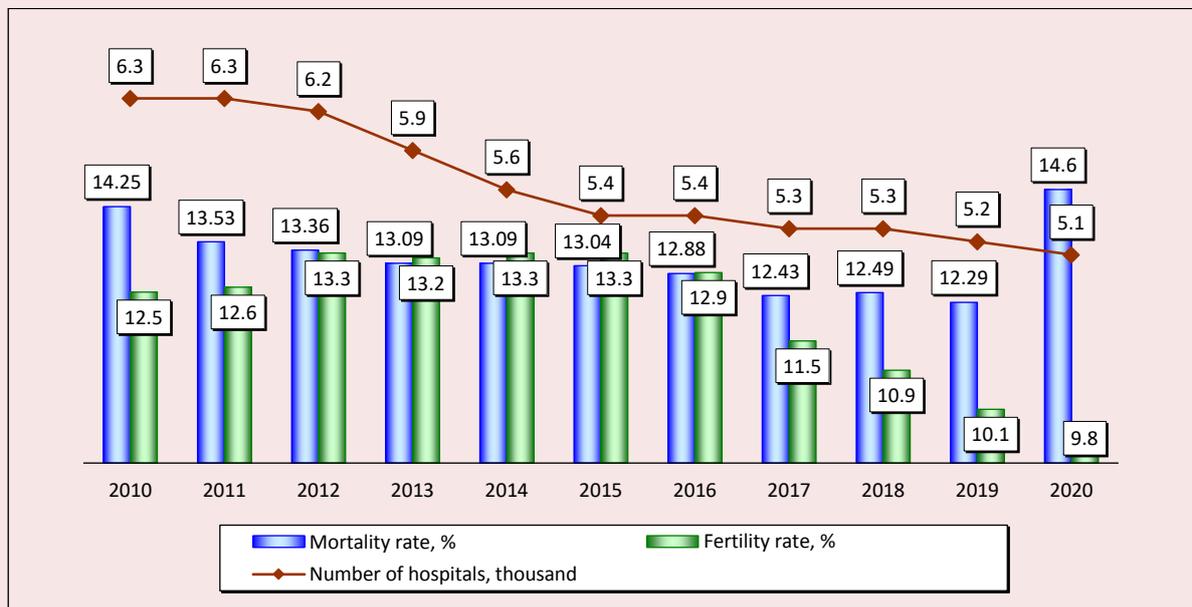
for the same period decreased by 12.7% — to 18.6 thousand institutions. Experts concluded that if such rates of hospital closure continue (approximately 353 annually) by 2021–2022, the number of medical institutions in the country will reach three thousand, as the level of the Russian Empire in 1913<sup>7</sup>. *Figure 1* shows the dynamics of the reduction in the number of medical institutions and changes in the mortality/birth rate in 2010–2020 in Russia.

As a result of optimization, there was a natural reduction in expenditures in the health care sector. T. Golikova characterized the reform results as follows: “Optimization was unsuccessful in many regions”<sup>8</sup>.

<sup>7</sup> Official website of the Center for Economic and Political Reforms. Available at: <https://cepr.ru/> (accessed: June 7, 2022).

<sup>8</sup> Gubenko A.V. (2019). Golikova admitted unsuccessful optimization of health care in the regions. Available at: <https://www.rbc.ru/society/03/11/2019/5dbecba99a79470b57a29e69> (accessed: May 14, 2021).

Figure 1. Dynamics of reduction in the number of medical institutions and changes in the mortality/birth rate from 2010 to 2020



Source: Regions of Russia. Socio-Economic Indicators. 2021: Statistical Collection. Rosstat. Moscow, 2021.

The COVID-19 pandemic in 2020 showed that the country had a shortage of hospital beds for treating patients with increased morbidity. For example, according to an analysis by E.V. Reprintseva, between 2012 and 2018, the availability of inpatient beds decreased by 15%. “While in 2005 there were about 9,500 hospitals with a total number of hospital beds of more than 1.5 million units, by 2018 these figures had dropped to 5,300 hospitals and 1.2 million beds, respectively” (Reprintseva, 2020, p. 282).

Figure 2 presents the dynamics of the indicator “Capacity (number of visits per shift) of outpatient and polyclinic organizations” for the period 2004–2020. The dot marks the value of the increase in the average capacity of one health care facility during the study period.

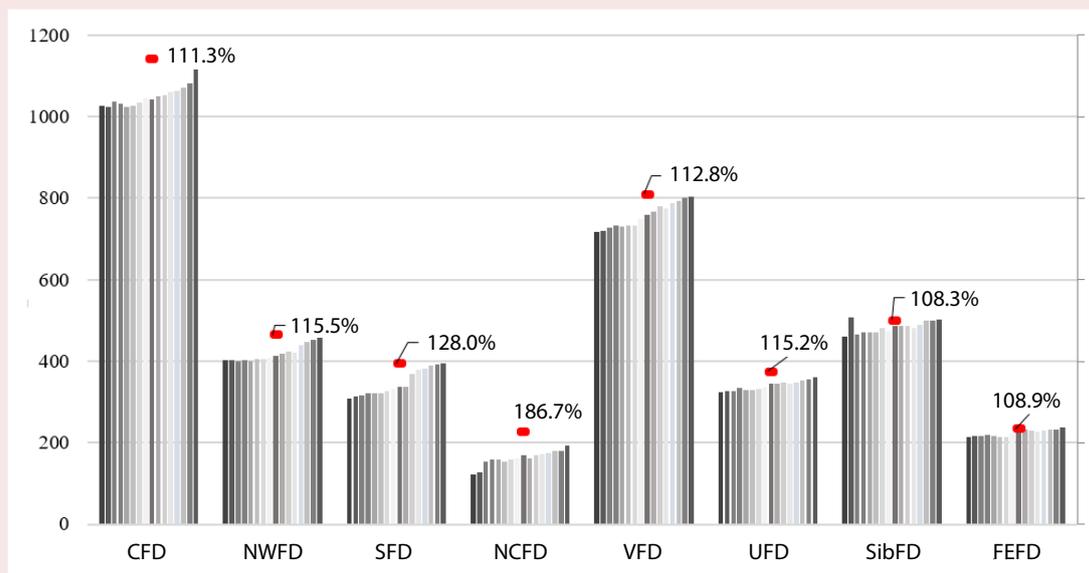
According to Figure 2, all federal districts have an increase in the average capacity of one medical institution during the researched period, while the number of medical organizations was decreasing. It may indicate both the construction of new

spacious medical institutions with large areas, and their simple enlargement, when the load per doctor increases in the form of an increase in the number of visits. The highest growth rates are shown by the regions of the North Caucasian Federal District (Republic of Dagestan, Republic of Ingushetia and Stavropol Krai – 249, 294 and 143%, respectively).

Based on the data analyzed, demonstrating an increase in mortality with a decrease in the number of hospital beds and the number of doctors, we can verify the correctness of the conclusions of E.V. Reprintseva that “modernization of health care has led to a reduction in the number of inpatient hospital facilities with simultaneous enlargement of the hospital network. This has led to a decrease in the availability of inpatient medical care for the country’s population, especially in rural areas, and the situation may worsen in the future” (Reprintseva, 2020, p. 283). This situation requires evidence-based adjustments in the system of management decisions made by the competent authorities.

In light of the above, the choice of statistical indicators for quantitative measurement of the effectiveness of the health care system is a debatable point. *Table 3* presents the results of the systematization of the relevant empirical works studied by us, in which the authors used statistical data reflecting the accessibility of medical care.

Figure 2. Dynamics of capacity of outpatient and polyclinic organizations from 2004 to 2020



Source: Regions of Russia. Socio-Economic Indicators. 2021: Statistical Collection. Rosstat. Moscow, 2021. Pp. 366–367.

Table 3. Examples of medical indicators of health care quality

No.	Authors	Country, analysis period	Statistical indicators
1	L.A. Tuaeve, I.V. Sugarova (Tuaeve, Sugarova, 2013)	Russia, 2000–2012	1. Availability of doctors 2. Availability of nursing staff 3. Availability of hospital beds
2	A.Sh. Akhmeduev (Akhmeduev, 2019)	12 world countries, 2013–2014	
3	N.V. Krivenko, V.M. Ivanov, L.A. Kriventsova (Krivenko et al., 2019)	Sverdlovsk Oblast, 2013–2017	Certain types of medical care (outpatient care, day patient facility, round-the-clock inpatient facility)
4	V.I. Starodubov et al. (Starodubov et al., 2013)	Russia, 2010	1. Availability of medical personnel 2. Cost efficiency depending on the number of hospital beds 3. Cost efficiency depending on bed occupancy 4. Cost efficiency of inpatient facilities depending on the level of hospitalization
5	J.C. Anyanwu, A.E.O. Erhijakpor (Anyanwu, Erhijakpor, 2009)	47 countries of Africa, 1999–2004	Number of doctors/nurses
6	W.J.A. van Den Heuvel, M. Olarioiu (van Den Heuvel, Olarioiu, 2017)	31 countries of Europe, 2013	1. Number of hospital; beds 2. Number of doctors 3. Number of nurses
7	D.L. Skipin et al. (Skipin, 2022)	Russia, 1995–2017	1. Availability of hospital beds 2. Capacity of outpatient clinics 3. Population per doctor
8	A.K. Zhukova et al. (Zhukova et al., 2016)	Russia, 2014	1. Population per hospital bed 2. Population per doctor

Source: own compilation based on the analysis of literary sources.

In addition to medical and economic, researchers identify the following factors that significantly affect the social performance of health care systems: education (Rosenzweig, Schultz, 1982; Desai, Alva, 1998; Thomas et al., 1990; Currie, Moretti, 2003; Anyanwu, Erhijakpor, 2009), prevalence of HIV infection (Gupta et al., 2003), urbanization rates and population demographics (Roberts, 2003; Anyanwu, Erhijakpor, 2009; Zhukova et al., 2016; Ulumbekova et al., 2016), government spending on social protection (Heuvel, Olaroiu, 2017), unhealthy lifestyle indicators (alcohol consumption, smoking, overeating) (Brainerd, Cutler, 2005; Heuvel, Olaroiu, 2017; Zhukova et al., 2016; Ulumbekova et al., 2016; Kossova et al., 2017; Kolosnitsyna et al., 2019, Ulumbekova et al., 2019), level of government corruption (Muldoon et al., 2011), population cash income and gross product per capita (Swift, 2011; Zhukova et al., 2016; Ulumbekova et al., 2016; Ulumbekova et al., 2019; Skipin et al., 2022), stressors (suicides, abortions) (Chekmeneva and Balina, 2019; Balina et al., 2021), poverty rates (Ulumbekova et al., 2016), environmental factors (Muldoon et al., 2011; Zhukova et al., 2016; Balina et al., 2021).

Based on the spatial features of the national economy, characterized by a high asymmetry of the development of Russia's entities, in the analysis of the scientific literature, we identified a number of methodological aspects that objectively require improvement and that have been overlooked by researchers.

First, when assessing health care quality, scientists often use integral indices, on the basis of which ratings of the effectiveness of health care systems are further compiled (Krivenko et al., 2019; Kislitsyna, Chubarova, 2021; Ulumbekova, Ginosyan, 2021). At the same time, given the many objective limitations of applying integral indices (Masset, 2011) and the fact that their quality and accuracy crucially depend both on the completeness

of available data and on methodological approaches to their compilation (Santeramo, 2015), we agree that "ideal integral indices are the exception rather than the rule" (Pavlova et al., 2018, p. 234).

Second, when building models on panel data for the purpose of health care system assessment, scientists usually include in the sample the entire population of territories for which statistical data were collected (Muldoon et al., 2011; Kossova et al., 2017; Ulumbekova et al., 2016; Ulumbekova et al., 2019). At the same time, preliminary clustering of heterogeneous territories is an important stage in studying health care systems, as it allows obtaining, as a result, more objective estimates of modeling for separate groups of regions, which is critical for the developed directions on improving the organization of health care. This thesis is confirmed in the study of E. Jaba, C.B. Balan, I.-B. Robu (Japa et al., 2014), in which the authors conducted a preliminary grouping of 175 countries in terms of "income level" and "geographic location". The results of the models built by the researchers on panel data for 15 years showed different estimates for different groups of countries, which provides a unique opportunity to use the preliminary territorial defragmentation in developing directions for improving health care systems. Also we should note the studies in which the defragmentation of policies to improve territorial health systems is not based on clustering objects from the general population (countries/territories), but by taking into account the features of the analyzed indicators, for example the decomposition of differences in life expectancy by gender (Asiskovitch, 2010; Barthold et al., 2014; Andreev, Shkolnikov, 2018; Zhukova et al., 2016), decomposition of differences in mortality between the poor and the rich (Gupta et al., 2003).

Among the Russian studies in this context, we would like to single out, first, the work (Skipin et al., 2022), which presents the results of clustering Russia's entities by the growth rate of life expectancy, revealing regional specificity. Second,

the publication (Zaitseva et al., 2019), where a preliminary clustering of RF entities was performed in the study of regional health care systems, which allowed concluding that “socio-economic determinants have regional differentiation by the level of their potentiating or restraining effect on life expectancy” (Zaitseva et al., 2019, p. 25) seems important. However, the four groups of Russia’s entities obtained in the work are not homogeneous in structure, which significantly reduces, in our opinion, the effectiveness of the directions of improvement of regional health care systems developed on this basis. Third, it is the work (Kolosnitsyna et al., 2019), in which the analyzed countries are grouped into three clusters by the value of life expectancy and the correlation matrices of the variables characterizing population health are constructed, seems interesting.

Thus, summarizing the critical review of the scientific works, we note that an objective necessity in studying regional health care systems is a preliminary scientifically substantiated clustering of territories, which makes it possible to form unique areas of health care systems development based on the identification of regionally differentiated determinants of life expectancy, which is *the purpose of our research*.

The goal setting is accompanied by the formulation of scientific hypotheses. In this regard, we should note that most of the analyzed works revealed a positive statistically significant dependence of social indicators of healthcare systems performance (in particular, life expectancy) on medical and economic indicators, characterized by accessibility of medical care and health care expenditures. Thus, we can assume with a high degree of probability that the number of years of life expectancy is a consequence of the level of financing of medical institutions and the health care industry in the region as a whole.

At the same time, considering, on the one hand, that “life expectancy is a multifactorial value, depending, among other things, on natural, climatic conditions, environmental conditions...” (Krivenko et al., 2019, p. 2227), and on the other hand, the differences in the results and effects obtained in the construction of the same models for assessing the determinants of health care systems for different countries and regions (Jaba et al., 2014), we believe that consideration of territorial features when testing the hypothesis about the differential impact of indicators of the general state of the regional economy on indicators of social performance of the health care system of Russia’s entities is critical.

These conclusions, as well as the classification of the quality indicators of health care systems, constructed by us, allowed formulating a number of hypotheses, which were tested in relation to the regions of the national economy.

**Hypothesis 1.** The influence of economic indicators of the efficiency of the regional health care system on life expectancy is positive.

**Hypothesis 2.** The influence of medical indicators of the quality of the regional health care system on life expectancy is positive.

**Hypothesis 3.** The nature of the influence of indicators of the general state of the region’s economic development on life expectancy is conditioned by territorial features.

### **Research methodology**

To achieve this purpose, we propose to use our own methodological toolkit for assessing the determinants of life expectancy in heterogeneous Russia’s entities, which includes five stages.

**At the first stage**, the statistical data base for Russia’s entities for the available period is collected in order to conduct further cluster analysis on the basis of the formation of conditions for a long and healthy life in the regions. We formed the clustering

criteria taking into account the WHO study<sup>9</sup>, according to which the key factors promoting life expectancy include citizens' lifestyle, their health status, level of organization of medical care, climate, environmental features and genetics. In addition, we followed the examples of evidence-based methodologies for grouping territories according to the specifics of life expectancy formation, which were tested by scientists and resulted in compact clusters that lend themselves to economic interpretation (Kolosnitsyna et al., 2019; Chekmenyeva, Balina, 2019; Balina et al., 2021).

The final database for clustering indicators includes four blocks: social, economic, psychological and environmental. Taking into account the importance of ensuring the adequacy and transparency of the interpretation of the cluster analysis results by minimizing the number of indicators for clustering<sup>10</sup>, as well as taking into account the availability of existing information by Russia's regions, by analogy with the work of T.A. Balina and co-authors (Balina et al., 2021), we selected six indicators in the context of the formed blocks: life expectancy at birth; number of students; infant mortality (social block); real monetary incomes (economic block); suicide rate (psychological block); availability of clean drinking water (natural and ecological block).

**At the second stage**, the collected data is processed and normalized. For a number of indicators (in our case, mortality and suicide rates) the inverse values are considered. For indicators characterizing monetary relations, we make an adjustment to the annual consumer price index.

**At the third stage**, clustering of Russia's entities is carried out on the basis of the formation of conditions in the regions for a long and healthy public life in order to ensure the uniformity of the distribution of the studied regional data. Regional grouping is performed based on the methodology of cluster analysis in the software package SPSS Statistics (Statistical Package for the Social Sciences). Since the total number of clusters is not known in advance, a hierarchical algorithm is used as a clustering method. The metric is the Euclidean distance, in order to take into account equally the differences of RF entities according to the selected statistical characteristics. The separation of clusters is based on the Ward method, which involves the use of variance analysis to estimate the distances between clusters. This minimizes the sum of squares for any two (hypothetical) clusters that can be formed at each step.

**At the fourth stage**, we stimulate the differentiated influence of the selected factors of life expectancy (determinants) in the formed regional groups. The simulation was performed in Gretl, a cross-platform software package for econometric analysis written in C language.

We generate panel data for 10 years (from 2010 to 2019) for each group of regions selected for econometric analysis. The missing data occurring in one year is restored by prolongation. Regions with data gaps for more than two years are excluded from the analysis. Then we build regression models. We used the indicator "life expectancy at birth" as an endogenous variable. We divided exogenous variables into two groups. The first category includes variables of interest – economic indicators of the effectiveness of the health care system and medical indicators of its quality. With the help of variables of interest, we test hypotheses 1 and 2, verifying assumptions about the significant positive impact of government measures to increase public spending

<sup>9</sup> Official website of the World Health Organization. Available at: <https://www.who.int/ru/> (accessed: June 7, 2022).

<sup>10</sup> Toropchina G.N., Dvoeryadkina N.N., Vokhmintseva G.P. (2006). *Elements of Cluster Analysis: Study Guide*. Blagoveshchensk: Amurskii gos. un-t.

on health care and increase the availability of medical care on life expectancy.

The second group included indicators that also have, according to previously analyzed research studies, a significant impact on life expectancy, but unlike the variables of the first group, they mostly depend on territorial characteristics rather than state regulation. These variables are assigned to the control ones necessary for leveling the bias of coefficient estimates for the model variable. In addition, our study uses control variables to test hypothesis 3, which verifies the assumption that the nature of the influence of indicators of the general development state of the region's economy on life expectancy is due to territorial features. Let us dwell in more detail on the justification of the choice of control variables.

As we shown it in the previous section, the list of exogenous variables used by scientists in modeling life expectancy, in addition to economic indicators of the effectiveness of the health care system and medical indicators of its quality, is quite wide. When choosing a set of variables, we were guided primarily by the results of relevant studies that revealed the most important factors of life expectancy changes: education, income, non-traditional risk factors for morbidity<sup>11</sup>, and environmental factors. They quite fully reflect the quality life and standard of living from the perspective of three basic aspects: socio-economic (education and income of the population<sup>12</sup>), socio-psychological (stress

factors expressed through the suicide rate<sup>13</sup>) and environmental (availability of clean air and drinking water) (Kolosnitsyna et al., 2019; Balina et al., 2021).

In addition to theoretical prerequisites, when forming the database, we took into account the actual presence of similar indicators in the official regional Rosstat statistics for the analyzed period of time. *Table 4* provides information on the normalization of variables for modeling, the method of their calculation and units of measurement.

We conducted statistical tests to determine the best model specification; at the same time we evaluated three types of models: models with fixed effects, with random effects, and the pooled least square method (LSM). The best model was chosen based on the Akaike and Schwartz information criteria, as well as the results of statistical tests: the F-test, the Breusch – Pagan test, and the Hausman test. Based on the F-test results, we chose between LSM and models with fixed effects; using the Breusch – Pagan test, between LSM and models with random effects. The Hausman test allows making a correct choice between models with fixed and random effects.

**At the fifth stage**, based on the obtained econometric estimates, we interpret the results, formulate difficulties in the functioning of the health care system, and develop priority management decisions in the context of groups of regions.

<sup>11</sup> To these factors researchers traditionally include bad habits that reduce stress (alcohol consumption, smoking, overeating, etc.).

<sup>12</sup> The factor “population income” was taken into account through the real income (on average per person), rather than through the indicator of per capita GRP, quite often used in relevant studies. This choice is explained by the results of the Preston curve study on the example of Russian regional data, which refuted the dependence of life expectancy on the economic status of the region (Andreev, Shkolnikov, 2018).

<sup>13</sup> The use of the indicator “number of suicides” in the model instead of collecting separate indicators indicating the prevalence of bad habits among the population is based on the research results which proved the existence of a significant relationship between the indicator of alcohol consumption and the number of suicides (Lebedeva-Nesevrya, Kiryanov, 2012). Thus, we believe that the variable “number of suicides” chosen for modeling can objectively act as a proxy variable of stress factors.

Table 4. Indicators for simulating and evaluating the conditions for the formation of long and healthy public life in RF entities

Variable name	Variable description	Unit of measure	Calculation method
Endogenous variables			
Life_exp	Life expectancy at birth	years	Number of years of life to come
Exogenous variables			
Variables of interest			
Hea	Health care cost	thousand rubles	Expenditures of the consolidated budgets of Russia's entities on health care, thousand rubles per person
Doc	Number of doctors	people	Number of doctors with higher medical education per 10,000 of the population employed in medical and preventive treatment organizations
Hos_beds	Number of hospital beds	hospital bed	Number of hospital beds per 10,000 people in the population. Beds that are equipped with the necessary inventory and ready to receive patients are to be counted
Control variables			
Stu	Number of students in higher education programs	people	Number of students enrolled in bachelor's, specialist's and master's degree programs per 10,000 people (at the beginning of the academic year)
Inc	Real cash income	thousand rubles	Cash annual income (average per capita) in the Russian Federation, adjusted for the consumer price index
Sui	Number of suicide	people	Number of registered deaths by major classes and individual causes of death (operational data) (suicide) per 100,000 people
Wat	Availability of clean drinking water	people	Availability of drinking water that meets safety requirements per 1,000 people
Neu_Pol	Air cleaning	%	Share of air pollutants captured and neutralized in the total amount of waste pollutants from stationary sources
Source: Regions of Russia. Socio-Economic Indicators 2021: Stat. Coll. Rosstat. Moscow, 2021.			

## Results

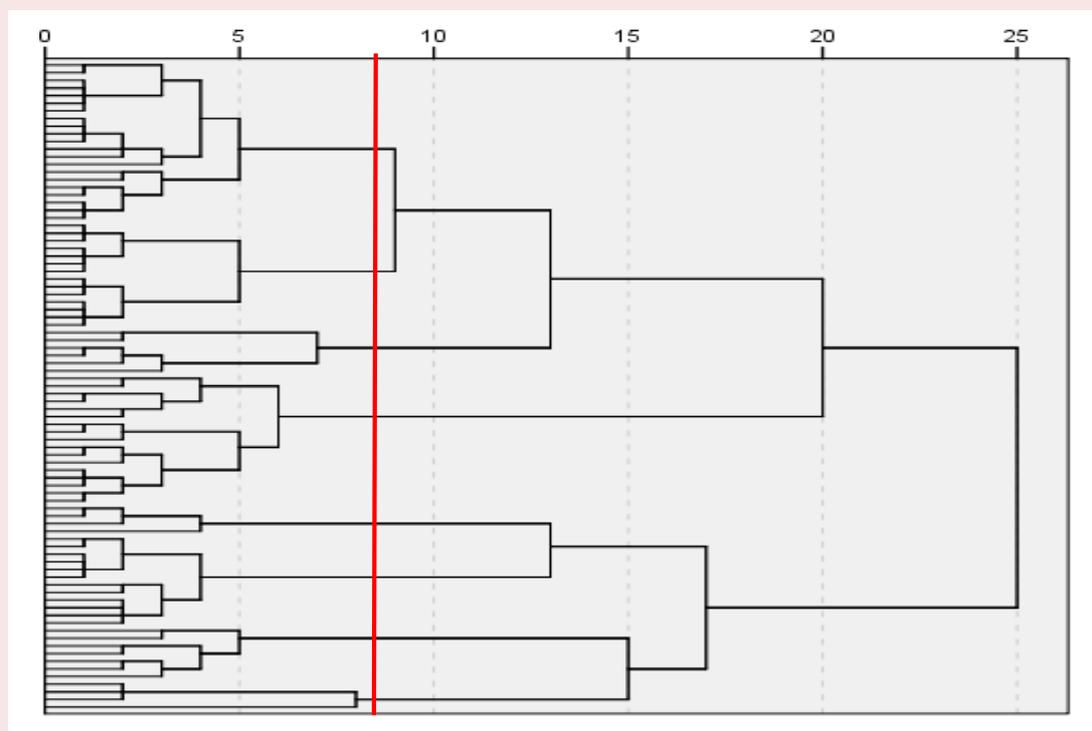
According to the described research methodology, in order to form a system of management decisions in the work, we carried out clustering of regions according to the specifics of the formation of conditions for increasing life expectancy. We conducted clustering according to the 2018 data, which was due to the need to minimize the problem of an unbalanced sample, which arose as a result of the fact that the indicators used in the aggregate were available only for the specified period. *Figure 3* shows a dendrogram for 85 studied entities of Russia.

By the expert method, according to the unification schedule, we chose a distance equal to 8.5 as the threshold distance<sup>14</sup>. Each cluster was assigned conditional names reflecting their quantitative characteristics in terms of the specifics of the formation of conditions for a long and healthy public life (*Tab. 5*).

In Table 5, we highlight the extremely high indicators in comparison with the national average in red, and on the contrary, in green is the values of

<sup>14</sup> Threshold distance is the distance beyond which objects that are far apart from each other (in our case, Russia's entities) will be combined.

Figure 3. Region classification tree



Source: own compilation.

indicators for which the group of regions is leading compared to the average values for the entire sample of Russia's entities. We should note that the first cluster group is the only one of the eight that has reached the values planned by the national project "Health care" according to the target indicator "infant mortality rate"<sup>15</sup>. And the seventh cluster group is the only one who has reached the target for life expectancy.

Figure 4 shows a cartographic visualization of cluster groups based on the formation of conditions in the regions to increase life expectancy.

Let us take a closer look at the obtained characteristics of the regions. The first group of regions ("The rich and happy") is characterized

<sup>15</sup> Passport of the national project "Health care": approved by the Presidium of the Council under the President of the Russian Federation for Strategic Development and National Projects (Protocol 10, dated September 3, 2018).

by high values for all indicators selected for clustering. Moscow and Saint Petersburg stand out especially in this group. The group of Russia's entities, united under the name "Overcoming psycho-emotional barriers", is characterized by high suicide rates, which, together with low relative to the national average indicators of real incomes and life expectancy in general, creates an image of regions where there are a number of problems in the formation of conditions for a long and healthy public life.

The entities included in the group "Overcoming natural and environmental barriers" are characterized by a low indicator of the availability of clean drinking water compared to the national average. This, along with the low values of life expectancy, necessitates an additional analysis of the level of anthropogenic load in these territories.

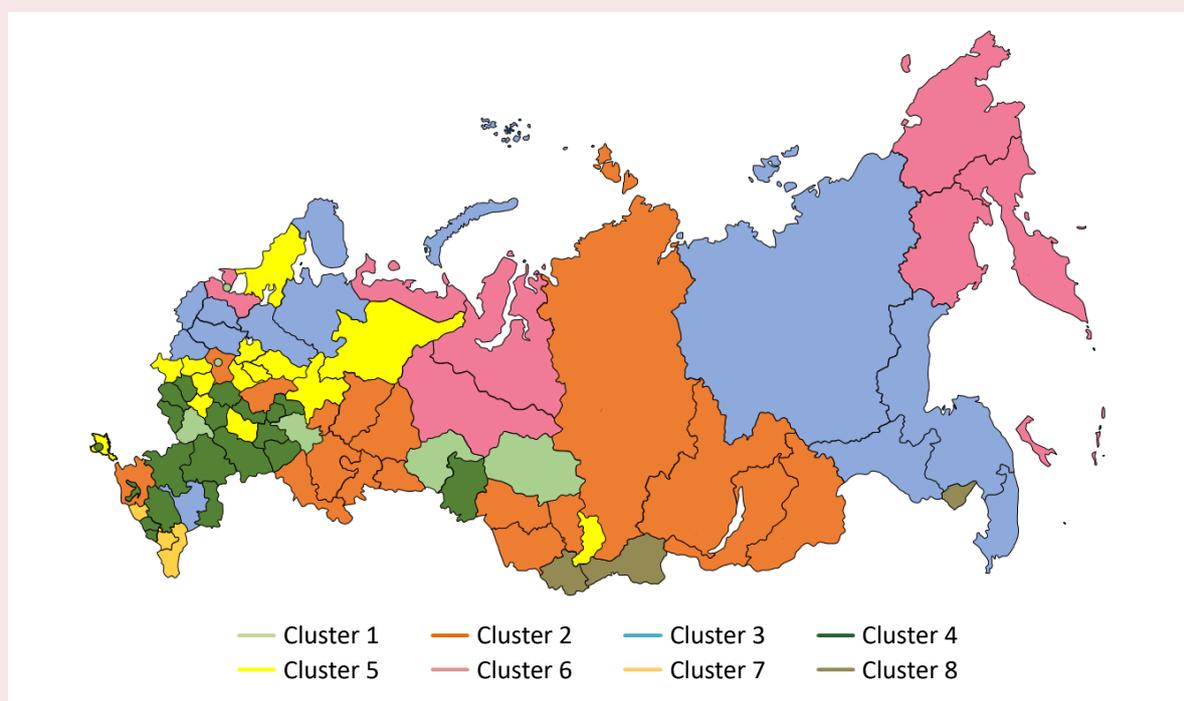
Table 5. Quantitative characteristics of the obtained clusters

no.	Cluster composition	Minimum and maximum values of indicator*			
		Life_exp	Inc	Sui	Wat
1.	<b>“The rich and happy”</b>				
	Voronezh Oblast, Republic of Tatarstan, Tyumen Oblast, Tomsk Oblast	72–78	34–68	9.5–17.1	93–100
	Moscow, Saint Petersburg**	76–78	43–67	2.7–6.1	100
2.	<b>“Overcoming psycho-emotional barriers”</b>				
	Oblasts: Moscow, Chelyabinsk, Orenburg, Sverdlovsk, Kurgan, Sverdlovsk, Irkutsk, Kemerovo, Novosibirsk, Nizhny Novgorod; krajs: Krasnodar, Perm, Altai, Krasnoyarsk, Zabaykalsky; republics: Bashkortostan, Udmurtia, Buryatia	69–74	19–42	8.2–38.2	69–99
3.	<b>“Overcoming natural-environmental barriers”</b>				
	Oblasts: Smolensk, Tver, Arkhangelsk, Vologda, Murmansk, Novgorod, Pskov, Amur; krajs: Primorsky, Khabarovsk; republics: Kalmykia, Sakha	69–74	16–42	1.1–32.6	47–96
4.	<b>“Optimistic regions of socio-economic development problems”</b>				
	Oblasts: Belgorod, Kursk, Orlov, Ryazan, Tambov, Kaliningrad, Astrakhan, Volgograd, Rostov, Samara, Saratov, Ulyanovsk, Omsk; Sevastopol; Stavropol Krai; republics: Adygea, Kabardino-Balkar, North Ossetia, Mari El, Mordovia, Chuvash	72–76	18–29	1–17	78–100
5.	<b>“Regions of problematic socio-economic development”</b>				
	Oblasts: Bryansk, Vladimir, Ivanovo, Kaluga, Kostroma, Lipetsk, Tula, Yaroslavl, Kirov, Penza,; republics: Karelia, Komi, Crimea, Khakassia	71–73	21–32	8.6–27.9	77–99
6.	<b>“Resource, low-population”</b>				
	AO: Nenets, Yamalo-Nenets, Khanty-Mansi, Chukotka; Kamchatka Krai; Oblasts: Magadan, Sakhalin, Leningrad	70–74	30–77	6–32	75–99
7.	<b>“The poor, but happy”</b>				
	Republic of Dagestan, Republic of Ingushetia, Karachay-Cherkessia Republic, Chechen Republic	75–82	16–25	0.2–8.4	61–95
8.	<b>“Socially stressed”</b>				
	Republic of Altai, Republic of Tuva, Jewish Autonomous Region	69–71	15–24	13–42	94–100
	<b>Average for the country</b>	72.2	29.2	15	89.3

\* Life\_exp – life expectancy, years; Inc – real income, thousand rubles per person.; Sui – suicide rate per 10,000 people; Wat – availability of clean water, %.

\*\* Moscow and Saint Petersburg belong to Group 1, but the indicators for them are shown separately due to the high discrepancy with the other regions of the group.  
Source: own compilation.

Figure 4. Cartographic visualization of cluster groups according to the specifics of the formation of conditions for increasing life expectancy



Source: own compilation.

Next, we will consider the groups “Optimistic regions of problematic socio-economic development” and “Regions of problematic socio-economic development” that are quite similar in terms of the analyzed indicators: low incomes, average life expectancy, average availability of natural (water) and human (students) resources. In the future, when modeling, these two groups will be combined.

The group of regions “Resource, low-population” definitely has pronounced features in terms of a high level of availability of natural resources. In addition, except the Leningrad Oblast, the population density in these regions is significantly lower than the national average. The group of regions “The poor but happy” includes four republics of the North Caucasus, united on the basis of high life expectancy, low suicide rates and low incomes.

The last group of regions (“Socially stressed”) included three traditionally depressed entities of Russia with low life expectancy, high suicide rates and low incomes.

Clustering of Russia’s entities according to the specifics of the formation of conditions for increasing life expectancy makes it possible to ensure the uniformity of the distribution of the studied regional data. According to the research methodology described in the paper, we assessed the impact of indicators characterizing regional characteristics on life expectancy in relation to three groups: “Overcoming psycho-emotional barriers”, “Overcoming natural and environmental barriers” and the combined group “Optimistic regions of problematic socio-economic development” and “Regions of problematic socio-economic development”. The remaining groups identified during clustering combine 21 outlier

regions and require additional research due to the specifics of their functioning.

Tables 6–8 show the best models according to the results of statistical tests for each of the three analyzed cluster groups, respectively. In all three models, fixed-effect models were selected based on the results of the F-test, the Breush – Pagan test and the Hausman test.

Let us interpret the results obtained. *Table 6* presents a detailed assessment of the selected model (models with fixed effects) for the group of regions “Overcoming psycho-emotional barriers”.

Commenting on the coefficients obtained with control regressors, we note that health care costs (feedback), per capita income parameters (direct link), the number of students (feedback) and suicide rate (feedback) are significant at the 1%

level. Thus, in the group of regions “Overcoming psycho-emotional barriers”, measures aimed at reducing stress factors require special attention from the responsible authorities. First of all, this is work in the field of suicide prevention. An interesting result of the model, which requires additional scientific research, is the negative sustained and highly significant impact of health care costs on life expectancy.

Next, we will consider the results of econometric modeling estimates for the combined group “Optimistic regions of problematic socio-economic development” and “Regions of problematic socio-economic development” (*Tab. 7*).

Commenting on the coefficients obtained with the control regressors, we note that the parameters of average per capita income (direct relationship),

Table 6. Detailed assessment of the selected model (models with fixed effects) for the group of regions “Overcoming psycho-emotional barriers”

Variable name	Coefficient	St. mistake	t-statistics	p-value
<b>const</b>	70.182	1.499	46.810	0.000***
Variable of interest				
<b>Hos_beds</b>	0.001	0.010	0.138	0.890
<b>Doc</b>	0.007	0.019	0.377	0.707
<b>Hea</b>	-0.069	0.018	-3.752	0.000***
Control variables				
<b>Stu</b>	-0.007	0.001	-5.664	0.000***
<b>Sui</b>	-0,053	0,009	-5,736	0,000***
<b>Inc</b>	0.000	0.000	5.632	0.000***
<b>Wat</b>	0.002	0.001	1.591	0.114
<b>Neu_Pol</b>	-0.008	0.005	-1.607	0.110
Model description				
Number of observations			170	
Determination coefficient			0.9645	
Adjusted determination coefficient			0.9290	
Model evaluation criteria				
F-test	F = 49.917, p-value = 0.000			
Breusch – Pagan test	$\chi^2 = 288.295$ , p-value = 0.000			
Hausman test	$\chi^2 = 25.764$ , p-value = 0.002			
Akaike criteria	177.749			
Schwartz criteria	256.145			
<i>Note: the symbols *, **, *** denote scores that are significant at the 10, 5 and 1% level, respectively.</i>				
Source: own compilation.				

Table 7. Detailed evaluation of the selected model (model with fixed effects) for the combined group of regions

Variable name	Coefficient	St. mistake	t-statistics	p-value
<b>const</b>	69.806	1.066	65.460	0.000***
Variable of interest				
<b>Doc</b>	0.038	0.011	3.265	0.001***
<b>Hos_beds</b>	-0.015	0.005	-2.877	0.004***
<b>Hea</b>	-0.047	0.015	-3.289	0.001***
Control variables				
<b>Inc</b>	0.000	0.000	11.380	0.000***
<b>Sui</b>	-0.040	0.007	-6.175	0.000***
<b>Stu</b>	-0.004	0.000	-4.784	0.000***
<b>Wat</b>	-0.000	0.000	-0.266	0.791
<b>Neu_Pol</b>	-0.003	0.003	-1.103	0.271
Model description				
Number of observations		330 <sup>16</sup>		
Determination coefficient		0.9545		
Adjusted determination coefficient		0.9166		
Model evaluation criteria				
F-test		F = 47.409, p-value = 0.000		
Breusch – Pagan test		$\chi^2 = 632.463$ , p-value = 0.000		
Hausman test		$\chi^2 = 45.241$ , p-value = 0.000		
Akaike criteria		399.9976		
Schwartz criteria		555.7604		
<i>Note: the symbols *, **, *** denote scores that are significant at the 10, 5 and 1% level, respectively.</i>				
Source: own compilation.				

the number of students (inverse relationship) and suicide rate (inverse relationship) are significant at 1% level. The number of doctors has a direct positive effect on life expectancy. At the same time, the number of hospital beds and health care expenditures have an inverse effect at the 1% level of significance. This can indirectly testify to inefficiency of spending of budgetary funds. In addition, the structure of total health care expenditures probably requires certain changes. This idea can be found in the work (Koloslitsyna et al., 2019), which draws attention to the importance of scientific justification of the proportions of health care spending “between spending on primary or

high-tech care, on staff salaries or on employment expansion” (Koloslitsyna et al., 2019, p. 125). Overall, more research is needed to confirm (disprove) our assumption.

Next, we will consider the results of econometric modeling estimates for the group of regions “Overcoming natural-environmental barriers” (Tab. 8).

Commenting on the coefficients obtained with control regressors, we note that at the 1% level the parameters of average per capita income are significant (direct relationship); at the 5% level both parameters characterizing the state of the environment (availability of drinking water and

<sup>16</sup> In order to compile a complete panel, the regions with gaps in the data (the Republic of Crimea and Sevastopol) were removed.

Table 8. Detailed evaluation of the selected model (model with fixed effects) for the group of regions “Overcoming natural-environmental barriers”

Variable name	Coefficient	St. mistake	t-statistics	p-value
<b>const</b>	63.261	2.114	29.930	0.000***
Variable of interest				
<b>Hea</b>	-0.015	0.025	-0.575	0.567
<b>Doc</b>	0.010	0.023	0.437	0.663
<b>Hos_beds</b>	-0.009	0.012	-0.799	0.426
Control variables				
<b>Stu</b>	-0.003	0.002	-1.341	0.183
<b>Inc</b>	0.000	0.000	6.312	0.000***
<b>Sui</b>	-0.020	0.013	-1.510	0.134
<b>Wat</b>	0.003	0.001	2.490	0.015**
<b>Neu_Pol</b>	0.017	0.008	2.155	0.034**
Model description				
Number of observations	120			
Determination coefficient	0.9460			
Adjusted determination coefficient	0.9072			
Model evaluation criteria				
F-test	F = 44.893, p-value = 0.000			
Breusch – Pagan test	$\chi^2 = 186.711$ , p-value = 0.000			
Hausman test	$\chi^2 = 41.287$ , p-value = 0.000			
Akaike criteria	202.116			
Schwartz criteria	257.866			
<i>Note: the symbols *, **, *** denote scores that are significant at the 10, 5 and 1% level, respectively.</i>				
Source: own compilation.				

the share of decontaminated air pollutants) are significant. These conclusions also require additional research in terms of assessing the environmental condition of this group of regions. At the same time, the variables of interest have no effect on the endogenous variable.

The estimates obtained in the course of simulation helped to identify the specifics of the impact of individual indicators on life expectancy in different groups of Russia’s entities and to outline the directions for further research.

### Discussion

Let us briefly discuss the results in the context of the research hypotheses formulated in the paper.

First, hypothesis 1, which consists in the fact that the influence of economic indicators of regional health care system efficiency on life

expectancy is positive, has not found its empirical confirmation. For instance, according to the obtained model estimates, health care expenditures have a statistically significant inverse effect on life expectancy in the groups “Overcoming psycho-emotional barriers”, “Optimistic regions of problematic socio-economic development” and “Regions of problematic socio-economic development”. Agreeing with the fact that “the relationship between health care expenditures and health indicators (in particular, life expectancy) is quite complex and studies often give ambiguous results” (Kolosnitsina et al., 2019, p. 128), we note that contrary to the established scientific opinion about the positive relationship of these parameters in a number of works on Russian data were obtained inverse or insignificant dependence.

For example, the significant inverse dependence obtained in (Andreev, Shkolnikov, 2018) is explained by the fact that higher health care costs are objectively characteristic of territories with low health indicators and high mortality rates. In the work (Brainerd, Cutler, 2005), the lack of a significant relationship between increased public spending on health care and reduced mortality prompts scientists to turn to the study of non-traditional morbidity risk factors (e.g., alcohol, smoking, and others). In addition, we should also note that the significant inverse relationship obtained in our study between public spending on health care and life expectancy may indirectly indicate the inefficient use of budgetary funds for health care, in particular the suboptimal structure and directions of spending (Akindinova et al., 2018). Thus, verification of this assumption, which goes against the works determining the expenditures on health care in improving the social performance of health care systems (Kalashnikov, 2011; Panasyuk, Dasaeva, 2014; Tatarkin et al., 2015; Ulumbekova et al., 2019; Chubarova, 2020), requires more in-depth research.

Second, hypothesis 2, which consists in the fact that the influence of medical indicators of the quality of the regional health care system on life expectancy is positive, was partially confirmed. As in the works (Muldoon et al., 2011; Heuvel, Olaroiu, 2017; Zhukova et al., 2016), we obtained statistically significant correlations of the positive influence of the number of doctors on life expectancy by the largest by composition groups “Optimistic regions of problem socio-economic development” and “Regions of problem socio-economic development”. At the same time, a statistically significant inverse relationship was obtained for the indicator “number of hospital beds” for the same groups of regions. We found similar results in (Heuvel, Olaroiu, 2017), the authors of which explain the obtained negative relationship by the priority of preventive measures and social spending

of the state instead of increasing the number of hospital beds, as well as in (Skipin et al., 2022), where this result is explained by the priority of the quality of health services, rather than the number of hospital beds.

Third, hypothesis 3, that the nature of the influence of indicators of the general state of regional economic development on life expectancy is determined by territorial features, has been fully confirmed in the course of empirical testing. For instance, except for the parameter of average per capita income, which turned out to be statistically significant for all the analyzed groups of regions, the nature of the influence of other control variables on different groups of regions differs. For example, for the groups “Overcoming psycho-emotional barriers”, “Optimistic regions of problematic socio-economic development” and “Regions of problematic socio-economic development”, the proxy variable of stress factors “suicide rate” (inverse relationship) turned out to be statistically significant. Thus, measures aimed at reducing the stress factors of the population require special attention on the part of the responsible authorities. First of all, it is the work in the sphere of prevention of depression and suicidal behavior development, popularization of healthy lifestyle and informing about the possibility of spread of socially significant diseases.

The influence of the indicator “number of students”, which we selected as the factor “education”, was statistically significant for all groups of regions, except “Overcoming natural-environmental barriers”. At the same time, the effect on life expectancy, in contrast to the results of previous works, which study the relationship of education with the public health level, is the opposite. These results can be explained by the fact that the indicator we selected is not in the strict sense an indicator of the education, which is absent in the statistics for the period. In this regard, for an objective interpretation of the impact of the number

of students on life expectancy, more detailed research is needed, taking into account the relevant for the national economy problem of interregional mobility of students and university graduates, actualized in the works (Gabdrakhmanov, 2019; Naumov et al., 2019). Speaking of environmental indicators, we note that according to the results obtained, the selected exogenous variables significantly affect life expectancy only of the regions of the “Overcoming natural-environmental barriers” group, which is consistent with the research results (Muldoon et al., 2011).

Along with the justification of the consistency of our estimates with the results presented in the studies of other scientists, we should outline the objective limitations of the model built. The main limitations include, first, the traditional problem for Russian regional studies – the limited amount of statistical data both by the set of indicators and by the available period of analysis. More complete data would have greatly improved the understanding of the relationships under study. Second, the model did not take into account the short-, medium-, and long-term effects of increased health care expenditures, as well as changes in spending directions by year. Third, we did not decompose the differences in life expectancy by gender or age, which could also have provided interesting insights. Fourth, the model does not highlight expenditures on disease prevention, whose high impact on life expectancy has been proven in a number of papers. Finding a proxy variable for this type of expenditures could add a new determinant to the list of factors increasing life expectancy.

Thus, overcoming the highlighted limitations of the model is, from our point of view, an interesting area for further research.

### **Conclusion**

The work offers a comprehensive toolkit for improving the health care system in regional development and management based on the clustering of regions according to the specifics

of the formation of conditions for increasing life expectancy. It is worth highlighting the main scientific results of the study.

1. *We have studied the existing theoretical and methodological approaches and research methods on the health care system as the basis for ensuring and increasing life expectancy.* The review of the research works revealed a number of missing methodological aspects that objectively require improvement, including ignoring the importance of preliminary clustering of heterogeneous territories when modeling the social performance of the health care system.

2. *We have carried out the clustering of Russian regions according to the specifics of the formation of conditions for increasing life expectancy.* The database for clustering regional indicators included the following blocks: social, economic, psychological, and natural-environmental. Using the Ward method, we obtained compact and well-divided clusters, which are sufficiently amenable to economic interpretation and represent an important groundwork for further modeling.

3. *We have formulated the research hypotheses and prepared the statistical database, influencing life expectancy of Russia’s entities, for 10 years.* We used the analysis results of the literary sources, adjusted by the availability of existing statistical information on Russia’s regions, as the basis for the selection of indicators for the formalization of hypotheses.

4. *We have used econometric modeling to evaluate the hypotheses proposed and to interpret the results obtained.* We evaluated three types of models (models with fixed effects, with random effects, pooled LSM) with regard to the groups “Optimistic regions of socio-economic development problems”, “Overcoming psycho-emotional barriers” and “Overcoming natural-environmental barriers”. The obtained estimates helped to identify the specifics of the impact of individual indicators on life expectancy in different groups of Russia’s entities and outline the directions for further research.

Thus, the scientific novelty of our research is the clustering of Russia's entities according to the specifics of forming the conditions for increasing life expectancy, which is of fundamental importance for increasing the efficiency of territorial management and planning in the field of health care. The practical significance of the study lies in the fact that the obtained results can be useful for regional and local

authorities to form a set of measures to increase life expectancy.

The findings add new empirical evidence to the system of scientific works devoted to identifying the determinants of life expectancy at the regional level of the national economy, therefore supporting the discussion on prioritizing the task of health protection and longevity extension in contemporary Russia.

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## The Scale of Inequality and the Specifics of Its Perception in Modern Russia



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**Abstract.** Inequality is a key socio-economic development challenge for the world as a whole and for individual countries. In Russia, the problem of inequality is particularly acute, since the scale and depth of differences in the population's income greatly exceed the "conditional levels" of normal inequality. In this regard, it is important to prevent the development of negative socio-political processes and the deterioration of public sentiments. The article's purpose is to determine the peculiarities of the Russian population's perception of the existing inequality and its manifestations in the country. Using the data from Rosstat and the Organization for Economic Cooperation and Development, we prove that inequality in Russia is large in scale and persists throughout the post-reform period of the country's development without a clear focus on reducing the depth of polarization of the extreme income groups. We use the data of a cross-country representative study under the program ISSP, conducted in 2019, to examine the perception of inequality by the population of Russia and some foreign countries, specifically the subjective assessment of the depth of inequality, its fairness, the role of the state in reducing income disparities, the features of the redistribution system (role of taxes), accessibility of health and education services, the degree of conflict (dislike) between the poor and the rich. We show that the perception of inequality by Russians differs from the perception of other countries' residents with a more expressed critical assessment of the depth, injustice, social conflict and ineffectiveness of government actions to reduce income disparities. We find that the population does not show tolerance to non-monetary dimensions of inequality, considering unfair the opportunity of rich people to purchase high quality medical and

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educational services. We reveal that there are no significant differences in the perception of inequality in different socio-demographic and socio-economic groups of the population. Attention is drawn to the fact that the subjective perception of inequality lies to a greater extent in the field of ideas about a fair social order than it is unambiguously determined by the level of income.

**Key words:** inequality, income inequality, subjective evaluation, social justice, public demand for redistribution, Gini coefficient.

### Introduction

Socio-economic inequality is a characteristic feature of any modern society, a significant and socially important problem. It is unanimously recognized as “the fact of the principal irremovability and wide social prevalence of this phenomenon” (Gorshkov, 2014, p. 21).

Russian experts and civil servants have been emphasizing for decades that “poverty and inequality are the main “pain points” of modern (post-Soviet) Russian society” (Ilyin, Morev, 2021, p. 12). As RAS Academician M.K. Gorshkov noted, “the problem of social injustice and inequality in Russia occupies the first place in the ranking of social contradictions. For 25 years of reforms it has penetrated into all pores of society and has become a characteristic feature of relations in almost all strata of the population. This is especially true of distribution relations”<sup>1</sup>. According to official statistics, “the number of Russians living below the poverty line has not actually changed over the past 8 years” (Ilyin, Morev, 2021, p. 13), nor has the excessive scale of differentiation, characterized by R/P 10% ratio and the Gini coefficient, which have remained virtually unchanged over the past decade (Rossoshanskii, Belekhova, 2020, p. 38). Alternative international studies show that in Russia over the past 30 years (1989–2016), the aggregate income of the 50% of the population with the lowest incomes decreased

by 20%, while the aggregate income of the top 10% almost doubled (by 171%), and the income of the wealthiest 1% increased by 429%, almost 4.5-fold (Novokmet et al., 2017, pp. 78–79).

The results of numerous foreign studies and analytical reports indicate that in most countries with developed and developing economies, income and property inequality have been increasing since the 1980s, although very unevenly (Alvaredo et al., 2017; Piketty, Saez, 2014; Nolan, Valenzuela, 2019). In particular, relatively low growth in inequality and concentration of wealth is recorded in continental Europe and China, while it is more rapid in the United States, the UK, and India<sup>2</sup>. Significant differences in inequality can be seen by region: in Europe, the income of the richest 10% is 36% of the entire population, in East Asia 43%, in Latin America 55%, and in the MENA states (Middle East and North Africa) it reaches 58%<sup>3</sup>. That is why the issue of inequality runs through all 17 Sustainable Development Goals for 2030<sup>4</sup>, developed by the UN and approved by 193 countries. These goals are not

<sup>1</sup> Gorshkov M.K. Injustice and poverty are felt equally keenly (interview for the newspaper *Kultura* on June 8, 2017). Available at: <https://portal-kultura.ru/articles/country/162230-mikhail-gorshkov-my-znaem-obshchestvo-v-kotorom-zhivem/> (accessed: August 29, 2022).

<sup>2</sup> Bergbauer S., Giovannini A., Hernborg N. (2022). Economic inequality and public trust in the European Central Bank. Available at: [https://www.ecb.europa.eu/pub/economic-bulletin/articles/2022/html/ecb.ebart202203\\_02~f9d2d059f0.en.html](https://www.ecb.europa.eu/pub/economic-bulletin/articles/2022/html/ecb.ebart202203_02~f9d2d059f0.en.html) (accessed: August 29, 2022); World Inequality Report 2022. Available at: [https://wir2022.wid.world/www-site/uploads/2021/12/Summary\\_WorldInequalityReport2022\\_Russian.pdf](https://wir2022.wid.world/www-site/uploads/2021/12/Summary_WorldInequalityReport2022_Russian.pdf) (accessed: August 29, 2022).

<sup>3</sup> World Inequality Report 2022. Available at: [https://wir2022.wid.world/www-site/uploads/2021/12/Summary\\_WorldInequalityReport2022\\_Russian.pdf](https://wir2022.wid.world/www-site/uploads/2021/12/Summary_WorldInequalityReport2022_Russian.pdf) (accessed: August 29, 2022).

<sup>4</sup> The Sustainable Development Agenda, UN. Available at: <https://www.un.org/sustainabledevelopment/ru/about/development-agenda/> (accessed: August 29, 2022).

only about reducing inequality within and between countries, but also about reducing differentiation of the population in access to vital benefits (health, education, environment, infrastructure) and ensuring equal opportunities for all citizens.

Inequality is a multidimensional phenomenon, combining different characteristics (inequality of income, property, opportunities, wealth, etc.), different levels (inequality in the upper, middle and lower part of the income distribution), different dimensions (objective and subjective indicators of inequality), different consequences for the individual, the public and the economic life of the country. Recognizing the impossibility of completely freeing ourselves from monetary and nonmonetary inequalities, it is important to understand their scale and legitimacy, as well as the way in which they are perceived by society. The latter aspect against the background of relatively stable indicators of inequality and a long period of economic and foreign policy shocks in the 2010s and early 2020s acquires particular importance. Subjective evaluation provides an operative picture of how the population assesses the depth and fairness of the differences between the rich and the poor, how great is the dislike between polar income groups, and how successfully the state (government) copes with the task of reducing the differentiation of the population.

In this connection the purpose of our research is to study the Russian population's perception of the existing inequality and its manifestations in the country. To achieve the purpose we set and implemented the following tasks: we reviewed theoretical and methodological aspects of the study of subjective perception of inequality; we assessed the current situation in the field of population inequality, i.e. we analyzed the dynamics, scale and interregional differentiation of the actual level of monetary inequality in Russia in 2010–2021; we revealed the features of subjective

perception of monetary inequality in Russia, including in comparison with foreign countries, and in population groups with different social-demographic and socio-economic characteristics.

#### **The problematics of inequality: A brief review**

In the most general form inequality should be considered as “a specific form of social differentiation, which predetermines the differences in living conditions of individuals ..., their unequal access to economic, social, political, informational and other resources, ... different opportunities to meet ... needs and interests” (Gorshkov, 2014, p. 20). There are many factors that cause the emergence of inequality, but the main cause and consequence of this process is the unequal and unfair distribution of resources. Therefore, “excessive” inequality is fraught with a variety of problems: “economic, because it forms a powerful pressure in favor of redistribution, thereby undermining economic growth; social, because it entails the deterioration of the social and psychological state of the population and destroys social cohesion; political, because it can generate social tensions, threaten democratic foundations and contribute to the formation of a request to change the social contract with the state” (Gimpelson, Monusova, 2014, p. 217; Mareeva, 2018, p. 104).

Foreign and domestic science actively discusses the scale, drivers and consequences of monetary and nonmonetary inequalities. Economists, sociologists and political scientists mainly rely on objective statistical indicators and methods of mathematical modeling, which allows them to assess the degree of acuteness of resource distribution between extreme income groups, predict the consequences of observed differentiation, identify factors and causes of increasing differences (Piketty, 2015; Stiglitz, 2015; Anikin, Tikhonova, 2016; Ovcharova et al, 2016; Kapelyushnikov, 2017; Rossoshanskii, 2019; Salmina, 2021; Chernysh, 2021; Novokmet et al., 2017).

A separate layer of research is devoted to the issues of subjective perception of inequality by the population (Salmina, 2007; Gimpelson, Monusova, 2014; Ovcharova et al. 2014; Mareeva, 2021; Mareeva et al., 2022). Among the works at the intersection of economics and sociology, the works of V.E. Gimpelson and S.V. Mareeva and their co-authors, who have been monitoring subjective perception of inequality in Russian society for many years, relying on international and national surveys (Gimpelson, Monusova, 2014; Mareeva et al., 2022), should be mentioned. They trace the dynamics of perceptions of inequality, identifying the grounds for differentiation of opinions, paying particular attention to the factor such as social mobility. In a recent paper the authors conclude that the perception of monetary and nonmonetary inequalities, and the demand for their reduction “are shaped more by normative perceptions of the “proper” structure of society and the assessment of its correspondence to observed reality than by the specifics of the individual situation, including expected or actual mobility” (Mareeva et al., 2022, p. 41).

Most authors agree that the population’s perceptions of the real inequality level and their position in the income hierarchy do not always coincide with statistically measured indicators (Gimpelson, Chernina, 2020, p. 34; Mareeva et al., 2022, p. 43; Knell, Stix, 2020). However, there have been proven links between “the population’s perceptions of relative well-being and life satisfaction” (Clark, d’Ambrosio, 2015), social trust (Barone, Mocetti, 2016; Hu, 2017), and protest activity (Díaz, 2017; Schoene, Allaway, 2019). According to conducted studies, the perception of income inequality as high is manifested in marked differences in life satisfaction between population groups with different income levels, and life satisfaction inequality itself has a significant negative impact on social trust (Graafland, Lous,

2019). Higher levels of income and wealth inequality correlate with lower levels of interpersonal trust and trust to political institutions, with weakened support for the institutional structure as a whole<sup>5</sup> (Kriekhaus et al., 2014; Gould, Hijzen, 2016). As shown in (Goubin, Hooghe, 2020), the relationship between macro-level perceptions of inequality and public trust in state institutions also depends on people’s socio-economic status.

In view of the above, we can rightfully agree with the statement of some researchers that people’s perception of inequality is more important “for predicting the behavior of individuals than the actual indicators of inequality” (Gimpelson, Chernina, 2020, p. 31; Gimpelson, Treisman, 2018; Kuhn, 2015). “In modern Russia, mass reactions to social inequality come from the basic value and worldview positions of Russians, acquiring the character of dissatisfaction with socio-economic relations formed in the country during the years of reforms, including the distribution of property and income” (Gorshkov, 2020, p. 238). Therefore, according to some Russian scholars, the demand from the population “to reduce inequality is primarily related to the subjective assessment of inequality rather than its actual depth” (Mareeva et al., 2022, p. 43; Gimpelson, Treisman, 2018). Since for the Russian sociocultural model the key ideational basis is the concept of justice (Russian society ..., 2017, pp. 108, 143–144; Mareeva, 2015, pp. 110–111; Lapin et al., 2020, p. 8), then “Russians’ normative ideas about the principles of a just society related to certain inequalities” (Mareeva et al., 2022, p. 55) come to the fore. According to surveys of the Institute of Sociology FCTAS RAS, on the one hand, only about one-third of Russians call small differences in income

<sup>5</sup> Bergbauer S., Giovannini A., Hernborg N. (2022). Economic inequality and public trust in the European Central Bank. Available at: [https://www.ecb.europa.eu/pub/economic-bulletin/articles/2022/html/ecb.ebart202203\\_02~f9d2d059f0.en.html](https://www.ecb.europa.eu/pub/economic-bulletin/articles/2022/html/ecb.ebart202203_02~f9d2d059f0.en.html) (accessed: August 29, 2022).

as a necessary element of a just society, only 10% attribute a small share of the rich to such elements, which indicates “the population’s tolerance for income inequality as such if it occurs in conditions of equal opportunities – equal access to medicine, labor market, and education” (Mareeva et al., 2022, pp. 55–56). On the other hand, it is income differentiation and access to social services that Russians find most painful: thus, when assessing their position in a multidimensional social space, they often note that they personally suffer from income inequality (47% in 2013, 69% in 2018, 67% in 2020), inequality in access to medical care (38, 51 and 46% respectively) and good jobs (28, 38 and 38% respectively), housing inequality (28, 36 and 32% respectively) and inequality in opportunities for children from different social backgrounds (21, 19 and 26% respectively)<sup>6</sup>.

The given data “testifies that the current situation in Russian society does not meet the normative principles of justice in the perceptions of the population and does not provide the required equality of opportunities” (Mareeva et al., 2022, p. 55). “The perception of existing inequality in society and patterns of distribution of property rights as unfair can contribute to delegitimization in the eyes of the population of the entire institutional structure of society, opportunistic behavior in relation to the “unfair” system of established rules in society” (Mareeva, 2015, p. 110). Such situation actualizes the request to study the subjective perception of inequality in modern Russia, which for several years has been under uncertainty due to the consequences of decisions in foreign policy. At the same time, it is important not only to analyze the population’s opinion about inequality in terms of the scale, degree of justice and the role of the state, but also to assess the differentiation of the perception of inequality in different social (socio-economic and socio-demographic) groups.

<sup>6</sup> Data sources: (Mareeva, 2015, p. 115; Mareeva, 2018, p. 105; Mareeva et al., 2022, p. 54).

### Research design and information base

Inequality as a socio-economic phenomenon is multifaceted and manifests itself not only in differentiation of income and/or wealth, but also in nonmonetary aspects in the form of unequal opportunities in access to socially important benefits and resources. In this study, speaking of inequality, we are referring primarily to its income (monetary) dimension, concerning the differences in the level of income received. At the same time, we expand the analysis by considering nonmonetary manifestations of inequality related to opportunities to ensure a higher level and quality of life, namely the payment for higher-quality educational and medical services.

During the work, we used a set of general and special methods of scientific knowledge in accordance with the tasks set and the available empirical material. In particular, we used general scientific methods – generalization, comparison, analysis and synthesis of scientific literature and open sources for the systematization of theoretical and methodological aspects of the study of subjective perception of inequality. To implement analytical tasks to identify trends in the actual level of inequality and features of its subjective perception of the population, we used methods of statistical and sociological analysis (dynamic analysis, calculation and analysis of differentiation indicators, descriptive analysis, analysis of multidimensional frequency distribution using combination tables).

In Russian and international practice a set of different indicators is used to measure the actual level of inequality, the basis of which are indicators of income differentiation and concentration (R/P 10% ratio, Gini coefficient, Theil index, Atkinson index, etc.) and indicators of income distribution (decile differentiation ratio, quintile ratio, Palm coefficient, etc.). Often the analysis is supplemented by volumetric indicators (level of per capita/median income, poverty level, etc.) and the calculation of indicators of interregional differentiation (range of variation, polar value gap coefficient, variation

coefficient, dispersion, oscillation coefficient, etc.). In our work the estimation of the actual level of monetary inequality of the population was carried out according to such statistical indicators as average per capita income, decile coefficient, Gini coefficient.

Assessment of subjective perception of inequality was carried out according to the international methodology of The International Social Survey Programme (ISSP) on the module “Social Inequality”<sup>7</sup>. It includes the following indicators: the depth and fairness of inequality, the role of the state in reducing income disparities, the features of the redistribution system (the role of taxes), the availability of health care and education, the degree of conflict (dislike) between the poor and the rich. The measurement of the population’s perception is built on normative questions, which allow assessing the degree of agreement of the respondents with the statements about income differences, about the fairness of differences, etc. The data obtained are not a direct assessment of the respondent’s position in the income hierarchy, but they can be used as an indirect indicator of the actual distribution of income and wealth in society.

The empirical basis for the study is official statistical data from Rosstat and the Organization for Economic Cooperation and Development (OECD), and the results of the 2019 sociological survey in the countries participating in the International Social Survey Program (ISSP–2019) with the “Social Inequality” module. The available database includes 35127 individual observations from 22 countries<sup>8</sup>. For comparative analysis with Russia (1,567 observations) 16 states were chosen

which differed most in the level of economic development, the specifics of the institutional structure, and the degree of actual inequality (according to the Gini coefficient): Bulgaria, the United Kingdom, Germany, Denmark, Israel, Italy, Lithuania, New Zealand, Slovenia, Finland, Croatia, the Czech Republic, Chile, Switzerland, South Africa, Japan<sup>9</sup>. As explanatory variables a number of socio-demographic and economic characteristics of individuals available in ISSP are used: gender, age, marital status (marriage status), presence of children, employment in the labor market, level of education, self-assessment of social status, territory of residence.

The main conclusions of the article are drawn as for 2019, the year of the ISSP international sociological survey. In accordance with this, and taking into account the availability of information in the databases of Rosstat and OECD, the analysis of objective indicators of inequality covers the period 2010–2019/2020.

#### **Assessment of the actual level of monetary inequality**

One of the indicators of inequality, widely used for international comparisons, is the Gini index (coefficient). It “characterizes the differentiation of population’s monetary income by measuring the degree of deviation of the actual distribution of income from their absolutely equal distribution” (Gorshkov, 2014, p. 23). Unlike other indicators (decile coefficient, Palm coefficient, Theil index, etc.) the Gini coefficient is “more sensitive to changes in the middle part of the distribution” (Salmina, 2021, p. 82; Gastwirth, 2017).

<sup>7</sup> The International Social Survey Programme. Available at: <https://issp.org/>

<sup>8</sup> Access for registered users: Unified Archive of Economic and Sociological Data of the HSE. Available at: [http://sophist.hse.ru/db/oprview.shtml?ID\\_S=2363&T=m; International Social Survey Programme: Social Inequality V – ISSP 2019, GESIS Data Archive for the Social Sciences](http://sophist.hse.ru/db/oprview.shtml?ID_S=2363&T=m;International%20Social%20Survey%20Programme%3A%20Social%20Inequality%20V%20ISSP%202019,%20GESIS%20Data%20Archive%20for%20the%20Social%20Sciences). Available at: [https://search.gesis.org/research\\_data/ZA7600](https://search.gesis.org/research_data/ZA7600)

<sup>9</sup> “Anglo-Saxon countries differentiated by a liberal regulatory regime (Great Britain, New Zealand), continental European countries with a relatively high degree of coordination (Germany, Switzerland, Finland, Denmark), middle-income countries of Latin America (Chile), developed countries of East Asia and Africa (Japan, South Africa), post-socialist countries of Eastern Europe (Bulgaria, Lithuania, Slovenia, Czech Republic)” (Gimpelson, Monusova, 2014, p. 224).

We emphasize that comparing countries by the Gini coefficient “is rather conditional, since country size, GDP, and population size significantly affect the level of inequality” (Rossoshanskii, 2019, p. 113), but it helps to get a general idea of the scale of inequality across countries of the world.

According to OECD data (*Tab. 1*), among the examined states, the highest level of population inequality according to the Gini coefficient is annually observed in Russia (above 0.4). In other countries, the level of the index is noticeably lower; at the same time, in many of them the income differentiation is slightly increasing. Despite positive changes in Russia as a whole over the period under consideration, its level in recent years has been relatively stable and exceeds the “conventional mark” of excessive inequality of 0.400<sup>10</sup>.

In terms of Russian territories, the expected high degree of income differentiation is observed in more developed subjects, namely in export-resource regions and regions with developed industrial and trade-transport activity (Tyumen, Sakhalin, Sverdlovsk Oblasts, Chukotka Autonomous Okrug, Krasnodar Krai), and in the largest agglomerations (Moscow, Saint Petersburg; *Tab. 2*). The value of the index is a little lower in the regions with problems in terms of socio-economic development. However, the values of the Gini coefficient in the majority of Russian regions are very close, which is confirmed by the calculated coefficients of variation and oscillation. In other words, Russian regions are quite homogeneous in terms of the Gini coefficient and the differences between them are not increasing.

Table 1. Gini coefficient worldwide\*

Country	2010	2014	2015	2016	2017	2018	2019
Russia	0.421	0.415	0.412	0.412	0.411	0.414	0.412
Bulgaria	0.329	0.369	0.377	0.402	0.395	0.408	0.402
United Kingdom	0.351	0.356	0.360	0.351	0.357	0.366	0.366
Lithuania	0.329	0.380	0.372	0.378	0.374	0.361	0.357
Israel	0.371	0.360	0.346	0.344	0.348	0.342	no data
Japan	no data	0.334	no data				
Italy	0.327	0.326	0.333	0.327	0.334	0.330	no data
New Zealand	0.335	0.341	0.325	0.333	0.335	0.330	0.326
Switzerland	0.298	0.297	0.296	0.302	0.299	0.311	0.316
Germany	no data	0.289	0.293	0.294	0.289	0.289	no data
Finland	0.264	0.257	0.260	0.259	0.266	0.269	no data
Denmark	no data	0.256	0.263	0.261	0.264	0.263	no data
Slovenia	0.245	0.251	0.250	0.244	0.243	0.249	0.246
Czech Republic	0.260	0.257	0.258	0.253	0.249	0.249	0.248
Croatia	no data						
Chile	no data	no data	0.454	no data	0.460	no data	no data
South Africa	no data	no data	0.626	no data	0.618	no data	no data

\* Ranked by 2018.

According to: Income inequality. Available at: <https://data.oecd.org/inequality/income-inequality.htm>

<sup>10</sup> Poverty and Shared Prosperity 2016: Taking on Inequality. DOI: 10.1596/978-1-4648-0958-3

Table 2. Gini coefficient by Russian regions

Region*	2010	2014	2015	2017	2018	2019	2020	Rank**
Jewish Autonomous Oblast	0.378	0.369	0.355	0.347	0.349	0.34	0.327	1
Republic of Ingushetia	0.359	0.368	0.358	0.356	0.342	0.334	0.328	2
Kostroma Oblast	0.365	0.358	0.35	0.353	0.338	0.338	0.329	3
Republic of Khakassia	0.378	0.356	0.346	0.354	0.354	0.34	0.329	3
Vladimir Oblast	0.366	0.36	0.355	0.349	0.344	0.34	0.332	5
Kirov Oblast	0.366	0.366	0.349	0.343	0.34	0.34	0.332	5
Karachay-Cherkess Republic	0.368	0.373	0.365	0.356	0.348	0.344	0.332	5
Republic of Crimea			0.309	0.34	0.348	0.336	0.333	8
Novgorod Oblast	0.403	0.389	0.378	0.36	0.349	0.343	0.334	9
Chelyabinsk Oblast	0.4	0.382	0.368	0.352	0.355	0.348	0.334	9
...	...	...	...	...	...	...	...	...
Vologda Oblast	0.373	0.365	0.361	0.35	0.354	0.356	0.357	43
...	...	...	...	...	...	...	...	...
Sverdlovsk Oblast	0.432	0.422	0.41	0.405	0.403	0.405	0.394	73
Republic of Bashkortostan	0.427	0.424	0.412	0.416	0.411	0.408	0.394	73
Zabaykalsky Krai	0.401	0.398	0.395	0.397	0.406	0.406	0.397	75
Krasnodar Krai	0.415	0.421	0.414	0.404	0.405	0.403	0.401	76
Saint Petersburg	0.446	0.432	0.408	0.406	0.405	0.406	0.402	77
Sakhalin Oblast	0.415	0.408	0.408	0.412	0.418	0.419	0.402	77
Republic of Adygea	0.385	0.396	0.383	0.396	0.403	0.405	0.404	79
Chukotka Autonomous Okrug	0.406	0.419	0.413	0.4	0.405	0.408	0.407	80
Moscow	0.505	0.454	0.432	0.417	0.417	0.418	0.413	81
Tyumen Oblast	0.446	0.437	0.431	0.426	0.432	0.431	0.426	82
FOR REFERENCE: Russian Federation	0.421	0.415	0.412	0.411	0.414	0.412	0.406	-
Variation coefficient, %	6.410	5.443	6.413	5.627	5.983	6.411	6.355	-
Oscillation coefficient	0.377	0.271	0.345	0.242	0.252	0.262	0.273	-

\* The 10 regions with the best and worst values of the indicator, and the Vologda Oblast are indicated.  
\*\* Ranked by 2020 data.  
According to: Russian Regions: Statistical Digest. Rosstat.

Similar patterns are fixed on another indicator of inequality – the decile coefficient, characterizing the difference in income of the richest 10% and the poorest 10% of the population (*Tab. 3*). For Russia as a whole, it decreased from 16.6 to 14.9-fold during the analyzed period, which, however, is still above the “conventional mark” of normal inequality (6–8 times) (Lapin et al., 2020, pp. 11–12). In spite of a considerable gap between polar regions (about 2.5-fold in 2010–2015, and about 2-fold in 2016–2020), the calculated coefficient of variation

(below 30%) indicates the homogeneity of the population, while a decrease in the oscillation coefficient suggests that the coefficient value for more and more regions is close to the average and regional development converges.

According to established opinion, “Russia is characterized by a high level of regional inequality: the income of the residents of the richest constituent entity of the Russian Federation may exceed the same indicator in the poorest constituent entity by several times” (Gorshkov, 2016, p. 698).

Table 3. Decile coefficient by Russian regions

Region*	2010	2014	2015	2017	2018	2019	2020	Rank**
Kostroma Oblast	11.1	10.6	10	10.2	9.2	9.2	8.6	1
Jewish Autonomous Oblast	12.1	11.4	10.3	9.8	9.9	9.3	8.6	1
Republic of Ingushetia	10.6	11.3	10.5	10.5	9.4	8.9	8.6	1
Republic of Khakassia	12.2	10.5	9.7	10.3	10.3	9.3	8.7	4
Vladimir Oblast	11.1	10.8	10.4	10	9.6	9.3	8.8	5
Karachay-Cherkess Republic	11.4	11.7	11.1	10.4	9.8	9.6	8.8	5
Kirov Oblast	11.2	11.2	9.9	9.5	9.3	9.3	8.8	5
Republic of Crimea			7.5	9.4	9.8	9.1	8.9	8
Novgorod Oblast	14.6	13.2	12.1	10.8	9.9	9.5	8.9	8
Chelyabinsk Oblast	14.3	12.5	11.4	10.1	10.3	9.9	8.9	8
...	...	...	...	...	...	...	...	...
Vologda Oblast	11.7	11.1	10.8	10.0	10.3	10.4	10.5	42
...	...	...	...	...	...	...	...	...
Republic of Bashkortostan	17.4	16.9	15.6	16.0	15.5	15.0	13.7	73
Sverdlovsk Oblast	18	16.7	15.3	14.8	14.6	14.8	13.7	73
Republic of Sakha (Yakutia)	14.4	14.0	13.7	14.0	14.9	14.8	14.0	75
Krasnodar Krai	15.9	16.6	15.8	14.7	14.8	14.6	14.3	76
Saint Petersburg	20.0	18.0	15.1	14.8	14.8	14.9	14.4	77
Sakhalin Oblast	15.8	15.1	15.1	15.5	16.3	16.3	14.5	78
Republic of Adygea	12.8	13.8	12.6	13.8	14.6	14.8	14.6	79
Chukotka Autonomous Okrug	14.8	16.3	15.7	14.2	14.8	15.1	15.0	80
Moscow	28.3	21.2	18.1	16.1	16.2	16.2	15.6	81
Tyumen Oblast	20	18.7	17.8	17.2	17.9	17.9	17.2	82
FOR REFERENCE: Russian Federation	16.6	15.8	15.5	15.4	15.8	15.6	14.9	–
Variation coefficient, %	20.37	16.14	17.24	15.23	16.39	17.43	17.02	–
Oscillation coefficient	1.298	0.859	0.890	0.682	0.733	0.772	0.776	–
* The 10 regions with the best and worst values of the indicator, and the Vologda Oblast are indicated.								
** Ranked by 2020 data.								
According to: Russian Regions: statistical digest, Rosstat.								

As noted above, the dynamics of relative indicators of inequality demonstrates the desire to the regions' equalization. As for changes in volumetric indicators characterizing the level of income (for example, average per capita cash income, *Tab. 4*), it is impossible to unequivocally judge about the positive dynamics in reducing the level of inter-regional polarization. Despite the reduction of the gap between polar regions over the analyzed period from 3.6 to 2.7-fold, the values of variation and oscillation coefficients fluctuate insignificantly,

there is no convergence of regions. The leaders remain stably developed subjects with a rich export-resource, industrial and financial base, while the outsiders include subsidized subjects of the North Caucasian and Southern federal districts with a low level of socio-economic development.

Thus, inequality in Russia has a large scale and persists throughout the entire post-reform period of the country's development without a pronounced focus on reducing the depth of polarization of the extreme income groups. It is worth noting

Table 4. Average per capita cash income of the population (including the cost of a fixed set of goods and services by region)\*, rubles per month

Region**	2010	2015	2017	2018	2019	2020	Rank***	Dynamics, 2020 to 2010, %****
Moscow	31389.6	42098.8	45166.8	48348.0	52401.6	55214.8	1	-8.0
Chukotka Autonomous Okrug	21499.7	40398.5	46600.1	46685.0	47966.6	53746.5	2	43.2
Magadan Oblast	19504.9	34545.1	37940.7	42630.5	46624.0	51192.8	3	34.0
Sakhalin Oblast	21461.7	37743.8	41527.8	45082.4	49089.0	50724.8	4	14.6
Tyumen Oblast	23842.5	37044.2	39867.0	42204.2	44507.6	46212.0	5	1.6
Saint Petersburg	23678.1	34788.8	38316.8	40753.7	43432.7	45527.0	6	5.5
Moscow Oblast	20860.7	34946.5	37815.2	40291.1	42968.7	43121.9	7	9.3
Republic of Tatarstan	21926.8	363807	37202.3	38673.5	41304.1	41248.5	8	11.9
Sverdlovsk Oblast	22102.4	34922.7	35806.8	38289.8	41046.5	40030.4	9	-10.0
Murmansk Oblast	18936.5	30337.8	32811.0	34971.6	37370.4	39755.1	10	5.6
...	...	...	...	...	...	...	...	...
Vologda Oblast	13916.4	24564.6	25453.8	27099.2	29043.5	29768.5	46	15.0
...	...	...	...	...	...	...	...	...
Kabardino-Balkarian Republic	13621.0	20414.1	21730.5	22335.5	23364.2	24216.5	73	1.2
Stavropol Krai	12880.9	22216.9	23215.4	23844.9	24823.3	24209.4	74	1.1
Republic of Crimea	0.0	17866.0	21496.5	22014.2	23648.3	24169.6	75	18.3
Mari El Republic	12399.8	20860.6	21739.0	22023.1	23611.4	24069.1	76	11.3
Kurgan Oblast	15217.3	21602.2	22184.8	21697.8	22999.5	23927.1	77	-15.5
Republic of Tuva	10906.3	16979.3	16672.2	17304.8	18877.6	21464.4	78	-0.8
Altai Republic	12996.3	16215.1	17356.2	18930.6	20012.5	21436.4	79	-7.4
Republic of Kalmykia	8813.2	16706.4	17767.6	18397.6	19404.0	21006.1	80	32.8
Karachay-Cherkess Republic	11825.9	18245.0	18573.1	19066.8	20322.2	20948.6	81	-5.1
Republic of Ingushetia	11699.6	17726.4	18929.9	19524.1	19704.3	20156.2	82	1.6
FOR REFERENCE: Russian Federation	18958	30254	31897	33266	35338	36073	–	–
Variation coefficient, %	21.0	20.0	20.8	22.0	22.1	22.6	–	–
Oscillation coefficient	1.39	0.98	1.08	1.08	1.09	1.11	–	–

\* Translation to comparable prices is carried out at the cost of a fixed set of goods and services. This method is used to compare regions among themselves for the relevant year.  
\*\* The 10 regions with the best and worst values of the indicator, and the Vologda Oblast are indicated.  
\*\*\* Ranked by 2020 data.  
\*\*\*\* Calculated by indicators expressed in comparable prices of 2020, the conversion to which was carried out on the basis of the consumer price index. This method is used to estimate changes in the value indicators over a number of years within a single region, taking into account the level of inflation.  
Calculation based on: Russian Regions: statistical digest, Rosstat.

that we analyzed the official statistical data based on sample surveys. According to some scholars (Salmina, 2021; Novokmet et al., 2017), the Rosstat assessments underestimate the scale of inequality, while the application of econometric methods and the re-estimation of income by wealth with

tax or expenditure data provide more accurate information about inequality. Ultimately, however, the estimation methods used do not affect the conclusion that there is a high level of inequality in Russia compared to many developed and developing foreign countries.

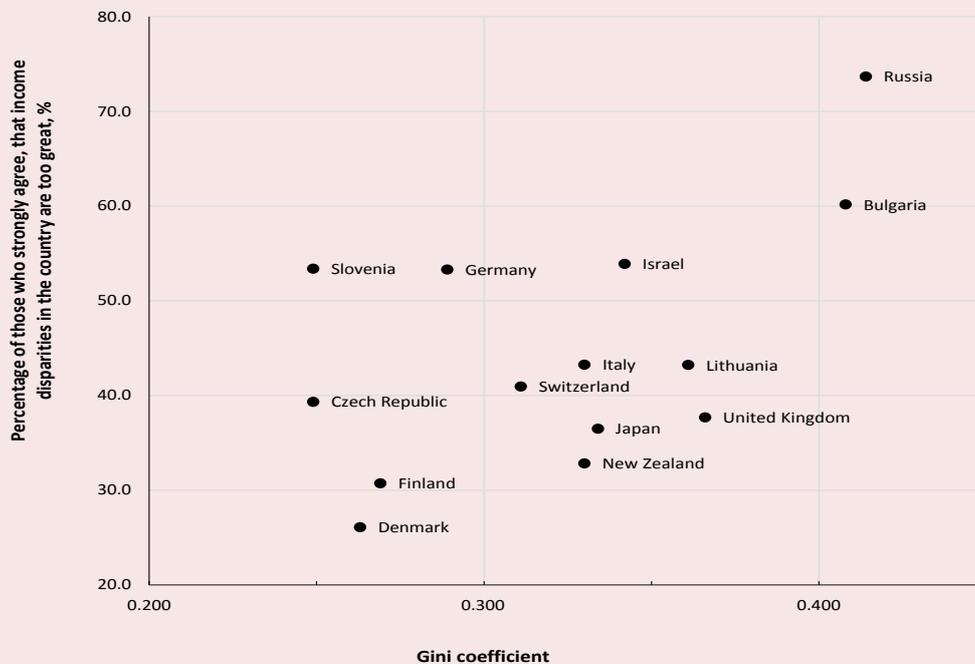
**Assessment of the subjective perception of inequality by the population**

Before analyzing subjective perceptions of inequality in Russia, let us look at the correlation between people’s perceptions of the depth of income differences between the poor and the rich in countries with different levels of observed inequality (according to the Gini coefficient). Figure 1 shows the countries arranged in the space of two axes: the actual level of inequality (X axis) and the share of the population absolutely agreeing that income inequality is high (Y axis) (Gimpelson, Monusova, 2014, p. 219). According to the graph, the distribution does not have a clearly expressed trend. Among the countries with high inequality there are those where a large part of the population assesses it as excessively large (Russia, Bulgaria, Israel), and those where the population is not so categorical (UK, New Zealand, Lithuania). Similarly, in the group of states with low levels of actual inequality, its perception is heterogeneous.

Such a conclusion is quite expected because “there are a number of good reasons (both economic and socio-ethical) why a straightforward relationship is far from being guaranteed” (Gimpelson, Monusova, 2014, p. 221). The perception of inequality is based not so much on the income level of different population groups, as on the opportunities that people have in the country, on the level of fairness of the social structure, the degree of accessibility of life-forming goods of high quality, etc.

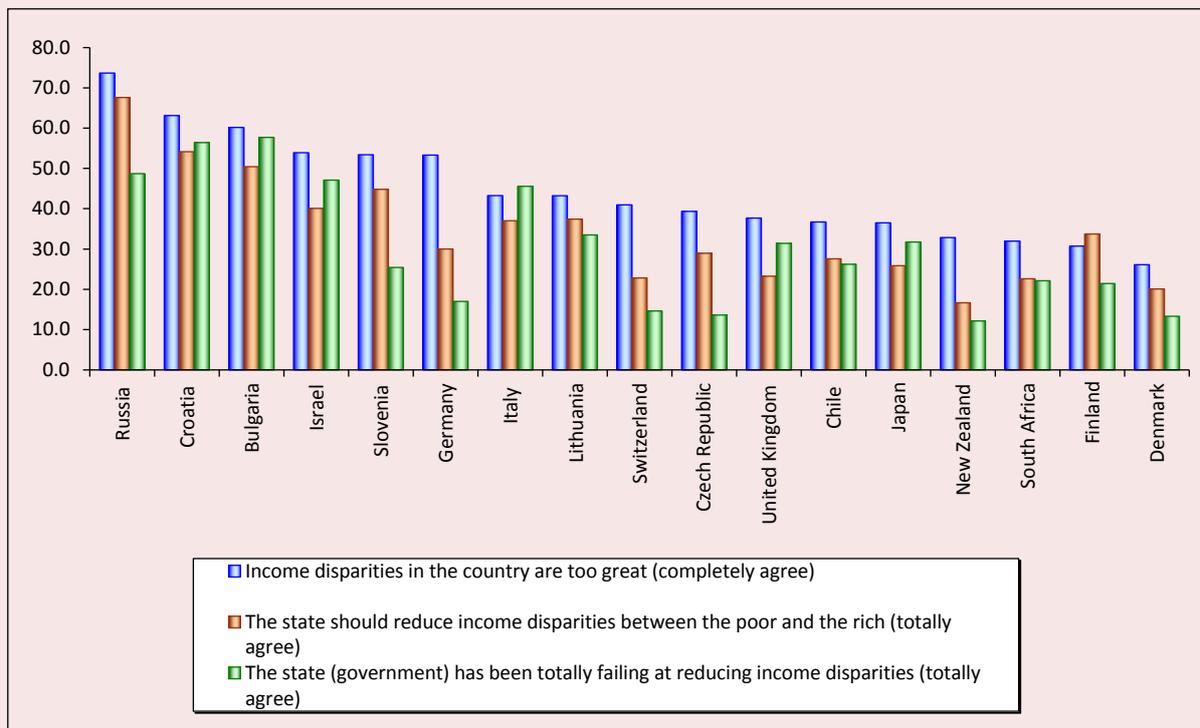
The data of the international ISSP-2019 survey show that the Russian population shows the most critical assessments of such aspects of perception as the scale (depth) of inequality and the role of the state in solving the problem of reducing income disparities (Fig. 2). Nearly three-quarters of Russians (73%) fully agree that the income disparity between the rich and poor in the country is too great. Similar estimates are recorded in Croatia (63%) and Bulgaria (60%), while in other countries the

Figure 1. Perceptions of the depth of inequality and the level of actual inequality worldwide, 2018



Calculation based on: Income inequality. Available at: <https://data.oecd.org/inequality/income-inequality.htm>; ISSP-2019.

Figure 2. Perception of income disparities and the role of the state in reducing them worldwide, % of respondents



Calculation based on: ISSP-2019.

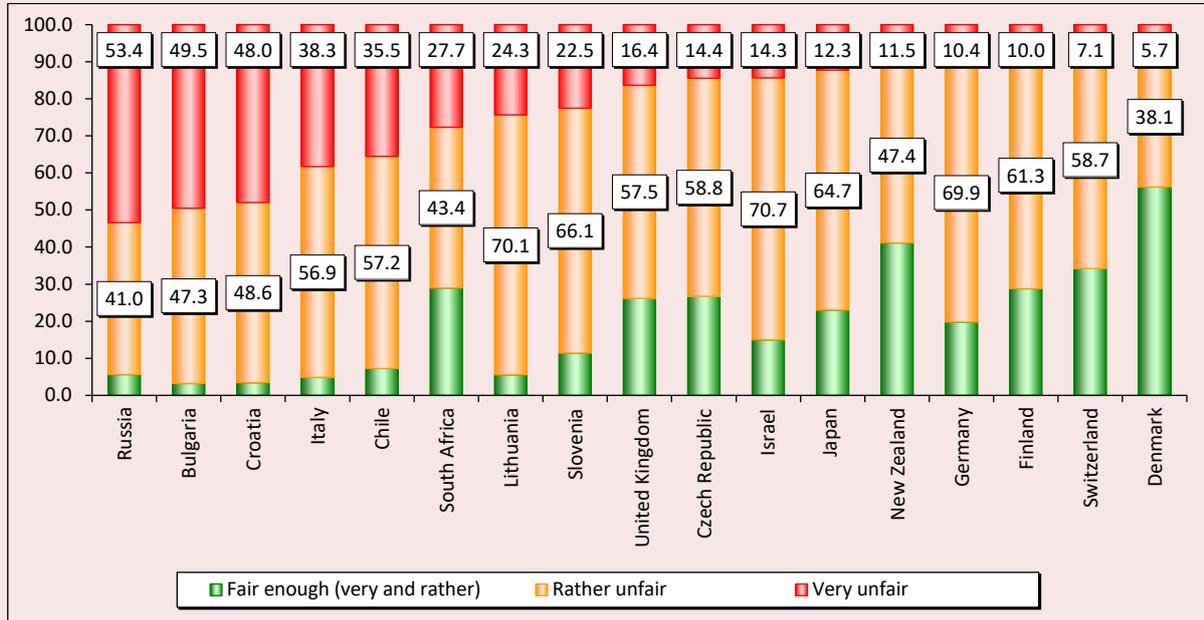
proportion of the population with such a categorical attitude is much lower (Germany, Slovenia, Israel – 53%, Chile – 37%, Denmark – 26%).

Also, the majority of Russians (68%) are absolutely convinced that it is the state that should be the leading actor in the fight against inequality and make efforts to reduce it. In other countries this position is shared by a much smaller share of the population, although by the total sum of responses (absolutely agree and rather agree) the residents of the countries under consideration are in solidarity in their request for the state to reduce income inequality. The Russians’ assessment of the actual actions of the state is quite critical: nearly half (48%) believe that the state is failing in this task. Even higher shares of those dissatisfied with government actions to reduce inequality are found in Croatia (56%) and Bulgaria (58%).

The Russian population perceives the existing income inequality not only as significant, but also as unfair – the share of those who rather and completely agree with it is 94% (Fig. 3). It is noteworthy that residents of most other countries under consideration (with the exception of Denmark, Switzerland, Finland, New Zealand, and South Africa) are in solidarity with Russians on this issue. It can be assumed that the demand for a fair social order, a fair distribution of opportunities to access various benefits regardless of income levels is extremely relevant in the public consciousness in many countries of the world.

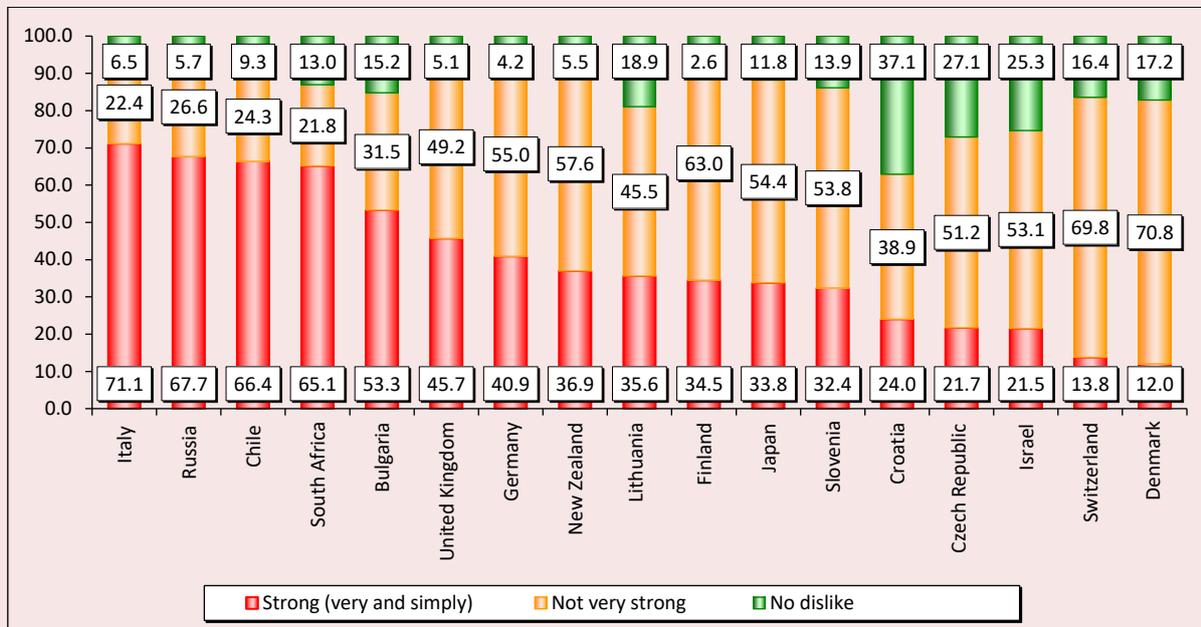
The data on the perception of the conflict between rich and poor should be regarded as an alarming social signal for Russia (Fig. 4). Almost 70% of Russians are very keen on this conflict and believe that there is not just a difference in interests

Figure 3. People's perceptions of the fairness of the existing distribution of income worldwide, % of respondents



Calculation based on: ISSP-2019.

Figure 4. Estimation of the degree of dislike between the poor and the rich worldwide, % of respondents



Calculation based on: ISSP-2019.

between the polar groups, but quite a strong dislike. This situation is also true for Italy, Chile, and South Africa, while in other countries social tensions between the poor and the rich are not so pronounced.

One of the instruments of public policy to reduce income inequality is the tax system. Despite the very tolerant attitude of the population of many countries to income disparities and government actions to reduce them, a significant share of citizens agrees that rich people should pay a much larger share of their income as taxes than the poor population (*Tab. 5*). It should be noted that this pattern emerges regardless of whether the country has a progressive tax scale. In Russia, an overwhelming majority also supports a progressive scale, with many Russians rating the current taxes for the rich as too low (almost 70%) and advocating a significant difference in the level of interest paid on income (61%).

An important nonmonetary manifestation of inequality is the ability to access quality social services, primarily to education and health care, because they are directly related to human capital, they form the basis for social mobility, and determine the possibility of achieving a high level and quality of life. The position of the citizens of the United Kingdom, Japan, South Africa, and New Zealand looks very tolerant. At the same time, the population of Russia, like in many other countries, does not demonstrate high tolerance for the opportunities of wealthy people to acquire medical and educational services of better quality – more than 60% consider such manifestations of differentiation unfair (*Fig. 5*). Such a position is more characteristic of the elderly (64% for medical services and 70% for education vs 58–62% in other age groups), the temporarily unemployed (65% for medical services and 68% for education vs 58 and 62% among the employed), and people who live in rural areas.

Table 5. Opinion of the population on the tax system, % of respondents\*

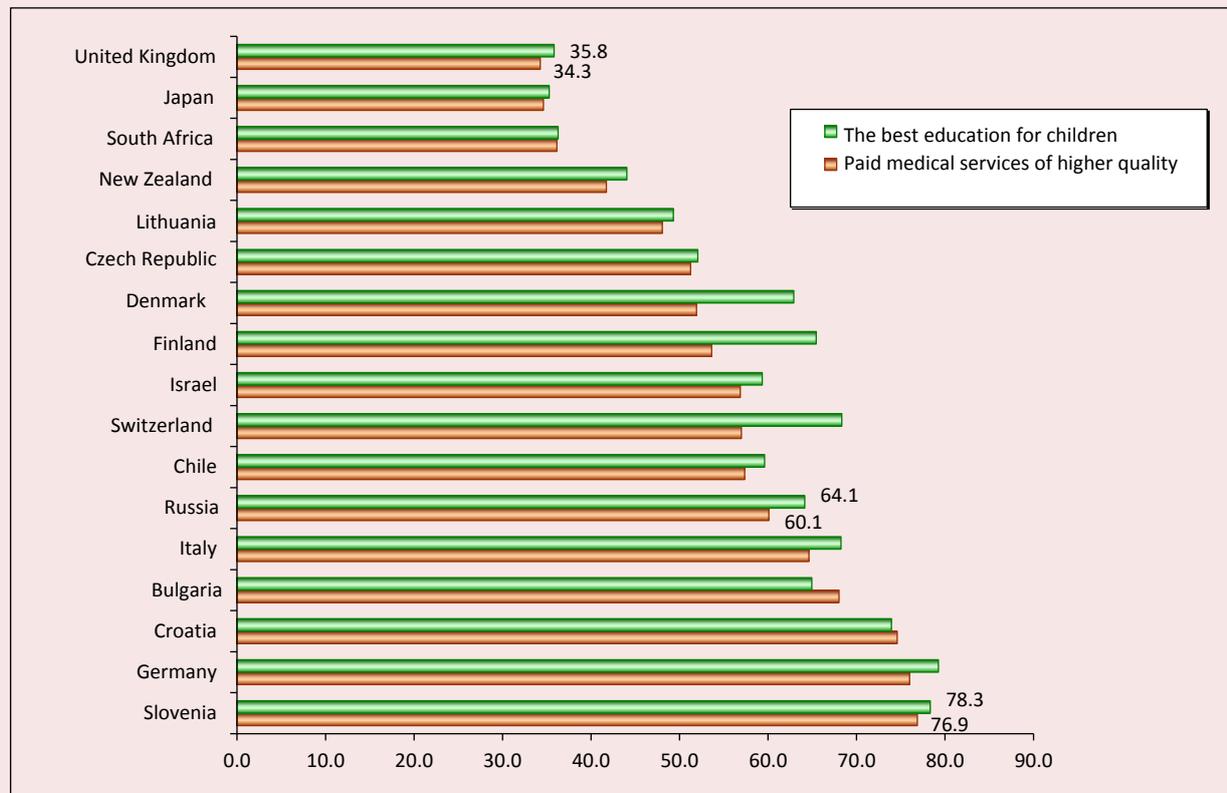
Country**	The amount of percentage of income that people with high incomes have to pay as taxes			Assessment of current taxes for people with high incomes	
	Larger (significantly and somewhat)	The same percentage as low-income people	Smaller (significantly and somewhat)	Low taxes	Low + too low
Japan	90.2	8.5	1.3	41.9	57.1
Russia	84.6	12.9	2.5	36.7	69.9
<i>Germany</i>	<i>83.5</i>	<i>15.8</i>	<i>0.7</i>	<i>43.5</i>	<i>53.5</i>
Bulgaria	83.3	11.6	5.2	41.8	53.9
<i>Italy</i>	<i>82.6</i>	<i>16.1</i>	<i>1.4</i>	<i>13.4</i>	<i>18.2</i>
<i>Switzerland</i>	<i>82.1</i>	<i>16.6</i>	<i>1.2</i>	<i>44.7</i>	<i>57.0</i>
<i>Finland</i>	<i>82.1</i>	<i>16.5</i>	<i>1.4</i>	<i>34.9</i>	<i>46.4</i>
Slovenia	81.7	16.5	1.8	50.4	60.6
<i>United Kingdom</i>	<i>77.6</i>	<i>20.8</i>	<i>1.6</i>	<i>32.7</i>	<i>40.0</i>
Croatia	74.6	23.4	2.1	44.3	61.6
Lithuania	73.6	21.7	4.7	45.5	63.9
<i>Israel</i>	<i>71.5</i>	<i>24.5</i>	<i>4.0</i>	<i>28.4</i>	<i>30.4</i>
<i>New Zealand</i>	<i>70.9</i>	<i>27.8</i>	<i>1.4</i>	<i>29.6</i>	<i>36.9</i>
Chile	69.9	24.0	6.1	39.7	53.6
<i>Denmark</i>	<i>64.4</i>	<i>33.0</i>	<i>2.7</i>	<i>31.5</i>	<i>35.3</i>
<i>South Africa</i>	<i>58.6</i>	<i>34.8</i>	<i>6.6</i>	<i>8.9</i>	<i>11.1</i>
Czech Republic	55.7	40.1	4.2	35.3	42.6

\* Ranked by the proportion who think the rich should pay a higher percentage.

\*\* Countries with a progressive taxation scale for individuals are in italics.

According to: ISSP-2019.

Figure 5. Assessment of fairness of differences in social benefits between the poor and the rich (options “rather unfair” + “completely unfair”) worldwide, % of respondents



Calculation based on: ISSP-2019.

An analysis of the perception of inequality in the context of population groups gives interesting results. According to studies by leading specialists in sociology, modern Russian society has formed “... at least 10–12 social strata, each... with its own values and interests, income and property characteristics, way and style of life,... with its life goal-setting,... its principles of morality, its principles of political norms...”<sup>11</sup>. The assessment of the existing income inequality in Russia as too deep and unfair, and the assessment of the acuteness of the conflict between the polar

<sup>11</sup> Gorshkov M.K. Injustice and poverty are felt equally keenly (interview for the newspaper *Kultura* on June 8, 2017). Available at: <https://portal-kultura.ru/articles/country/162230-mikhail-gorshkov-my-znaem-obshchestvo-v-kotorom-zhivem/> (accessed: August 29, 2022).

groups and the unsuccessful actions of the state in overcoming existing income disparities are typical for all sociodemographic and socio-economic groups without exception (*Tab. 6*). The opinions of Russians differ only in the degree of expression. The assessments of the employed and temporarily unemployed are slightly more critical than those of citizens who have never worked. The most prosperous groups (people with a high level of education and those who belong to the upper stratum) perceive the income gap and social tension between the poor and the rich more acutely. It is noteworthy that despite the availability of better social services and diverse cultural and social life in cities, assessments of those living in urban and rural areas are identical.

Table 6. Perception of inequality in groups with different demographic and socio-economic characteristics in Russia, % of respondents\*

Characteristics	Share of agreement with the statement (strongly agree + rather agree)			
	Income disparities in the country are too great	The existing distribution of income in Russia is unfair	The dislike between the poor and the rich is great	The state (government) is failing (completely + rather) to reduce income disparities
<i>Sex</i>				
Men	91.5	92.4	68.4	83.8
Women	91.7	96.0	67.1	80.8
<i>Age</i>				
Under 30	89.3	91.0	67.9	73.4
From 30 to 55(60)	92.1	94.4	67.3	83.2
Older than 55(60)	92.4	96.6	68.2	86.1
<i>Marital status</i>				
Married	93.3	95.0	66.2	83.3
Living apart	83.3	100.0	66.7	33.3
Divorced	90.1	95.8	72.2	85.1
Widower (widow)	89.7	98.8	65.5	87.6
Single, never been married	89.8	90.4	69.7	76.4
<i>Presence of children</i>				
No children	92.6	94.2	69.5	83.6
Have children	90.0	94.7	64.6	79.6
<i>Work</i>				
Have a paid job at the moment	92.3	94.3	69.8	82.8
Had in a paid job in the past, but not working now	90.6	95.0	65.3	83.5
Never had a paid job	91.5	89.9	58.0	67.1
<i>Education</i>				
General secondary or lower	90.4	92.7	62.8	81.4
Specialized secondary, incomplete higher	90.5	95.4	67.9	82.4
Higher	94.9	94.6	71.6	82.6
Second higher, degree in science	91.5	91.5	73.9	81.3
<i>Social status (self-assessment)</i>				
The lowest layer	95.1	98.0	81.4	86.4
Workers	92.3	95.7	67.4	82.3
Upper part of the workers layer/bottom part of the middle layer	91.3	94.1	77.8	84.2
Middle layer	90.6	92.8	62.3	80.8
Top of the middle layer	89.3	92.9	67.9	74.1
The highest layer	100.0	75.0	100.0	75.0
<i>Territory of residence</i>				
City and suburbs	92.0	94.1	66.5	81.4
A small town, an urban settlement	89.5	94.3	72.8	83.1
The village and smaller	93.0	95.2	64.9	82.8
According to: ISSP-2019.				

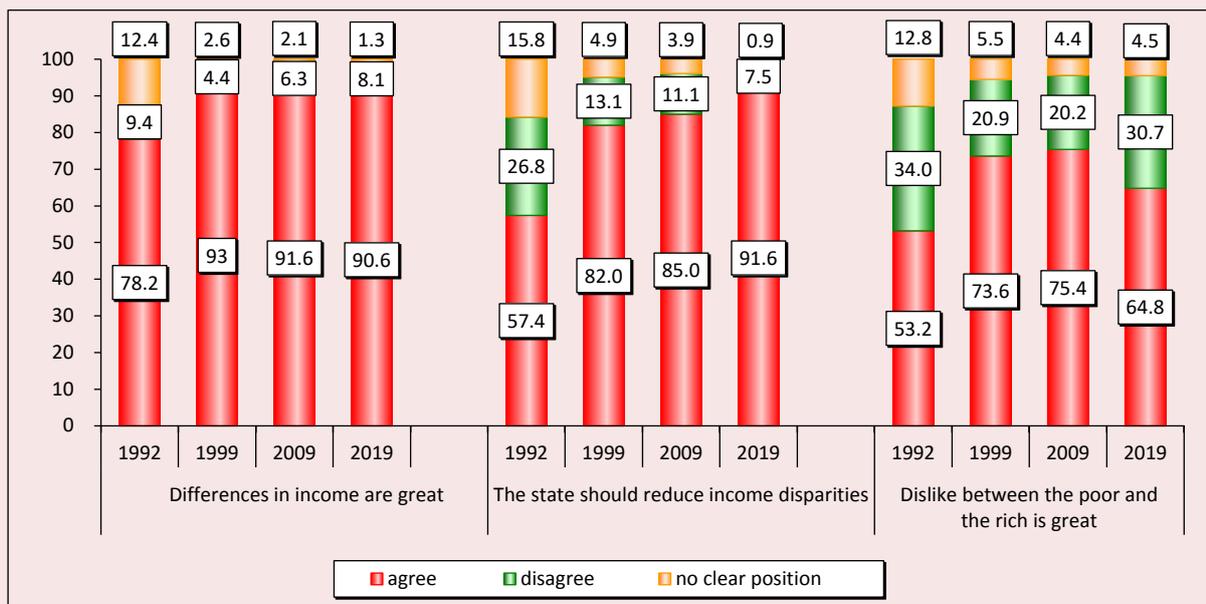
Moreover, a comparison of the results of several waves of ISSP conducted by S.V. Mareeva, E.D. Slobodenyuk and V.A. Anikin (Fig. 6) showed that “the perception of inequality and the intensity of the request for redistribution in Russia remain similar to the situation of twenty years ago” (Mareeva et al., 2022, p. 45). In other words, despite various initiatives and programs to strengthen the state’s social obligations and expand social support for certain population groups, the implementation of measures to consolidate Russian society using traditional spiritual and moral values and the values of the social state, and even changes in the socio-economic context in post-reform Russia, no radical transformation of the population’s subjective perception of the problem of monetary and nonmonetary inequalities has occurred.

In this context, it is understandable that the overwhelming majority of Russians (67%) do not agree with the statement that large income disparities are necessary for the country’s prosperity.

This view is shared to a greater extent by those respondents who believe that existing income disparities are high (69%) and unfair (69%) than by those for whom such disparities are small (48%) and not so unfair (45%). Russians are even more critical of the statement that inequality exists because it benefits the rich and those in power (82% of those who agree). Moreover, the population that assesses income distribution as unfair is virtually unequivocal in its opinion (84% of those who agree vs. 50% of those who think the distribution is fair).

Addressing the question about the grounds for success in life showed that a good education and hard work are seen as necessary components of success regardless of the perception of the depth and fairness of inequality (Tab. 7). A certain differentiation of opinions is traced on such parameters as origin from a rich family and necessary connections – the population, more categorical in their perception of inequality, considers them very important in order to succeed in life.

Figure 6. Dynamics of perception of income inequality in the public consciousness of Russians, 1992–2019, %



Source: (Mareeva et al., 2022, p. 45).

Table 7. Basis for success in groups with different degrees of assessment of the depth and fairness of inequality in Russia, % of respondents\*

How important it is to succeed in life		Income differences between rich and poor are large			Fairness in income distribution	
		Agreed (completely + rather)	Both agree and disagree	Disagree (completely + rather)	Fair (very + rather)	Unfair (very + rather)
come from a wealthy family	important (extremely + very)	37.8	19.1	31.3	20.2	37.9
	quite important	25.2	29.8	15.0	22.6	25.1
	not important (not very + completely)	37.0	51.1	53.8	57.1	37.1
good education	important (extremely + very)	67.1	57.4	67.1	63.2	66.6
	quite important	21.1	36.2	17.6	20.7	21.8
	not important (not very + completely)	11.8	6.4	15.3	16.1	11.6
hard work	important (extremely + very)	72.1	66.0	72.9	73.3	71.4
	quite important	17.7	29.8	20.0	19.8	18.5
	not important (not very + completely)	10.2	4.3	7.1	7.0	10.1
useful contacts	important (extremely + very)	62.3	42.6	61.2	47.1	61.9
	quite important	25.9	25.5	12.9	29.9	25.3
	not important (not very + completely)	11.7	31.9	25.9	23.0	12.8

\*The differences are highlighted.  
According to: ISSP-2019.

Thus, the Russian population's perception of inequality differs from that of other countries' residents in a more pronounced critical assessment of the depth, unfairness, social conflict, and government actions for reducing disparities. At the same time, there are no significant differences in the perception of inequality in different socio-demographic and socio-economic groups, none of the groups stands out with greater tolerance or criticality.

### Discussion

Inequality in monetary and nonmonetary dimensions is a serious challenge for the state, since the population views the actual extent and depth of differentiation as a result of government action. In this context, when the state fails to ensure a relatively equal distribution of resources, equitable access to vital services, and the consistent implementation of its proclaimed goals of living standards and quality

of life, trust in state institutions is naturally reduced, and the probability of protest activity in society grows stronger. In Russia, the first part of this equation is already forming, in particular there is "stalling of the implementation of publicly declared goals of national development" (Ilyin, Morev, 2022, p. 11), "long-standing unresolved issues... of a fairer distribution of national welfare" (Ilyin, Morev, 2020, p. 16, 29). This leads to "people's fatigue with the next positive goals of socio-economic development, which have not been fulfilled for the first time" (Ilyin, Morev, 2020, p. 10) and "creates risks for the legitimacy of the current authorities of all levels (including the Russian President) in assessments of public opinion" (Ilyin, Morev, 2022, p. 11). According to the results of all-Russian sociological surveys, a "slow, but fairly stable dynamics of growth in the number of Russians who negatively comment on the president's activity" is forming – according

to VCIOM surveys “in comparison with the third presidential term (2012–2017), the level of approval of V. Putin has decreased in the country in 2019–2020 from 77 to 60–64%” (Ilyin, Morev, 2020, pp. 27–28).

Under certain circumstances, the social risks associated with inequality, in the fact that inequality “... creates a climate of confrontation, ... exacerbates the polarization of society, generates apathy and passivity of certain segments of the population, and encourages the bearers of radical mindsets to illegitimate forms of protest and political extremism” (Gorshkov, 2014, p. 29), can move from potential to real. Therefore, considering that the impact of inequality on interpersonal and institutional trust is weaker in the presence of strong welfare and redistributive policies (Kumlin, Haugsgjerd, 2017), effective and strong public policies are needed to mitigate the socio-economic and political consequences of inequality and improve living standards and quality of life in the context of building a welfare state in Russia.

### **Conclusion**

The problem of inequality has always been a burning issue for Russian society in terms not only of the objective depth of differences, but also of its perception by the population. The restructuring of Russia’s socio-economic and socio-political structure over the past three decades has only partly contributed to the reduction of monetary and nonmonetary inequalities and in some ways transformed their content (poverty has decreased, income and middle class have increased, consumption patterns have changed).

The conducted research allowed us to draw a number of conclusions comparable with the results presented in previously published domestic and foreign works. In turn, it contributes to the understanding of cross-country and cross-group features of the population’s perception of monetary inequality and its nonmonetary manifestations, which constitutes its scientific novelty.

The assessment of the current situation with regard to the monetary inequality of Russia’s population in 2010–2021 shows that its level remains excessive. In particular, the value of the Gini coefficient steadily exceeds the mark of 0.400 and is expected to be higher in regions with trade and transport and export-resource specialization (Tyumen, Sakhalin, Sverdlovsk Oblasts, Chukotka Autonomous Okrug, Krasnodar Krai) and in major agglomerations (Moscow, Saint Petersburg). The decile coefficient varies around the mark of 15 times, but in more than half of the subjects does not exceed the mark of 12 times. Average income per capita in many regions shows positive dynamics, the gap between polar regions is reducing (from 3.6 to 2.9-fold), while in most subjects the value of the indicator remains below the average Russian level, especially in subsidized territories of the North Caucasian, Southern and Siberian federal districts. The calculated indicators of interregional differentiation (coefficients of variation and oscillation) indicate a high homogeneity of Russian regions by the analyzed indicators of monetary inequality.

According to the results of the analysis of subjective perception, it was determined that the majority of Russians consider income inequality to be excessively high and unfair, quite acutely assessing the conflict (degree of dislike) between the rich and the poor. The Russian population does not show tolerance to nonmonetary dimensions of inequality, considering unfair the opportunity of rich people to purchase medical and educational services of higher quality. Russia is a leader in these aspects against the background of other countries. Russians place the main responsibility for reducing income disparities on the state, but assess its activities in this direction as unsuccessful. Compared to citizens of other countries, Russians’ assessments are more categorical. Subjective perceptions of the scale and fairness of inequality and the role of the state in reducing it are shared by

the entire population and are virtually identical for groups with different socio-demographic and socio-economic characteristics.

The article contributes to the development of applied science, it clearly demonstrates the possibilities of long-term sociological research (monitoring) on key social problems, allowing us to identify the distinctive features of a particular period of functioning of the state and characteristic for this period of life practices, attitudes and subjective perceptions.

The identified trends in cross-country and cross-group perceptions of inequality will allow

authorities, social institutions, and the nonprofit sector to adjust their activities in reducing differentiation and improving the level and quality of life of the population.

It is planned to focus further research on the degree of influence of various factors on the formation of interregional differentiation of inequality of the country's population, on the development of a classification of Russian regions by the level of monetary and nonmonetary inequality to identify homogeneous groups of regions and substantiate directions and tools for smoothing inequality in these groups.

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## Consolidation of a Regional Community in a Glocal Social Reality: Socio-Cultural Barriers



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**Abstract.** The article is devoted to the problem of socio-cultural barriers to the consolidation of a regional community in the context of rising glocalization trends and an increasing role of regions in social development. In our opinion, consolidation in an unstable social reality can only occur as a regulated nonlinear process, oriented toward establishing strong interpersonal and intergroup communication, mutual trust and loyalty. The purpose of the research is to analyze socio-cultural barriers to regional community consolidation, associated with the specifics of value-normative complexes and attitudes of its constituent actors. We assess people's dispositions concerning the problem of socio-cultural constants renovation on the basis of a sociological research we conducted in the Belgorod Oblast in 2021. It included a mass questionnaire survey (n = 500), an expert interview (n = 30), three focus groups. It is noted that social consolidation can be based on various grounds, but the most solid among them is socio-cultural consensus expressed in integration based on common values, social norms, behavior patterns and attitudes – socio-cultural constants that represent a kind of reference points for consolidation process. We analyze components of the value-normative consensus and conclude that its potential as an attractor of the consolidation process can be realized mainly at the microsocial level (primarily family and family-related environment), which significantly restricts the integration opportunities of the regional community. According to the results of sociological diagnostics we reveal the following barriers to the social consolidation of a regional community: fragility of the value-normative consensus, lack of full-fledged regional identity, insufficient focus of authorities and civil society institutions on creating favorable organizational and technological conditions for social conjunction. We emphasize that the implementation of any consolidation strategy at the regional level must necessarily take into account these barriers and provide for measures aimed at their minimization.

**Key words:** social consolidation, regional community, region, glocalization, social solidarity, socio-cultural constants.

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### **Introduction**

The problem of consolidation of communities of various self-organization levels has been noticeably actualized in recent years. The President of the Russian Federation has repeatedly spoken about its importance in relation to the country as a whole (according to O.V. Zakharova's research, it is constantly present in his conjunctive discourse in 2000–2015) (Zakharova, 2016). Quite a large number of scientific papers have been devoted to the analysis of contradictions in the processes of consolidation/deconsolidation of the Russian population. Much less often the problems of consolidation are investigated in relation to the regions, which are Russia's entities. Even less often it is reflected by representatives of regional elites. Some regional leaders tried to declare the need for consolidation as a direction of real policy. For instance, the head of the Republic of Sakha (Yakutia) declared 2019 the year of Consolidation for the unification of society in achieving the regional development objectives. But the idea was most consistently implemented in the Belgorod Oblast, where the Government approved the strategy "Formation of a regional solidarity society

for 2011–2025”. However, the implementation of the strategy was completed by the Governmental Decree of the Belgorod Oblast 340-pp, dated June 6, 2022 “On invalidation of the Governmental Decree of the Belgorod Oblast 435-pp “On approval of the strategy “Formation of a regional solidarity society” for 2011–2025”, dated November 24, 2011, the basis for which was stated the execution of its activities by all participants within the established time frame.

The attractiveness of the idea of consolidation for regional elites and a significant part of the population (a study conducted in 2022 by the Civil Society Development Laboratory of the Belgorod State University in the region (n = 6800) showed: 22.6% of respondents stated unequivocally that consolidation was necessary; another 35.8% chose the answer “rather yes than no”<sup>1</sup> is that it brings an essential element of stability to the development of Russia’s entities, which is extremely necessary in a society, which I. Prigozhin and I. Stengers defined it as a situation of “nonequilibrium turbulent chaos” (Prigozhin, Stengers, 1986, p. 225). In turn, social stability, having a positive impact on public consciousness, not only creates a favorable environment for the development of the economy and the social sphere, but is a necessary condition for regional reproduction, including in a purely “physical” form – population growth. More than twenty years ago, Russian researcher I.A. Gundarov formulated the dependence of population reproduction on the social stability level as the law of “spiritual and demographic determination” (Gundarov, 2001, p. 66).

However, the problem of regional consolidation has not only an internal but also an external glocal (global and simultaneously local) dimension. It is

<sup>1</sup> Sociological study “Complex monitoring of social consolidation in the region” was conducted in Belgorod Oblast in September–October 2022 by the staff of the Civil Society Development Laboratory of the Belgorod State University by means of mass questionnaire survey of the population over 18 years old (N = 6800).

associated with the inconsistency of the globalization process, which, unifying and integrating social reality, does not automatically “nullify” the possibilities of local (primarily regional) communities. Many of them have the opportunity to preserve their uniqueness and remain significant “players” within the global system.

On the one hand, it is expressed in an increase in their activity level, which consists in the desire to develop interregional and transregional connections, manifesting their own subjectivity. The problem of subjectivity is most often analyzed in relation to an individual or a social group. In particular, the concept of youth subjectivity is widely known (Kovaleva, Lukov, 1999, p. 147). In this case, subjectivity is understood by researchers as the ability of society, social groups, an individual to act as an active beginning (actor, creator) of social reality (Kovaleva, Lukov, p. 146). In this context, the region’s subjectivity can be interpreted as its ability to independently determine the strategy and tactics of development, to design and implement models of its future.

Attempts to do this will definitely have external constraints due to the administrative and political dependence of the regions on the federal center, which in an unstable environment is only increasing. But at the same time, the desire of the federal authorities to shift a significant share of responsibility for solving the problems of socio-economic development to RF entities will contribute to the expansion of the degrees of freedom of the latter. And regional elites, in their desire to expand the degrees of freedom, will appeal to the community they represent more often and with more confidence, the more integrated it is. On the other hand, glocality means an increased level of vulnerability of Russia’s entities to numerous dangers and threats, which has been fully demonstrated by the coronavirus pandemic, sanctions pressure and the special military operation. Consolidation in these extreme situations

is increasingly defined as a condition of security becoming one of the leading interests of the regions' inhabitants.

The glocality phenomenon has a distinctly expressed cultural aspect, since it is the specific culture that forms the unique image of any region and largely determines its potential. It is no coincidence that one of the researchers of the globalization process H. Khondker wrote: "Glocalization makes sense when it consists of at least one component, which refers to the local culture" (Khondker, 2004, p. 12). And it is in the cultural sphere, which is based on values and norms, that the constructive potential of the consolidation process in the regions is formed. At least, this is how many residents perceive the situation, explaining the impossibility of its implementation by the absence of unifying values. During the above-mentioned study, 37.1% of the respondents cited this reason, and another 32.8% cited strong generational differences. But if the socio-cultural sphere forms a significant part of the grounds for the consolidation process, it is also where a significant part of its constraints appear. In fact, each restrictor can be viewed as a transformed form of this or that consolidating factor.

The purpose of the research is to analyze these constraints associated with the specificity of value and normative complexes and attitudes of the actors of the consolidation process in the Russian regions.

#### Literature review

Modern Russian social science studies mainly separate aspects (political, socio-economic, ethno-cultural) of social consolidation and solidarity as its basic condition, as well as their dynamic and process characteristics. The most current studies of consolidation problems of Russian society include the works of such authors as Yu.A. Aleksandrova (Aleksandrova, 2017), S.S. Anosov (Anosov, 2021), M.K. Gorshkov, N.E. Tikhonova (Gorshkov, Tikhonova, 2013), M.V. Il'icheva, A.V. Ivanov (Il'icheva, Ivanov, 2022), O.A. Karmadonov,

G.D. Kovrigina (Karmadonov, Kovrigina, 2017), A.S. Kapto (Kapto, 2015), I.V. Popova (Popova, 2018), etc.

The problems of consolidation at the regional level, in separate Russia's entities are also presented in a number of works of Russian authors. For example, O.B. Molodov analyzes the consolidation processes on the example of the Vologda Oblast (Molodov, 2016); V.A. Chigrin and V.V. Uzunov consider the features of the consolidation potential of the Southern Russia's regions including the Republic of Crimea (Chigrin, Uzunov, 2022); A.Yu. Shadzhe and E.S. Kukva study the problems of social integration, social capital, trust and cohesion of the regional community on the example of the Republic of Adygea and Krasnodar Krai (Shadzhe, Kukva, 2020).

In the context of the research topic, we should emphasize that Russian publications in recent years have paid much attention, in particular, to the issues of the national, regional and local identity as a factor promoting social consolidation (Demichev, 2019; Gudenkova, Savitskaya, 2021; Diakova, 2021).

The significance of value aspects of social consolidation is investigated in the works of A.B. Gofman (Gofman, 2013), A.S. Kapto (Kapto, 2015), I.M. Kuznetsov (Kuznetsov, 2021), L.V. Rozhkova and N.D. Vasil'eva (Rozhkova, Vasil'eva), P.S. Seleznev and V.Sh. Surguladze (Seleznev, Surguladze, 2021), A.D. Kharichev, A.Y. Shutov, A.V. Polosin, E.N. Sokolova (Kharichev et al., 2022). For example, according to L.V. Rozhkova and N.D. Vasil'eva, social consolidation "is provided by the unity of interests and needs, goals and values, and is a process that is socio-cultural and value-driven" (Rozhkova, Vasil'eva, 2014, p. 128). According to A.B. Gofman, an important condition for the formation of universal civic solidarity is the presence of a set of values generally accepted and shared by individuals, embodied "in common national traditions, customs, morals, historical events and people, preserved in

collective memory, in common holidays, rituals, goals, ideals” (Gofman, 2013, p. 160). P.S. Seleznev and V.Sh. Surguladze note that it is necessary to find a consensus between the process of globalization based on information technology and the task of maintaining a socially oriented nation state “so that their use does not undermine the socio-cultural sphere of sovereign states and contributes to the consolidation and stability of society on the basis of the values and collective identity shared by the majority” (Seleznev, Surguladze, 2021).

In turn, various aspects of glocalization as a characteristic of contemporary social reality and one of the effects of globalization processes are studied in quite a number of Russian publications (Artamonova, Volodenkov, 2021; Degtyarev, 2020; Savchuk, Ocheretyany, 2021; Schelkunov et. al, 2021) and foreign (Díaz-Pérez et. al., 2021; Lee et. al., 2021; Ritzer, 2003; Rosen, 2021; Roudometof, 2021; Tsai, 2021) works. This hybrid term, derived from the words “globalization” and “localization” is believed to have been introduced into sociological discourse by R. Robertson, in whose opinion it suggests the simultaneous presence, the combination of interrelated, complementary and sometimes conflicting universalist and particularist tendencies of social development (Robertson, 1992).

Despite the many current interpretations of this concept, most researchers note that glocality implies the erasure of the former spatial boundaries of societies, the strengthening of external connections, mainly through modern information and communication technologies, and the increasing influence of global issues on daily life of local communities (see, for example: Ignatyev, 2020; Trufanova, Khan, 2022).

Researchers of global processes emphasize their socio-cultural component, noting the contradictory effects of globalization in the form of cultural and ethnic differentiation, the growth of ethnocentrism, the desire of individual societies, countries, regions,

peoples to isolate, to preserve their identity, traditions, their cultural and historical identity. For instance, even R. Robertson wrote that “glocalization is the challenge of the cultures of modern unifying globalization” (Robertson, 1992). S. Huntington also emphasized the tendency to actualize exactly the cultural and national problems of world integration (Huntington, 2007), which “often become a stumbling block on the path of globalization and turn it into glocalization” (Ponizovkina, 2021). Sociocultural aspects of glocalization are also considered in a number of Russian publications of recent years (Kolesnikov, 2016; Ovsyannikova, 2018; Dumnova, 2022; Trufanova, Khan, 2022).

At the same time, so far there have been no attempts to analyze the constraints of the consolidation process in the Russian regions associated with the specificity of value-normative complexes and attitudes of its actors in the conditions of the glocal social reality.

#### **Research methods**

The conclusions of the article are based on the results of the empirical sociological research “The problem of renovation of socio-cultural constants with constructive potential for the development of regional communities”, conducted by the authors in the Belgorod Oblast in March–June 2021. The purpose of the research was to identify the level of readiness and ability of different groups of the regional community to participate in the process of renovation of socio-cultural constants and their subsequent interiorization.

The study included the following:

- A mass questionnaire survey of the Belgorod Oblast population aged 18 and older, conducted in March 2021; the sample population was 500 respondents; the sample is zoned, quota-based, multistage. Each successive sampling unit is a nest of lower-level units. The share of respondents in each sampling unit corresponds to the share of this group in the general population (the Belgorod

Oblast population). The quota characteristics were the place of residence (regional center/village, hamlet, farmstead/city of oblast subordination), gender, age (groups of 18–24, 25–39, 40–59, 60 and older). The statistical error was planned to be no more than  $\pm 2\%$ . The questionnaire included 18 closed and semi-closed questions.

– An expert survey conducted in April 2021 in absentia by e-mail and Google-forms based on a questionnaire with 21 questions in open, semi-closed and closed form. The sample consisted of 30 experts. The criteria for the selection of the experts were the experience of research work in sociology; availability of scientific publications on socio-cultural development issues.

– Focus-group interviewing of 3 groups of respondents, conducted in May–June 2021 in the Belgorod State University according to the predesigned scenario including 11 main and 18 qualifying questions. The participants of the focus-groups included: 1) young people; 2) employees of budgetary institutions related to the socio-cultural sphere; 3) mass media workers. The total number of participants was 32 people, 18 women and 14 men; the age range was 18–68 years.

We should emphasize that the study was conducted in a rather specific region of the Russian Federation, which borders with Ukraine. Only this circumstance makes it impossible to unequivocally extrapolate its results to other entities. Moreover, it was carried out before the start of the special military operation, which significantly affected the consolidation moods in society. In the new conditions, not only the factor of security became the most significant factor promoting consolidation, but also the interest in the values and common interests that unite the inhabitants has increased.

### Results and discussion

In accordance with the theoretical research model, consolidation was considered as a form of manifestation of social conjunction, the theory of which was developed by the Russian researcher O.A. Karmadonov. According to his concept, it

is the dialectical interaction of social conjunction and disjunction that most adequately characterizes the development of modern society. And if the first one represents “a process, in the limit, focused on social reproduction, based on consistent solidarity, ensured by full-fledged flows of social consolidation in all echelons and structural elements of society” (Karmadonov, 2015, p. 11), then the second one is a process of “disruption, mismatch and decay of integration means, accompanied by weakening of consolidation flows and problematization of the main goal of integration – social reproduction of society” (Karmadonov, 2015, p. 11). The author particularly emphasizes that social consolidation is the interactions during which the socialization of an individual and interiorization of basic social norms, values and practices take place (Karmadonov, 2017, p. 12).

Thus, we consider consolidation as a systematic process (in the interpretation of O.A. Karmadonov – flow), in which the main attractor is the prosocial values. We should note that when considering the problem of regional consolidation, we “by default” give this concept a prosocial (societal) connotation, taking into account that the consolidation process can also be destructive in its orientation. In particular, criminal and terrorist groups can be consolidated. The “pool” of the attractor includes social norms and patterns of behavior combined with them. In their integrity, they constitute the core of any subculture, which are “value local worlds” that oppose the basic – “big”, “adult”, “mother” – culture (“socialist”, “liberal”, “Christian”, etc.); individual and collective stereotypes of behavior and activity embodied in specific sign-symbolic manifestations, sociocodes, forms of consciousness and structures of personal identity; subsystem of styles and lifestyle behavior; group forms of cultural standards and specific products of spiritual production (including mass-cultural)”<sup>2</sup>.

<sup>2</sup> Rimskaya O.N. (2011). Phenomenology of subcultural religions: Candidate of Sciences (Philosophy) thesis. Tula. 172 p.

In this case, culture in general and regional subculture act as regulators of the conjunctive (consolidation) process. At the same time, the role of socio-cultural regulators is very great, which, in particular, is emphasized by Yu.A. Zubok, V.I. Chuprov and A.S. Lobutov, developing the concept of youth self-regulation: “Socio-cultural regulators of life positions are the elements of socio-cultural mechanism, which in the concept developed by the authors include: traditional culture, determining the historical conditionality of self-regulation process, and youth subculture, characterizing its social and group features; archetypes of collective unconscious, underlying sense-making; mental and modern features of national character, contained in social practices and the national character of the youth (Zubok, et al. 2021, p. 86). We believe that a similar mechanism determines self-regulation of any community.

Consequently, consolidation can be seen as a regulated and simultaneously self-regulated process of subcultural modifications, the potential subject and simultaneously the object of which is the regional community. The essence of these modifications lies in the consistent formation of the constituent groups’ attitude to mutual understanding and dialogue, readiness to jointly solve problems affecting common interests, despite the presence of social differences between them. Consolidation in this case is understood in a rather limited sense as minimizing confrontation and mutual alienation and building interpersonal and intergroup relations based on mutual loyalty. The proposed interpretation goes back to J. Habermas’ communicative theory of solidarity (Habermas, 2000) and implies a limited understanding of consolidation, associated with the rejection of its holistic interpretation in the spirit of the process aimed at the establishment of relations of “universal harmony”, which is hardly feasible in a highly differentiated society. Solidarity as the goal of consolidation in this context is seen as a system of

relations based on the principle of mutual loyalty, which, according to T. Parsons, is “the willingness to respond to a properly “justified” call made on behalf of the collective or in the name of a public interest or need” (Parsons, 1998, p. 26).

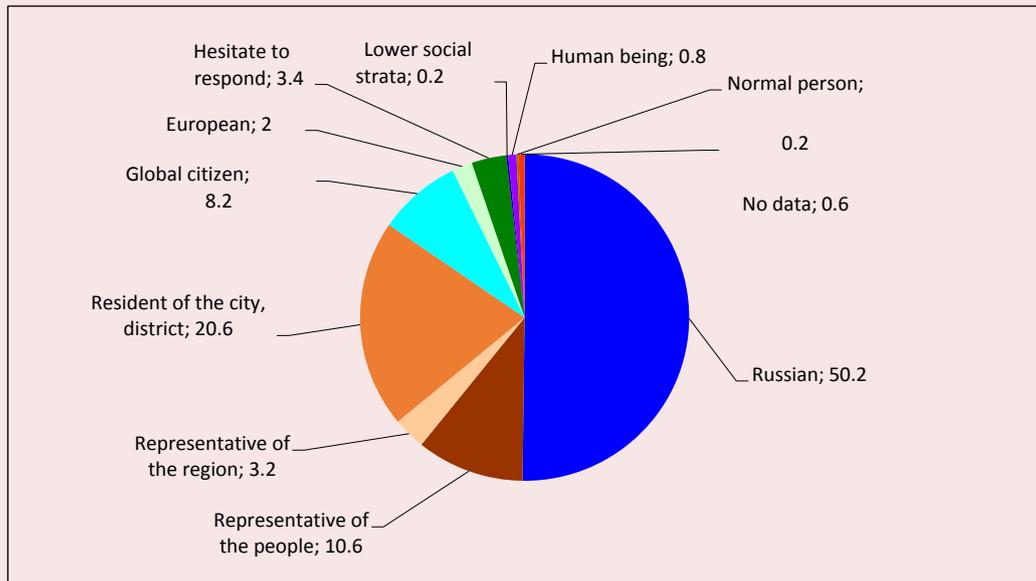
However, in order for the majority of the region’s inhabitants to change their attitude toward their counterparts from a predominantly alienated (aloof) or even hostile one to a “communitarian-loyal” one, the idea of belonging to a single community must really form in public consciousness and “objectify” it (it is significant that T. Parsons associated loyalty with public interest).

This representation is usually reproduced in the form of a regional (collective) identity, which serves as the most reliable basis for consolidation. In particular, the authors of the article “Perception of basic values, factors and structures of socio-historical development of Russia (based on research and testing material)” point out the dependence of consolidation prospects on the identity factor (Kharichev et al., 2022). As E. Erikson (Erikson, 1996) has shown, any kind of collective identity is certainly formed under the influence of many factors, but the decisive role in their structure is played by “knowledge, norms, values, symbolic strategies common to group members” (Kharichev et al., 2022, p. 110). Through them identity is maintained, and through it and by way of it they are able to determine consolidating practices.

Naturally, the deformation of socio-cultural factors-regulators distorts the process of collective (in our case) regional identification, which was largely confirmed by the research results.

First of all, they have showed that nowadays regional identity is increasingly turning into a simulacrum, despite the attempts of the authorities and some civil institutions to implement measures aimed at its formation. During the above-mentioned mass questionnaire survey of the Belgorod Oblast population, which we conducted in March 2021 (N = 500), only 3.2% of respondents indicated

Figure 1. Distribution of respondents' answers to the question "Who do you feel like first of all?"\*, %



Source: results of a mass questionnaire survey of the Belgorod Oblast population, March 2021, 500 respondents, semi-closed question.

\* The answer options "lower social strata", "human being", and "normal person" were offered by the respondents themselves (semi-closed question).

that they consider themselves representatives of the region; 50.2% feel they are primarily Russians, 20.6% – residents of their city or district, 10.6% – representatives of their people (Fig. 1).

Moreover, the participants of the focus groups had difficulties in answering the question about the presence of a regional community, which, however, was quite expected due to its complexity even for the researchers. The phenomenon of territorial community, as we know, is interpreted rather ambiguously in the literature. For instance, some researchers consider the presence of common values to be a necessary sign of its existence. According to I.A. Khalii, a community is "a group of people united by common interests, values and goals, acting over a long period of time and achieving certain results"<sup>3</sup>. Other authors point out other

<sup>3</sup> Khalii I.A. (2008). Social movements as the innovative potential of local communities in contemporary Russia: Doctor of Sciences (Sociology) thesis. Moscow. 50 p.

bases. N.L. Mosienko, in particular, defines a territorial community as a socio-territorial community that is characterized by a high degree of "territorial self-identification of residents, intensive internal interactions, awareness of common territorial interests, with elements of self-organization and self-government" (Mosienko, 2010).

For many Belgorod residents, the very raising of the question of the existence of a regional community was quite unexpected; nevertheless, the vast majority of them confirmed its existence, emphasizing two main reasons for this. First, it is the commonality of the residential area. The following statement can be considered as typical: "A regional community is a community of people united by territorial conditions of residence, which interact with each other in the framework of solving various tasks" (Irina, 45 years old, educator). Second, the phenomena and processes that can be summa-

rized by the concept of “cultural and historical tradition”. In this case, the following opinions were characteristic: *“People are united by the history of their region, territory, republic, and the values that are laid into it. Belgorod has a very strong historical culture, which helps shape the regional community”* (Alina, 31 years old, media representative); *“Strong ethno-cultural differences from other regions of Central Russia (except neighboring), caused by the significant influence of the Ukrainian ethnic element, and in general humanitarian and economic relations with Ukraine (primarily orientation to Kharkov as the nearest large center)”* (Vasilii, 37 years old, educator); *“The special accent of the “belGorovskoye vivid deafG”, the iconic places (Prokhorovskoe field, Kholkovo men’s monastery), the “Holy Belogorye” – a lot of churches in almost every rural area, not to mention cities”* (Inessa, 42 years old, cultural worker).

However, attempts to identify consolidating factors in contemporary processes have usually led to extremely general arguments, often quite confusing and contradictory.

Maiya, 42 years old, educator: *“All people interact both at their work and at their place of living, and even though the “personal” goal, which everyone strives for, may be different, but there is a common goal – to create decent living conditions for the younger generation, to improve the quality of their lives. ... there are indigenous people (several generations have lived in the area) and there are people who have come to live permanently. Regardless of their workplace or residence, they are all in constant interaction and strive to achieve certain goals depending on their belonging to one or another social institution”*.

Aleksander, 68 years old, healthcare worker: *“Yes, we can talk about such a community, it exists in our region. Without this community, we couldn’t create the conditions of existence that we have now, we would not have been able to achieve the economic indicators we have today”*.

Thus, the empirical research reveals a rather significant contradiction. Its essence is that the qualitative method of analysis allows diagnosing a fairly stable idea of the existence of a regional community among the region’s residents, but belonging to it does not determine their collective identity. The vector of identification of the absolute majority of respondents during the research period was oriented either to macrosocial (the country as a whole) or to microsocial communities. The region lost to both.

Obviously, it is possible to find a variety of reasons for the current situation. But we believe that the main one is due to the weakness of socio-cultural regulators of the identification process, concentrated in the dominant in the mass consciousness value-normative complex; it means that the presence of common values, willingness to follow the same for all social norms, conviction in the existence of some reference behavior patterns. This weakness is fundamentally determined by the overall situation in Russian society, which S.A. Kravchenko defines it as “normal anomie”; it means that the state of affairs in which transformed forms of material practices are perceived as natural and acceptable, and the order sanctified by tradition as contrary to rationality. As arguments in favor of the concept of “normal anomie”, he uses the following: 1) anomie is an immanent phenomenon for an emerging complex society; 2) in risk situations, stable norms do not regulate human behavior; 3) people whose moral ideas belong to different social times live in the same social space; 4) normal anomie is stimulated by the formation of virtual reality; 5) in their life strategies people increasingly rely on “lucky chance” rather than their own efforts; 6) a paradoxical combination of knowledge and ignorance of all kinds; 7) mixing of real and virtual worlds generates the coexistence of real and staged risks; 8) dispersion of traditional norms of family and

marriage relations; 9) analysis of normal anomie requires new valid tools; 10) general humanization of society is the only strategy for normalizing society (Kravchenko, 2014, pp. 3–10).

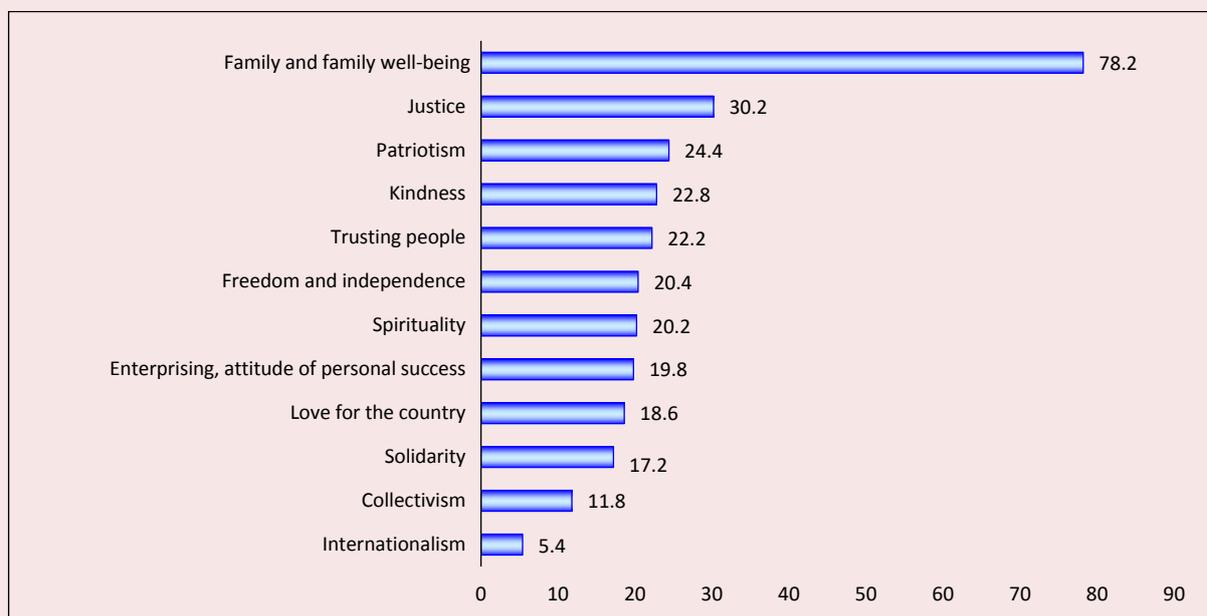
Anomie is characterized by the loss of collective ideas about the difference between good and evil, about what is pity, mercy, justice, respect, mutual help, compassion; inoperability of social institutions; probing as the main form of Russian government's relationship with society; loss of human control over social processes; human inability to plan and achieve long-term goals of life strategies (Tereshchenko, 2019, p. 220).

In this regard, the tendency to ward devalating collectivist values, which represent an important factor in strengthening interpersonal and inter-group interrelations, is of particular importance.

For instance, V.N. Kuznetsov writes: “Values consensus is an important factor in the functioning and maintenance of social stability on the basis of agreement based on the similarity of views or orientations regarding significant values, goals, norms, rules of behavior, roles, power relations, etc. between the subjects of social relations” (Kuznetsov, 2003, p. 37).

Undoubtedly, the problem of the evolution of values in contemporary Russia is extremely complex. Moreover, we carry out its analysis on the basis of different methodologies suggesting nonoverlapping and debatable variants of their systematization. However, the conclusion about the devaluation of collectivist values, in fact, is axiomatic<sup>4</sup> (see, for example: Gorshkov, 2016; Grishchenko, 2018; Markova, 2017; Russian

Figure 2. Distribution of respondents' answers to the question “What traditional values are the most important to you? (specify no more than three answer options)”, % of respondents



Source: results of a mass questionnaire survey of the Belgorod Oblast population, March 2021, 500 respondents, semi-closed question.

<sup>4</sup> Lebskii A.V. (2015). Values of collectivism in the context of social individualization: Candidate of Sciences (Philosophy) dissertation. Stavropol. 159 p.

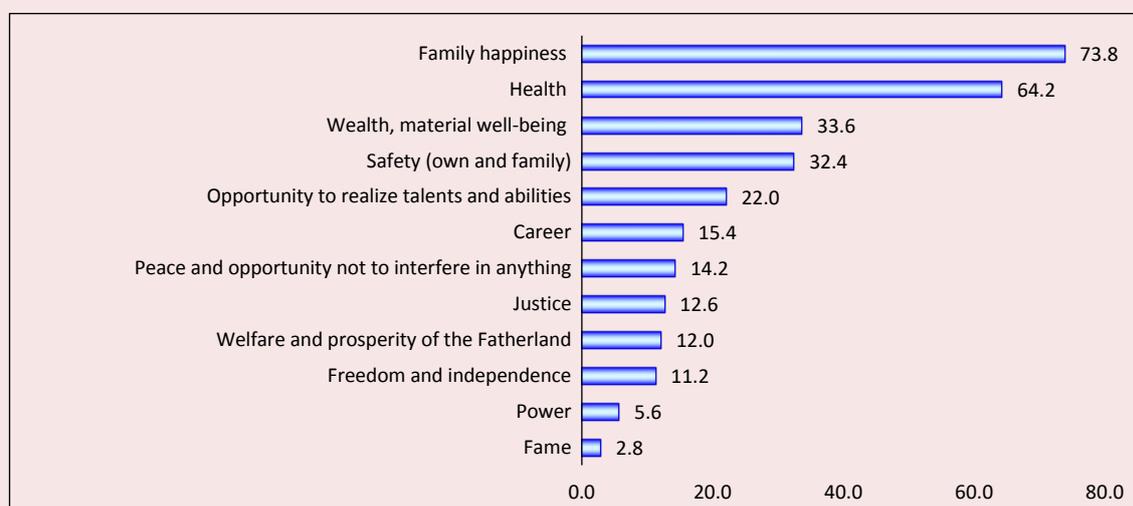
Society..., 2022; Semyonov, 2017). It also found confirmation in our 2021 study<sup>5</sup>. Among the proposed set, only the value of family was unequivocally recognized as significant by the majority of respondents (78.2%). All others received less than half of the elections: justice (30.2%), patriotism (24.4%), kindness (22.80%), and trust in people (22.2%). At the same time, the values of internationalism (5.4%), collectivism (11.8%) and solidarity (17.2%; Fig. 2) were the least important for the Belgorod Oblast residents.

In our opinion, the resulting distribution of answers can be explained by the fact that individual and pragmatic attitudes dominate in the public consciousness. In this connection, the distribution of answers to the question about what is the most important in life for the residents of Belgorod is revealing. These priorities included family happiness (73.8%); health (64.2%), wealth and material well-

being (33.6%), their own safety and safety of their related people (32.4%). These preferences indicate the prevalence of individual-pragmatic dispositions in the mass consciousness, which, although not devoid of societal content, if they assume integration and loyalty, then, as a rule, within a short social distance (Fig. 3).

Meanwhile, a significant part of the population still feels a more or less pronounced need for some solid foundations (we define them as socio-cultural constants), which would orient the regional community toward integration. It is indicative that respondents mentioned not only family and family well-being (65.4%), but also justice (24.4%), spirituality (22.6%), patriotism (21.8%) and kindness (18.2%) as the *most demanded* values in the modern world, though the percentage of choices in all these cases was noticeably lower than in relation to the value of family and family happiness (Fig. 4).

Figure 3. Distribution of respondents' answers to the question "What is the most important thing in your life today? (specify no more than three answer options)", % of respondents



Source: results of a mass questionnaire survey of the Belgorod Oblast population, March 2021, 500 respondents, semi-closed question.

<sup>5</sup> The set of traditional values proposed in the survey was not definitely exhaustive, but it was determined based on the analysis of the works of several authors (Rassadina T.A. (2005). Transformation of Traditional Russian Values in the Moral Orientations of Russians: Doctor of Sciences (Sociology) thesis. Moscow. 386 p.; Mchedlova, 2020; Value orientations..., 2017) and their research experience since 1993. As further developments showed, the majority (7) of the values we referred to were included in the list of traditional values defined by Presidential Decree 809, dated November 9, 2022 "On Approval of the principles of state policy for the preservation and strengthening of Russian spiritual and moral values".

Figure 4. Distribution of respondents' answers to the question "Which of the listed values are the most demanded at present? (specify no more than three answer options)", % of respondents



Source: results of a mass questionnaire survey of the Belgorod Oblast population, March 2021, 500 respondents, semi-closed question.

We explain the reasons for preserving the demand for some collectivist values in a consumerist, individually pragmatically oriented society by human desire to at least partially compensate the costs of uncertainty, instability, to preserve faith in some imperatives of human life. One cannot but agree with V.A. Sautkina, who notes: "During states of transition, in uncertainty and risks in society, the need to find something common that encourages different people to stick together becomes stronger. Humanity's accumulated experience of joint actions, analysis and interpretation of their effects show that the presence or absence in society of a demand for solidarity is the brightest manifested in times of crisis, when under the pressure of a variety of challenges that not only worsen the situation of citizens, but are a real threat to their existence, the need for solidary behavior appears. Under these conditions, more and more people realize the need to compromise their interests and join the group of people who see in actions based on the principles of solidarity the only way to solve their urgent problems" (Sautkina, 2019, p. 71).

Nevertheless, a family, as virtually the only collectivist value (we assume that the family is a small social group uniting people on the basis of kinship, marriage and joint household), recognized by the majority of the population, consolidates them only within a short social distance. Moreover, it can oppose attempts to consolidate the regional community on a broader basis in cases where family-clan interests conflict with the interests of large social groups. Moreover, the collectivist orientation of the family is not always prosocial. The family-clan group may well integrate on a criminal basis.

Along with values, social norms are an element of the value-normative complex as a regulator of social relations. By delineating the limits of permissible behavior, they give the attribute of certainty to social actions and interactions, forming the prerequisites for the establishment of relations of trust, which is "the expectation that members of the community will behave more or less predictably, honestly and with attention to the needs of others, in accordance with certain common norms"

(Fukuyama, 2004, p. 52). The basis of trust, without which consolidation is unthinkable, is certainty. It is indicative that P. Sztompka believed that trust is “a wager on the future contingent actions of others” (Sztompka, 1999, p. 25).

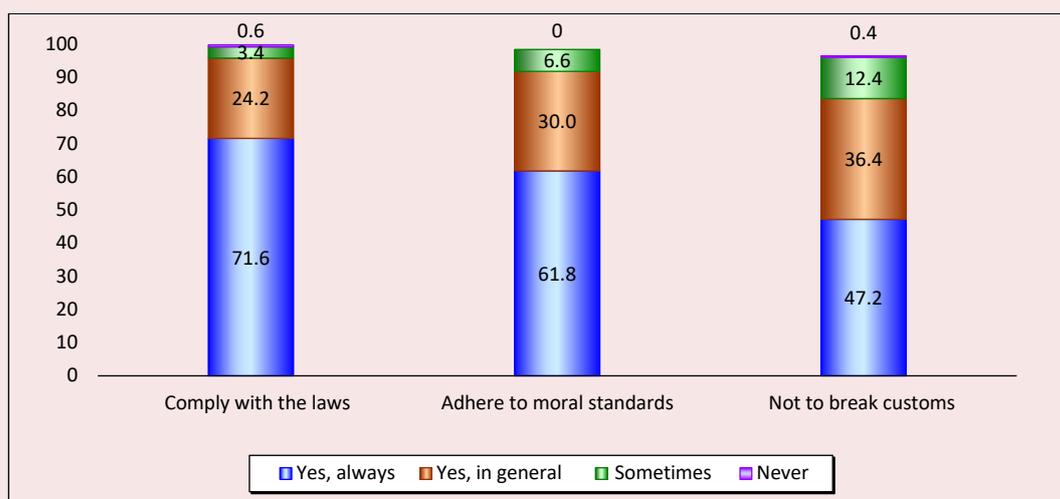
The complexity to assess the state of the normative component of the value-normative complex lies in its heterogeneity. The social norms include legal, moral, and conventional ones, which are based primarily on customs (one cannot ignore the presence of ambiguous interpretations of morality among the masses; but since our research was conducted in a region where the absolute majority of the population is Orthodox Christians, we “by default” considered the maxim of Christian morality as such moral norms). They have a different impact on consolidation perspectives. In addition, the inhabitants of the region perceive these normative prescriptions in different ways.

In particular, the research proves the following: perceiving social reality in a predominantly rational and pragmatic way, in their everyday life the respondents overwhelmingly try observing the laws,

and to a lesser extent – adhering to moral norms and not violating customs. For instance, 71.6% of respondents always observe the laws, 61.8% stick to moral norms and only 47.2% try not to break the customs. Thus, except conventional norms, legal and moral norms, judging by the data obtained, are interiorized by the majority of citizens and serve as regulators of their behavior (*Fig. 5*).

However, different types of social norms do not equally contribute to the formation of a value-normative consensus in the regional community, acting as one of the components of this consolidation attractor. In particular, the function of legal norms is reduced to the establishment of formal rules governing the relationship between citizens and their groups through positive obligation, prohibition and permission. Its implementation is irrelevant to the practice of consolidation; these norms do not take into account this possibility and do not oblige to implement it. The only exception is when legal norms expressly prohibit the creation of anti-social (extremist, criminal) associations. But in all other situations, adherence to the legal norms in

Figure 5. Distribution of respondents' answers to the question “In everyday life, do you try ...?”, % of respondents



Source: results of a mass questionnaire survey of the Belgorod Oblast population, March 2021, 500 respondents, semi-closed question.

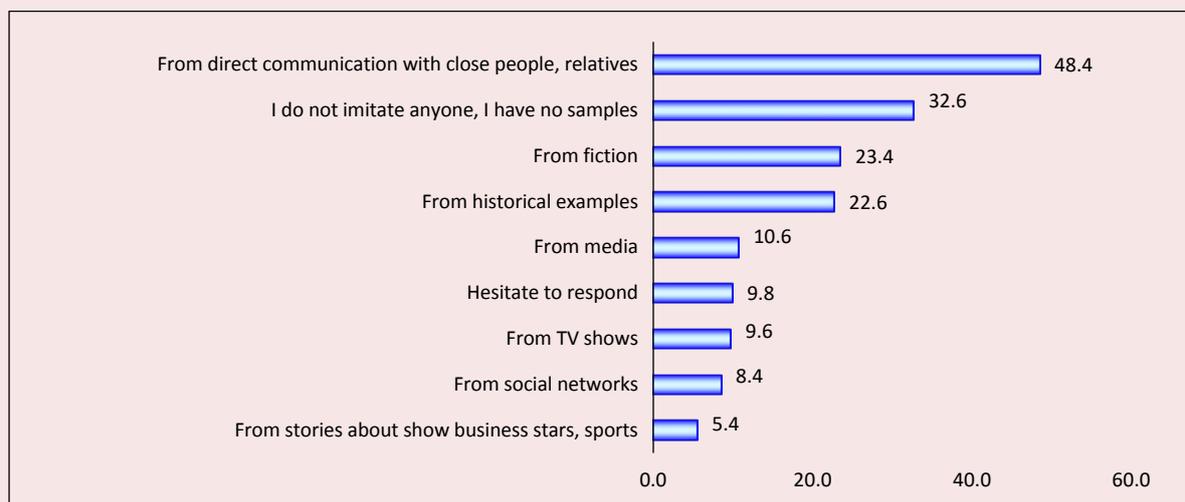
their daily practices can be expressed almost equally either in a willingness to consolidate with fellow citizens, or in an indifferent attitude toward it.

To a much greater extent, the achievement of the value-normative consensus and its transformation into a meaningful attractor of consolidation is facilitated by the interiorization of moral norms, which formulate unconditional imperatives of personal behavior. Certainly, these imperatives are not always focused on solidarity as a form of life organization. For instance, even M. Weber, describing Protestant ethics, emphasized its individualistic, rational and pragmatic nature, embodied, among others, in the “philosophy of avarice”. “Its ideal is the creditworthy virtuous man, whose *duty* it is to regard the multiplication of their capital as an end in itself”<sup>6</sup> (Weber, 1990, p. 73). It is true that the Orthodox tradition, if not directly oriented toward solidarity, suggests an affirmation of phenomena close to it (philanthropy, giving, justice).

However, we cannot ignore that, first, according to the data obtained, a much smaller percentage of respondents adhere to moral norms; and second, a person’s statements about following moral norms do not mean that they are ready to consolidate with those around them, which means to try to understand their position, to coordinate interests, to cooperate in solving common problems. Consensus is achieved not on the basis of declarations, but in the course of practical actions. In this case, the agreements reached by the participants more often than not become decisive. Therefore, the observance of conventional norms in modern society becomes the real basis for the value-normative consensus, turning it into an attractor of the consolidation process.

But it is precisely these norms that are least likely to be taken into account by respondents. Moreover, conventions are usually concluded and observed within a short social distance, reducing the space of consolidation and limiting the number of its actors.

Figure 6. Distribution of respondents’ answers to the question “Where do you usually get your behavior pattern (specify up to three answers)?”, % of respondents



Source: results of a mass questionnaire survey of the Belgorod Oblast population, March 2021, 500 respondents, semi-closed question.

<sup>6</sup> Despite the fact that some modern researchers question the validity of Weber’s position (Kapeliushnikov, 2018), in our opinion, their criticism does not seem quite justified. However, the analysis of the arguments presented by M. Weber’s opponents requires an independent analysis.

The specificity of reference samples of behavior also contributes to the reduction. In modern conditions they lose the attribute of universality, being localized mainly within the framework of the environment closest to the subject. The majority of the population is guided in their everyday life by relatives and friends. Characters of fiction and historical figures, whose behavioral models are usually considered to be universal role models, serve as such for only 23.4% of the respondents. At the same time, a third of the respondents (32.6%) note that they do not have such models and do not imitate anyone, and every tenth find it difficult to answer the question. The Belgorod Oblast population pays the least attention to narratives about show business and sports stars spread on social networks (8.4%) and television programs (9.6%; *Fig. 6*) when choosing their behavior patterns in everyday life.

Thus, the specificity of all components of the value-normative complex, which characterizes the consciousness of the region's inhabitants, allows arguing that its potential as an attractor-regulator of the consolidation process can be realized mainly at the microsocial level, which significantly limits the possibilities of integration of the regional community.

They could be expanded by strengthening the focus on the consolidation of state and municipal government and civil society institutions, acting as the main "players" in the social space of the RF entity, which represents their focus on creating conditions for social conjunction, countering disjunctive tendencies.

This orientation did take place in the Belgorod Oblast. But it manifested itself mainly in the installation on the revival (renovation) of traditions considered as socio-cultural constants, which can act as the basis for a regional consensus.

The concept of "renovation" is still rarely used in the social sciences and humanities when it comes to attitudes toward values, and it is quite

natural that it is debatable. The terms "preservation" and "strengthening" are usually used in normative legal documents and in academic literature. They are exactly those contained in Presidential Decree 189 "On approval of the fundamentals of state policy for the preservation and strengthening of traditional Russian spiritual and moral values". However, it seems to us that the provisions of the Decree are not unambiguously reduced to stating the need to reproduce (recreate) traditional value patterns. This activity should take into account their integration into the modern socio-cultural process involving their interpretation in the system of concepts close to the population (especially young people) taking into account current social processes. For example, the interpretation of the content of values cannot but take into account the diversity of modern forms of family and marriage relations. It is indicative that the decree contains a position according to which a positive scenario of state policy involves "the search for answers to new challenges based on traditional values". Quite remarkable are the opinions of the participants of the focus groups, who argue that at present the installation on the simple reproduction of traditional values will not bring the expected results, if we do not give them at least a new form of presentation. In their perceptions (certainly simplified), the simple reproduction of such values will not get support because "*now there are few people who want to use kindling-wood or bast shoes*" (Vasilii, 37 years old, educator).

In this context we consider that the use of the notion "renovation" will at least remove some of the meaningful and semantic problems, as it defines a dialectical process of "differently directed and simultaneous tendencies – preservation of the old and simultaneously its negation"<sup>7</sup>. This concept is

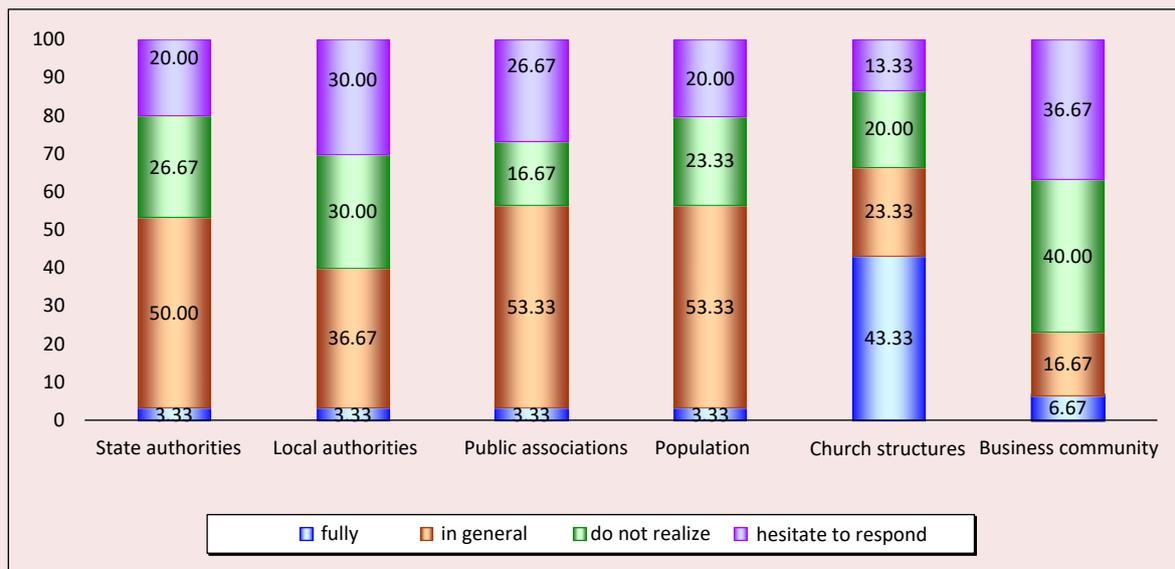
<sup>7</sup> Zakharov V.M. (2016). Innovative system of reproduction of professional potential of state and municipal administration in the region: Doctor of Sciences (Sociology) dissertation. Orel, 419 p.

most often used to characterize the processes of infrastructural renewal, but it may well be used to analyze a wide range of social including socio-cultural, systems (an attempt to apply it to values was made by B.P. Toropov (Toropov, 2015), although he did not give a strict definition of the concept). The main advantage of its use is that it simultaneously emphasizes the dynamism of their development and the increase of “sensitivity” to the external environment. Thus, we define the renovation of values as a process of their preservation and meaningful interpretation, taking into account modern trends of social development and on the basis of the use of terminology adequate to the perceptions of target impact groups.

However, the solution to the problem of their renovation initially had significant limitations, which, due to the standard thinking of representatives of regional elites, is likely to be manifested in other Russia’s entities in the case of the implementation of the consolidation strategy.

The first is connected with the practice of life planning within a short social distance, which is characteristic of many status groups. The effect of it is a focus on solving situational problems, coupled with a refusal to form long-term programs and projects, which include consolidation. A concrete manifestation of the situational approach in the Belgorod Oblast was the lack of understanding of the significance of the idea of renovating traditional value-normative complexes as the bases (attractors) of social conjuncture. For instance, in the course of our research in 2021, the experts were rather reserved in assessing the degree of awareness of various actors in the regional space of the need to renovate traditional values, norms and behavior patterns. According to the opinion of two thirds of them, it is to a greater or lesser extent inherent in representatives of the church, 56.7% – the population, 56.7% – members of public associations, 53.3% – state officials, 40% – municipal servants, and 40% – representatives of the business community (Fig. 7).

Figure 7. Distribution of expert responses to the question “To what extent do you think your region is aware of the need to renovate traditional values, norms and behavior patterns in ...?”, % of interviewees



Source: expert survey, April 2021, 30 experts were interviewed, closed question.

Such a restrained assessment is probably quite adequate to the situation, which is characterized by a high level of social uncertainty and risks. O.N. Yanitskii states that they “in modern conditions are increasing with enormous progression and enter into every social sphere, in all territories, turning them into life-destroying environments” (Yanitskii, 1999, p. 134). Under such conditions, it is extremely difficult to make long-term plans, especially if they, as is inherent in the idea of consolidation, are of a large-scale nature.

It is with the scale of the consolidation process that its next limitation is connected. It is expressed in the disproportion between the policy of consolidation and the state of mass consciousness. The initiators of consolidation prefer to think in the so-called high dimension, appealing to the values, norms and behavior patterns capable of integrating the entire regional community. Meanwhile, the majority of the population operates with local values, the most important of which, as noted above, is the value of the family. From the position of local thinking, the large-scale task of renovating collectivist values seems very doubtful, which was pointed out by the participants in the focus groups.

However, half of the participants (especially many students) expressed doubts about the relevance of the task of renovating traditional values, norms, and behavior patterns, explaining their opinion that “it is not necessary, as changing values can lead to something new, while reviving old traditions leads to stagnation” (Tat’yna, 40 years old, media representative); “reviving is unnecessary, but something should be adopted, as the current trends cause concern” (Vlad, 20 years old, student).

Oksana, 45 years old, media representative: “I think that this (renovation task – ed.) is not in demand in modern society, as Russia is now tightly integrated into the global culture and young people are growing up with Western norms of behavior. It is impossible to force them to ignore the outside world, but at the same time, to walk around in floor-length

skirts and have five children each. Again, if no conditions have been created for this... Young people now are very selfish, they think only of themselves, of gaining personal advantage. They are more free and, for the most part, devoid of the patterns of the older generation. It is difficult to instill traditional values in such people”.

Vasilii, 37 years old, educator: “The attitude toward the task of renovating traditional values, norms and behavior patterns is negative, since many people now understand “traditional values” to mean outright retrograde, xenophobic and sometimes religious extremism. Besides, it is necessary to understand that revived traditional values can exist only in a revived traditional economy and society”.

Elena, 47 years old, media representative: “The task of renovating traditional values, norms, and behavior patterns is not in demand. Values are formed and forgotten over quite a long period of time, it is too unpredictable to try to artificially influence them. It is impossible to guarantee the result. Why should we revive something that has been rejected by society out of necessity?”

At the same time, even the participants who were positive about the formulation of such a problem were not sure of its solvability.

Svetlana, 45 years old, educator: “The task of reviving traditional values is certainly in demand, but, in my opinion, completely unsolvable. It is hardly possible to revive (or artificially impose) traditional values in a modern society oriented toward individualism, personal success, and material values”.

The share of experts (46.7%) believe that the task of establishing traditional values, norms and behavior models in a new form in modern conditions is timely and necessary, but hardly feasible.

A significant limitation of the process of consolidation of the regional community is the inability of its initiators (even if they want to solve the problem) to organize it technologically correctly as a consequence of the lack of their socio-

technological culture. In order to be successful, the technology of consolidation regulation should become systemic in nature and be carried out taking into account the allocation of consecutive stages in it. There are as follows.

1. The stage of regional identity formation. In public discourse, the prevailing view is that regional identity is quite successfully formed in the course of socialization of children and youth. However, our research results question the adequacy of such a position. The main vectors of identification are focused on other subjects. It is obvious that a typical entity of the Russian Federation today has little to offer young people with the expectation of their loyalty to the regional community. At this stage it is necessary to develop and implement a special program of formation and maintenance of regional identity based on the extensive use of modern technologies.

2. The stage of value-normative selection and orientation. It involves the definition of values, social norms and reference behaviors, on the basis of which it is possible to integrate the regional community. At this stage, it is advisable to develop and apply technologies of subcultural modifications, which consist in the purposeful and consistent formation of a system of incentives that change in a given direction the behavioral reactions of various social groups.

3. The stage of establishing relations of trust. At this stage it is advisable to use technology to build a culture of trust, the main procedures of which are the establishment of normative consistency of development of the regional space, ensuring stability; achievement of transparency of social organization, creation of information and communication environment, providing residents with a sense of understandability of what is happening, implementation of the principle of public accountability of officials and institutions.

4. The stage of the formation of symbolic solidarity, in which we propose to use the technology

of forming a system of public discourse on solidarity and consolidation, based on a network of dialogue platforms.

5. The stage of active consolidation, focused on the use of technology to support civic initiatives aimed at consolidating the regional community. It assumes the presence of clear and generally accepted technologies and channels to convey information about the initiative to interested individuals and groups, the formation of infrastructure to support initiative groups and public organizations, the normative legal consolidation of mechanisms to attract financial and material resources to implement initiatives, the presence of a real interest of the authorities in civil activity, the lack of pressure on the initiators, ensuring transparency of the procedure for selecting initiatives, the mandatory inclusion of measures to form the initiative and the development of the civil society. The result of the technology should be the institutionalization of consolidation practices.

Thus, a system of social practices oriented to its prosocial reproduction and participation as an active subject of social processes can be built within the regional community.

Finally, another limitation of the process of consolidation of the regional community is the lack of attention to the problem of interaction between the subjects implementing it. The study has showed: in the opinion of the majority of respondents, it can be successful, provided that it is carried out as a self-regulating process, in which, according to the focus group participants, the decisive role belongs to the population.

Inessa, 42 years old, cultural worker: *“The task should be formulated directly by the people of the region (through public opinion leaders)”*.

Olesya, 26 years old, media representative: *“Civil society, activists, with the support of the state (regional authorities and local government)”*.

Maiya, 42 years old, educator: *“This task should be formulated by the people and communicated to the*

authorities at all levels ... Perhaps a special role in this case belongs to the institutions of civil society”.

The predominance of such a viewpoint can be seen as evidence of a slow, albeit slow, shift in the orientation of public opinion from paternalism to civic consciousness. However, in practice, the regulation of the consolidation process was practically monopolized by state structures, which significantly reduced the attractiveness of the project.

### Conclusion

The research results allow arguing that, solving the problem of increasing the subjectivity of Russia's regions, the most far-sighted representatives of some established elites in them formulate the idea of consolidation of regional communities. Opposing the trends currently prevailing toward the de-objectivization of social groups and institutions, this trend is indicative of the fact that globalization is steadily transforming into glocalization and, thereby, leads to an increased role of regions in social development. However, the process of consolidation tends to be inconsistent and mostly

based on administrative practices, which makes it unstable and not always effective.

This conclusion is fully confirmed by the experience of the implementation in the Belgorod Oblast of the Strategy for the formation of a regional solidarity society. It is a more or less adequate response to the challenges of today's unstable reality, but it was developed and implemented without due attention to the constraints that are produced by the conditions of the country's and regions' development and significantly affect the main attractors that can turn consolidation into a system self-organizing process. These constraints include the lack of regional identity, the fragility of the value and normative consensus, which manifests itself mainly at the level of micro-groups (primarily families and the family and kinship environment), the lack of focus of the authorities and civil society institutions on creating favorable organizational and technological conditions for social conjuncture.

The implementation of any consolidation strategy at the regional level should take into account these limitations and include measures aimed at minimizing them.

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## Determinants of the Trust of Russian Municipalities' Residents in Local Self-Government Bodies



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**Abstract.** The relevance of the article is due to Russia's orientation toward the democratization of socio-political relations, as well as the need to address issues emerging in modern society. We consider a system of factors determining the level, nature, and dynamics of the trust of Russian municipalities' residents in local self-government bodies. We provide the findings of the following sociological surveys conducted in the Tver Oblast: 1) a sociological monitoring carried out to analyze the dynamics of citizens' perceptions of local self-government (2012–2022); 2) a study that analyzes public trust in local self-government bodies (October 7 – November 1, 2022). The data of our research are compared with the results of all-Russian surveys. Our approach consists in analyzing the trust in local self-government as a whole and, at the same time, the trust in its individual institutions (head, administration, and representative body of municipality). This, along with the grouping of trust factors that we put forward, determines the scientific novelty of the work. In the course of the study, we observe a low level of trust in local self-government

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bodies (compared, for example, with trust in the president), its undulating dynamics, predominance of an increasing trend, tendency toward its depersonalization, and formation of an institutional type of trust. We propose a theoretical and methodological framework for designing a system of determinants of trust in local self-government bodies and identify groups of factors influencing it. We reveal a weak connection of the dynamics of trust in local self-government bodies with the stages of the economic cycle, the importance of the material well-being of citizens as a trust factor; besides, we find that citizens' trust in local self-government bodies is conditioned by their perception of the economic situation. The factors that have the most significant influence on the growth of the level of trust in local authorities include positive assessment of the work of local self-government bodies, citizens' positive assessment of their own experience of interaction with local self-government employees, high or average assessment of the degree of influence of an ordinary citizen on the activities of local self-government bodies. Perceptions concerning the presence of corruption in municipal bodies, inconsistency of real municipal practices aimed at minimizing the participation of citizens in managerial decision-making, and people's expectations have a negative impact on the credibility of this institution. We propose ways to solve these problems. Theoretical significance of the work is determined by the possibility to use the theoretical and methodological framework for further theoretical and empirical research. Practical significance is associated with the possibility of developing state and municipal policy measures aimed at improving ways to increase public trust in local authorities.

**Key words:** Russian municipalities, local self-government bodies, level of public trust, dynamics of trust, determinants of trust, systematization of trust factors.

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### **Introduction**

The processes taking place in modern Russia lead both to the deepening of pre-existing contradictions and to the emergence of new challenges and threats to the stable existence of Russian society. In this context, the problem of finding various kinds of tools and resources to ensure growth of social cohesion and consolidation of society, increasing the confidence of citizens in public and state institutions, overcoming internal crises and adequately responding to external threats is now coming to the forefront. Local communities can be seen as one of the most important sources of these kinds of resources. The concept of community building has been developed in Western sociology since the middle of the 20th century, integrating research and municipal practices based on community capacity building and partnership between community representatives and municipal governments in solving local problems (Phifer, 1990; Dyde et al., 2019; Lloyd, Reynolds, 2020). In the Russian-speaking segment of social and humanitarian knowledge, similar approaches have also been analyzed (Lyska, 2013). Unlocking the inner potential of local communities and engaging citizens in social practices at the local level requires public trust in local self-government bodies (LSG).

We should note that there are problems in the system of municipal governance in contemporary Russia that remain unresolved throughout the entire period of the municipal reform. They include, in particular, the instability of legislation regulating the functioning of LSG, the underfunding of municipal government, the low activity of the population, etc. (Bukhval'd, 2018; Voroshilov, 2022; Petukhov, 2017; Petukhov, 2020). A number of researchers think that one of the most important problems in the development of the institution of LSG is the fundamental discrepancy between the theory of LSG and the actual practice of municipal government, the consequence of which is the crisis of public trust in LSG bodies (Petukhov, 2017; Petukhov, 2020). However, trust is a very important resource for the functioning and development of society. The scientific literature notes that "...trust is a key element of the activist frame and a necessary tool for its institutionalization" (Reutov, Reutova, 2016), represents a necessary condition for the legitimacy of power (including at the local level) and provides an opportunity for successful development and implementation of municipal policy. Due to the above-mentioned reasons, studies aimed at analyzing issues related to the trust of citizens in government and LSG bodies are now becoming more relevant. Of particular interest is the study of the system of determinants that condition the level, nature, and dynamics of public trust in the LSG bodies, which is the subject of our study.

#### **Theoretical and methodological review**

Referring to the analysis of the phenomenon of trust and its determinants, we note that research on this issue is interdisciplinary (Trust and Distrust..., 2013; Davydenko et al., 2018). Without generally rejecting the possibility of using ideas from different branches of scientific knowledge in an interdisciplinary analysis, we adhere to an understanding of the nature and functions of trust that is characteristic of sociological science.

Contemporary studies of trust in sociological science are based, as a rule, on the comparison and reinterpretation of its classical interpretations (Trust and Distrust..., 2013; Romashkina et al., 2018; Möllering, 2001). The classics of sociology laid the theoretical foundation for the analysis of both personal and generalized trust. In the works of representatives of modern sociological theory trust becomes one of the key scientific concepts, closely related to such important categories as "freedom of choice", "expectation", "risk", "uncertainty", "moral values", and is often understood as an orientation to future possible actions of other people and institutions in order to reduce uncertainty, unpredictability and uncontrollability of the future, to minimize the risks to which certain types of actions are subjected (Giddens, 2011; Trust and Distrust... , 2013; Fukuyama, 2004; Sztompka, 2012; Möllering, 2001). A. Seligman introduced the concept of generalized trust, which implies that community members are given a kind of symbolic credit of trust in the course of their interaction (Seligman, 2002). If we apply the ideas developed by sociologists to the analysis of municipal residents' trust in LSG bodies, it would be legitimate to highlight a number of features typical of this type of trust. First, trust in LSG bodies and their representatives is of a generalized nature, belonging to the institutional type of trust. Second, it is based on the expectations of citizens that LSG bodies will function effectively and that their officials will act professionally. Third, it is a generalized type, in which municipal structures and their representatives are given a symbolic credit of trust by the population. Fourth, freedom of choice in carrying out the act of trust is followed by the voluntary involvement of citizens in collective action aimed at solving local problems.

One of the most important problems associated with the study of the phenomenon of trust is the study of the main factors (determinants) that define

its level, nature, mechanisms of formation and dynamics. Scholars' approaches to this issue also vary (Glushko, 2016; Guzhavina, Silina, 2018; Trust and Distrust..., 2013; Ilyicheva, Lapin, 2022; Latov, 2021; Petukhov, 2020; Reutov, 2018; Romashkina et al, 2018; Fukuyama, 2004; Shabunova et al., 2015; Sztompka, 2012; Abramson et al., 2022; Algan et al., 2013; Buell et al., 2020; Mishler, Rose, 2001). The determinants of trust identified by the authors range from the personal characteristics of the subject of trust and psychological mechanisms of its formation to the specifics of historical processes in certain territories. Attempts to systematize trust factors are made by both foreign (for example P. Sztompka) and Russian (for example, I.V. Glushko, E.V. Reutov) researchers. Most of the classifications are general in nature, but a number of variables can be adapted for analyzing trust in LSG bodies. In methodological terms, we are particularly interested in the approach of A.B. Kupreichenko, who, conducting the analysis of institutional trust, identifies the following significant subjective determinants of trust/distrust in a social institution: the subject's awareness of its activities; the presence of experience of interaction with the institution and the modality of assessing its results; the subject's ideas about their own abilities to influence the institution, etc. (Trust and Distrust..., 2013).

However, most significant for our work are the research approaches related to the study of the determinants of trust in political institutions and LSG bodies (Trust and Distrust..., 2013; Ilyicheva, Lapin, 2022; Kozyreva, Smirnov, 2015; Malkina et al, 2020; Petukhov, 2017; Petukhov, 2020; Reutov, 2018; Reutov, Reutova, 2016; Abramson et al., 2022; Buell et al., 2020; Mishler, Rose, 2001). An attempt to systematize the factors of trust in political institutions was made by foreign researchers W. Mishler and R. Rose, who pointed to the competition of two theoretical traditions in

explaining the origin of political trust – cultural and institutional theories. Cultural theories, scholars note, emphasize the exogenous nature of trust in political institutions, which emerges outside the political sphere in long-standing and deeply rooted perceptions of people, in cultural norms transmitted through mechanisms of early socialization. In contrast, institutional theories assert the thesis of the endogeneity of political trust. Because institutional trust appears as an expectation of the performance of an institution, its usefulness to the individual in terms of satisfaction of needs, it acts more as a consequence than as a cause of institutional activity. Trust in institutions has a rational basis: it depends on citizens' assessments of their activities (Mishler, Rose, 2001). We should note that in order to empirically verify the main provisions of cultural and institutional theories, the researchers themselves comprehensively apply the indicators proposed within their framework. In the Russian-speaking segment of social and humanitarian knowledge, a thorough review of scientific works focusing on the analysis of the factors of political trust is presented in the study of M.Yu. Malkina, V.N. Ovchinnikov, K.A. Kholodilin (Malkina et al., 2020).

As for the determinants of trust in LSG bodies, their most detailed analysis is offered in the works of R.V. Petukhov, E.V. Reutov and M.N. Reutova (Petukhov, 2017; Petukhov, 2020; Reutov, Reutova, 2016). At the same time, differences in the approaches of the researchers are fixed. R.V. Petukhov, stating the presence of a deficit of trust in LSG structures, emphasizes the external and internal factors causing it. The nomenclature of external factors, from the scientist's point of view, can be quite broad. However, the main emphasis of the researcher is on the analysis of internal factors. R.V. Petukhov operates with a whole set of variables: from the degree of citizens' confidence in the professionalism/non-professionalism of municipal

employees to the presence/absence of experience in direct participation in the work of LSG bodies. It should be noted that R.V. Petukhov's approach is mainly related to the analysis of the factors that limit citizens' trust in LSG bodies and the use of descriptors of distrust (Petukhov, 2017; Petukhov, 2020). E.V. Reutov and M.N. Reutova operate mostly with descriptors of trust, emphasizing among them the socio-economic situation in the country and in the territory of residence (stating the connection of trust dynamics with the stages of the economic cycle), the level of citizens' material well-being, confidence in the real efficiency of institutionalized practices of individual and collective rights protection, etc.

In general, a review of the scientific works devoted to the study of the phenomenon of trust has shown a high degree of development of this issue. However, there is a lack of special studies that systematize the factors determining trust in LSG bodies.

The purpose of our work is to investigate the system of determinants that condition the level, nature, and dynamics of public trust in LSG bodies of Russian municipalities. It is based on a comprehensive approach related, first, to the assessment of the influence of different levels and types of factors on trust in municipal government, and, second, on the results of the analysis of secondary data and empirical studies conducted with our participation. Particular attention is paid to the analysis of those personal characteristics of the respondents, their attitudes, perceptions, and behavioral guidelines that may act as factors influencing the growth of trust in LSG bodies. The work attempts to systematize the drivers of citizen trust in LSG bodies, as well as to study their impact on the object in a dynamic perspective. All of the above determines the novelty and significance of the work we have performed.

### **Description of the research methodology and rationale for its choice**

For the empirical analysis of the population's trust in LSG bodies, this paper takes into account data from a series of studies conducted in 2012–2022 by the research team of the Department of Sociology and Social Technologies of the Tver State Technical University with our participation in one of the typical regions of Central Russia – the Tver Oblast.

First, the article uses the results of sociological monitoring conducted from 2012 to 2022, aimed at analyzing the dynamics of the Tver Oblast residents' perceptions of LSG and identifying the self-government potential of the population of municipal entities (ME). The method of collecting empirical data was a questionnaire. Every year, questions were included in the toolkit to measure the level of trust of the population in LSG bodies. The object of the study was the inhabitants of municipalities of various types in the Tver Oblast, aged 18 years and older. A representative sample was formed by quotas (gender, age, type of settlement). The sample size varied from year to year: 2012 – 624 people; 2013 – 628 people; 2014 – 633 people; 2015 – 739 people; 2016 – 1,043 people; 2017 – 1,099 people; 2018 – 1,083 people; 2019 – 682 people; 2020 – 942 people; 2021 – 947 people; 2022 – 725 people (statistical error is 4%). The results were processed by creating an electronic database and using Microsoft Excel, and basic descriptive statistics in the SPSS 16.0 package.

Second, this paper presents the results of a study conducted between October 7 and November 1, 2022, as a part of a fundamental research project aimed at analyzing public trust in LSG bodies in modern Russia and its institutional and value foundations. In general, the methodology of preparing and conducting the study and processing

Table 1. Distribution of answers to the question “Do you trust in general the local self-government bodies (the head of your municipality, local administration, local deputies)?”, 2012–2017, monitoring\*, 2022, trust survey\*\*, % of respondents

The trust level in LSG bodies	2012	2013	2014	2015	2016	2017	Oct. 2022
Absolutely trust	1.8	5.4	8.7	2.2	6.8	1.8	8.2
Rather trust	16.0	28.5	27.4	23.5	26.2	13.7	36.9
Rather do not trust	38.1	36.5	36.2	44.0	42.3	46.7	29.8
Certainly do not trust	29.5	17.0	18.4	17.9	16.2	24.2	9.5
Difficult to answer	14.6	12.6	9.4	12.4	8.5	13.7	15.6

\* “Monitoring” here and below means that the question was included in the questionnaire of the sociological monitoring of 2012–2022 and/or the data were obtained in the framework of this survey.  
 \*\* “Trust survey” here and hereafter means that the question appeared in the questionnaire of the survey conducted in October 2022 aimed at analyzing public trust in LSG bodies, and/or the data were obtained in the framework of this survey.  
 Source: own research findings.

its results was similar to the methodology used for monitoring. The sample size was 1,047 people (statistical error is 4%).

Third, the article uses the results of the analysis of secondary data as comparative material for other regions of the Russian Federation and for Russia as a whole.

### Results of the study

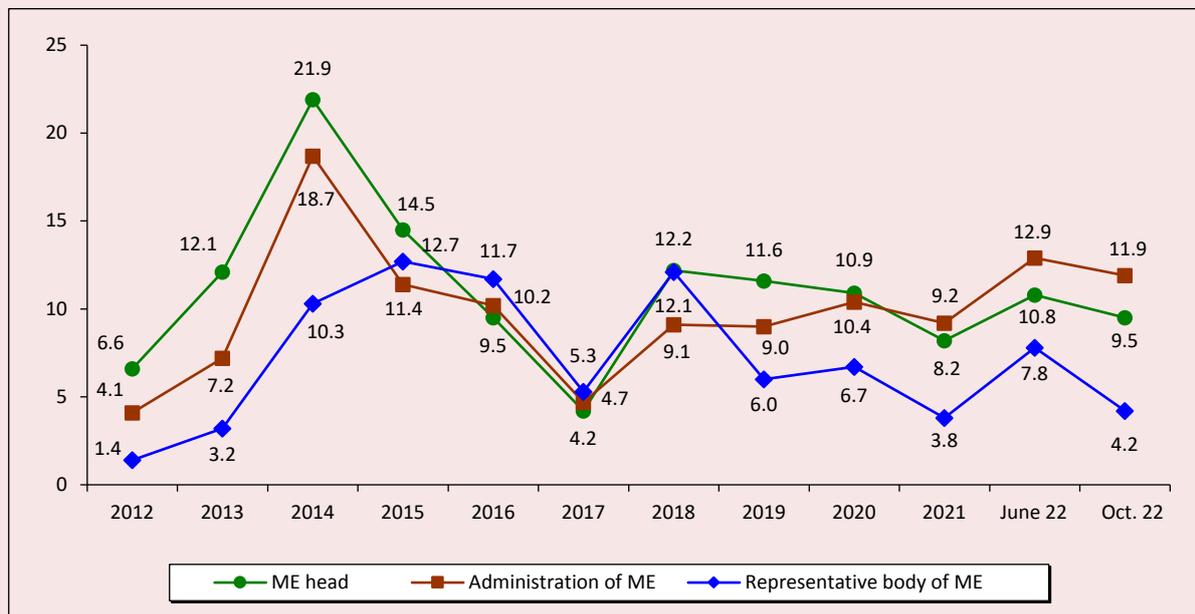
**The level, nature, and dynamics of Russians’ trust in LSG bodies (2012–2022).** The answers to the question regarding trust in LSG bodies in general demonstrate the trust level of citizens in LSG as a socio-political institution, showing the dynamics (*Tab. 1*). The survey conducted in October 2022 allowed measuring the level of trust in the head of the municipality in a differentiated way (“absolutely trust” – 8.6%, “rather trust” – 31.3%, “rather do not trust” – 25.4%, “definitely do not trust” – 10.5%), in the municipal administration (8.4, 31.0, 24.9, 9.3% respectively) and in the representative body of the municipality (6.9, 25.8, 26.3, 9.8% respectively).

During the analysis of the answers to the question “Which of the listed authorities and officials do you trust the most?”, a number of observations were made regarding the level of public trust in various LSG bodies, its correlation with the

trust level in the regional and federal authorities, and their dynamic characteristics (*Fig. 1*) (Maykova, Simonova, 2023). Despite the fact that the values of the trust indicators obtained in the analysis of responses to this question are comparable with the values of such an indicator as “absolutely trust” (according to the Likert scale), a direct comparison of them is inappropriate, but these data are comparable at the conceptual level.

The results of the study conducted by the authors demonstrate a sufficiently low level of citizens’ trust in LSG bodies, with its low indicators persisting for the entire period of monitoring. A similar trend can be traced throughout all of Russia. Thus, according to the 2014–2019 all-Russian surveys conducted by the Institute of Sociology of FCTAS RAS, the trust level in LSG bodies is characterized by lower indicators compared to the trust level in the RF President, the RF Government, and heads of RF entities, which range from 33% (autumn 2014) to 25% (summer 2019) (Petukhov, 2020). In general, it is noted in the scientific literature that the proportion of respondents who trust the municipal government is extremely rare to be 1/3 or more of the sample volume. Such value is considered low by researchers (Kozyreva, Smirnov, 2015; Malkina et

Figure 1. Dynamics of the level of trust of the population of the Tver Oblast in LSG bodies\*, % of respondents



\* Multiple choice of answers was allowed, the number of choices was not limited.

Source: own research findings.

al., 2020; Petukhov, 2017; Petukhov, 2020; Reutov, Reutova, 2016; Shabunova et al., 2015). From our point of view, such indicators of trust are clearly insufficient for the level of public administration, which, according to the Russian constitutional model, should be closest to the population, satisfy its daily needs, act in its interests, and in whose activities the population is empowered to be involved. This is confirmed, for example, by the results of sociological measurements of the trust level conducted in the Belgorod Oblast, which indicate that the mobilization for collective action at the municipal level is the more effective, the higher the trust in the subject of mobilization (Reutov, Reutova, 2016). The deficit of trust in LSG bodies may indicate a crisis of legitimacy of this level of government and become, if not a factor promoting destabilization of society, then undoubtedly a barrier to its effective development.

It should be noted that the trust of the population is most often higher in those structures that are identified with the power vertical. In particular, our study shows that trust in the institution of LSG is largely personified. Residents of municipalities demonstrate a higher trust level, as a rule, in relation to the head of ME. However, during the last two years the share of citizens trusting the administration of ME has been exceeding the share of residents of municipalities trusting the head of ME, in connection with which we can make an assumption about the formation of a tendency toward depersonalization of institutional trust on the local level. Citizens are least likely to trust the representative body of ME. Other researchers (Kozyreva, Smirnov, 2015; Latov, 2021; Petukhov, 2017; Shabunova et al., 2015) also point out the low trust level in political institutions related to competition.

In general, if we consider the dynamic characteristics of citizens' trust in LSG bodies, then we should point to a certain waviness in these dynamics. The decline in trust in local government occurred in 2012, 2017, 2019, and 2021, while increases were recorded in 2014, 2018, and 2022. Undoubtedly, the "ups" and "downs" in the trust level in municipal authorities are largely related to the processes taking place in the country, which have had a positive or negative impact, including on local territories and local communities. As a rule, "ups" and "downs" are synchronized with processes of growth or decline in the trust level in the RF President (Maykova, Simonova, 2023).

The results of our study show that despite the low trust level in LSG bodies in general and the presence of "ups" and "downs" in its dynamics, the dominant trend is its growth. At the same time, the category of citizens who note the answer "rather trust" in the course of the surveys is of interest. Their share has significantly increased by 2022 and was more than a third of the population.

Developing a system of determinants that condition the level, nature, and dynamics of the Russians' trust in LSG bodies, we propose to distinguish the following groups of factors: 1) national traditions and mentality; 2) social context and its perception by the population; 3) current state of LSG institution and its perception by citizens; 4) personal characteristics of the subject of trust; 5) system of interaction within the functioning of LSG institution and its perception by the population. We will analyze the influence of the factors in each of these groups on citizens' trust in LSG bodies.

#### *National traditions and mentality*

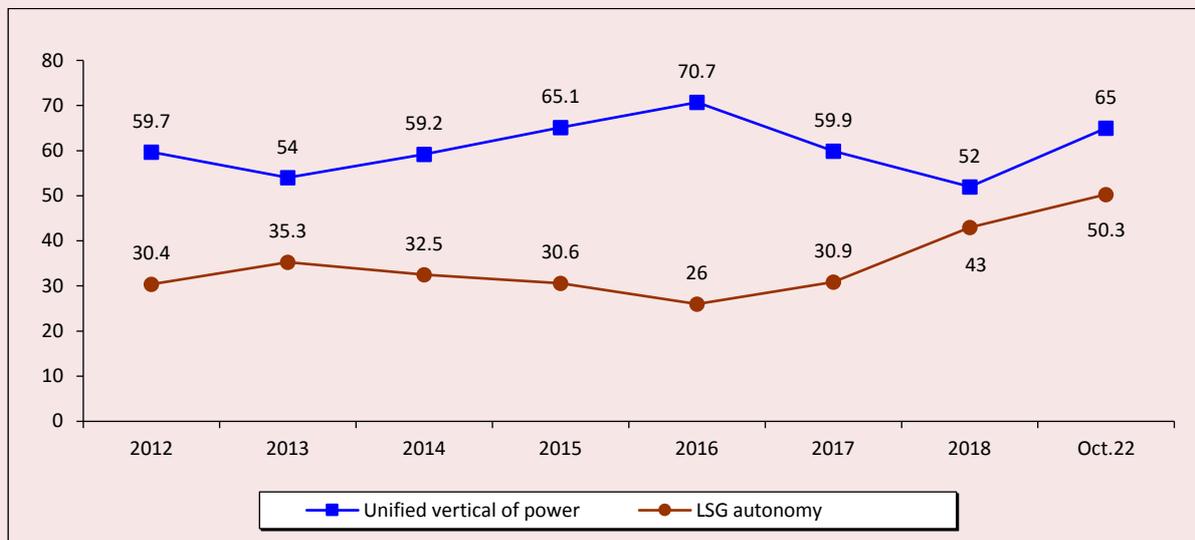
In the scientific literature devoted to the analysis of the phenomenon of trust, attention is often drawn to its dependence on traditions, norms, values,

perceptions and attitudes that have been formed from generation to generation in the course of the historical evolution of society. Thus, Russia, according to a number of researchers, traditionally belongs to societies with a low trust level (Reutov, 2018; Fukuyama, 2004; Sztompka, 2012; Mishler, Rose, 2001), which have a long statist tradition (Gorshkov et al., 2022).

The data obtained in surveys of Tver Oblast population from 2012 to 2022 indicate the unequivocal predominance of the statist trend, which, weakening and intensifying again, dominates throughout the entire period of observation. Thus, 82.1% of the region's residents agree with the statement that Russia needs a steady hand, order in society (2022, trust survey). The statist tendency is also recorded in the analysis of answers to the question about the model of government preferred by respondents in the RF: from half to 2/3 of citizens traditionally support the formation of a unified power vertical, in which LSG bodies are integrated as one of the levels of government (*Fig. 2*). In the course of the study, a number of observations were made regarding citizens' trust in local government: first, with a high value for the population of strong state power, a low trust level in LSG bodies is recorded; second, as a rule, during periods of growing perception of the need to integrate LSG bodies into a unified administrative vertical, the trust level decreases and the value of the distrust of local government increases (2012: 17.9% of respondents who support a unified vertical of power trust LSG, 66.6% do not trust; 2013: 39.9% vs 50.0%; 2014: 35.2% vs. 57.0%; 2015: 22.5% vs 63.6%; 2016: 34.4% vs 57.0%; 2017: 17.8% vs 71.2%)<sup>1</sup>.

<sup>1</sup> The total shares of the responses indicated are, on the one hand, "definitely trust" and "rather trust", and, on the other hand, "definitely do not trust" and "rather do not trust".

Figure 2. Dynamics of the population's perceptions of their preferred model of governance in the Tver Oblast\*, % of respondents



\* From 2012 to 2018 (monitoring) one question was asked “How do you think governance should be organized in the Russian Federation?”, with the answers “The authorities in the city and the region should obey the governor, and the governor should obey the President and the Government of Russia (a single vertical of power)” and “The state authorities (federal and oblast) should control only the most important problems, while other issues at the local level should be addressed by local self-government”. In the 2022 toolkit (trust survey), these answers appeared as two separate questions with options for agreeing or disagreeing with the statement. Accordingly, this should be taken into account when interpreting the results.

Source: own research findings.

The self-government tendency, while not predominant, is represented, nevertheless, by a rather significant social group in quantitative terms. Thus, from a third to more than a half of the Russians support political freedom and democracy (58.5% – 2022, trust survey), and also the autonomy and independence of LSG bodies in solving local problems (from 30.4% in 2012 to 50.3% in 2022, monitoring). At the same time, there is a further strengthening of this trend. In addition, the study recorded the interdependence of trust in LSG bodies and orientation toward political freedoms and democracy: citizens who believe that these values are a necessary condition for the existence of the state trust local government to a greater degree

(47.2% vs 40.0% of respondents not oriented toward these values, 2022, trust survey)<sup>2</sup>.

Thus, the study shows that the Russian mentality has a historically and culturally conditioned orientation in strong state authority and, accordingly, an attitude of trust in the vertical of power and distrust in officials of various levels, as which the population often perceives representatives of LSG bodies. The trust of Russians in the institutions of the “vertical of power” was emphasized by researchers who relied on data obtained in all-Russian surveys (Latov, 2021).

<sup>2</sup> The total shares of the responses indicated are, on the one hand, “definitely trust” and “rather trust”.

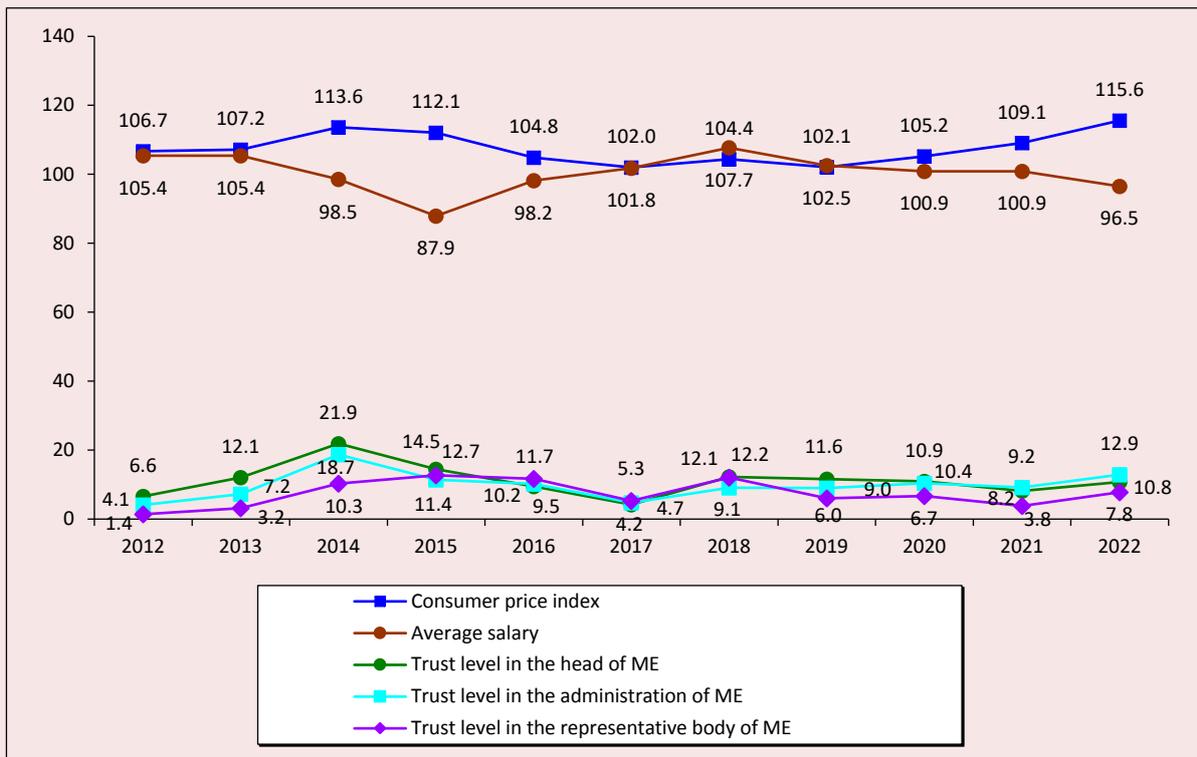
*Social context and its perception by the population*

The second group of determinants we have identified includes the totality of the current socio-economic, socio-political, and socio-cultural conditions under which the phenomenon of trust in LSG bodies is functioning, and the specifics of their perception by the population of Russian municipalities.

The impact of socio-economic factors on the trust level in society and its inverse effect on economic growth has been widely discussed in the scientific literature (Glushko, 2016; Guzhavina, Silina, 2018; Davydenko et al., 2018; Ilyicheva, Lapin, 2022; Malkina et al., 2020; Reutov,

Reutova, 2016; Reutov, 2018; Fukuyama, 2004; Algan, Cahuc, 2013). The results of our research show that the trust level of the residents of ME is influenced not so much by the socio-economic situation itself, as by the population’s perception of it. A comparison of the dynamics of a number of socio-economic indicators in the Tver Oblast (the consumer price index, the real average salary per employee) and the values of the indicators of trust in LSG bodies for the period from 2012 to 2022 indicates a very insignificant synchronism between these processes. Consequently, there is a weak direct correlation between the trust level and economic factors (Fig. 3).

Figure 3. Correlation of the consumer price index dynamics and the real average accrued salary per employee (the Tver Oblast), % of the previous period, and the trust of the population of the Tver Oblast in LSG bodies, % of respondents



Sources: Social and economic situation in the Tver Oblast. Database. Territorial body of the Federal State Statistics Service in the Tver Oblast. Available at: <https://tverstat.gks.ru/>; own research findings.

At the same time, the dependence of the trust level of Russians in local authorities on the nature of their perception of the socio-economic, political and cultural situation in the municipality turned out to be quite significant. According to the data of a study of the population's trust in LSG bodies in the Tver Oblast (October 2022), about half of the respondents assessed the situation in their municipality as favorable (4.3% of the total sample size) or normal (44.2%), while about a third of the citizens indicated the situation in their municipality as crisis (29.5%) or even disastrous (5.7%). At the same time, there is a clear relationship between the nature of respondents' perception of the situation in ME and their subjective assessment of their financial status and their ability to meet their needs: wealthier citizens more often assess the situation in the municipality as favorable or normal, and vice versa.

As for trust in local government, respondents who positively assess the socio-economic, political, and cultural situation in their ME have significantly more trust in LSG bodies than categories of citizens who have a negative perception of it (*Tab. 2*). This observation is confirmed by the results of correlation analysis using the Spearman correlation index, which showed a moderate correlation between trust in local government and a positive assessment of the current socio-economic, political and cultural situation in the municipality ( $r = 0.341$ ).

The study showed a correlation between the nature of the respondents' assessments of various living conditions in their community and their trust level in LSG bodies (monitoring, 2020–2021). There is a statistically stable connection between positive assessments of various living conditions (for example, provision of municipalities with domestic infrastructure, communication services, heating, hot and cold-water supply, etc.) and a higher trust level in the head, the administration and the representative body of ME, and vice versa. A similar situation is observed in respect of assessments of the direction of changes in the level and quality of life in the municipality by citizens (*Tab. 3*). The results of the correlation analysis using the Spearman correlation index also show a connection between trust in the head, the administration and the representative body of ME and the respondents' positive assessment of the direction of changes in the standard of living and quality of life in their locality over the past three years, but this correlation is weak ( $r < 0.3$ ). In turn, the nature of the respondents' perceptions concerning the dynamics of living conditions in ME is determined by the subjective assessment of material and property status: wealthy citizens more often speak about positive changes, while people with low incomes demonstrate pessimism, pointing out the worsening of living conditions in the municipality.

Table 2. Dependence of the trust level of the population of the Tver Oblast in LSG bodies on the nature of assessment of the socio-economic, political, and cultural situation in the municipality at present, 2022, trust survey, % of the number of respondents

The trust level in LSG bodies	Population assessment of the socio-economic, political and cultural situation in the municipality at the present time				
	Favorable	Normal	Crisis	Disastrous	Difficult to answer
Absolutely trust	42.2	10.7	3.3	1.7	3.0
Rather trust	37.8	54.4	24.3	3.4	23.7
Rather do not trust	8.9	20.3	44.3	40.7	32.0
Certainly do not trust	4.4	2.4	14.4	44.1	8.9
Difficult to answer	6.7	12.2	13.8	10.2	32.5

Source: own research findings.

Table 3. Dependence of the trust level of Tver Oblast residents in LSG bodies on the nature of the assessment of the direction of changes in the level and quality of life in the community in the last three years, 2020–2021, monitoring, % of respondents

Object of trust	Respondents' assessment of the direction of change in the level and quality of life in the community over the past three years									
	Definitely improved		Rather improved		Everything remains the same, no change		Rather, it worsened		It definitely worsened	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
Head of ME	25.0	15.4	13.9	11.5	8.9	7.9	8.3	2.8	4.2	3.1
Administration of ME	21.9	11.5	14.9	11.2	7.6	9.4	7.1	6.8	4.2	3.1
Representative body of ME	15.6	1.9	9.4	6.1	6.9	4.5	3.0	2.3	0	0
Source: own research findings.										

The results of our study allow us to draw a conclusion, which is confirmed in the works of other authors: the growth or decline of various socio-economic indicators does not have a significant impact on the dynamics of trust in the authorities and LSG (Ilyicheva, Lapin, 2022; Petukhov, 2017), since the level of trust is determined by a whole complex of factors, among which the most important are the value orientations of Russians, which have been formed by now (Glushko, 2016; Ilyicheva, Lapin, 2022; Kozyreva, Smirnov, 2015; Fukuyama, 2004). In particular, referring to the results of our study (October 2022, trust survey), we note that such value as “individual freedom, human rights” (liberal-democratic, individualistic) occupies one of the key positions in the system of value orientations of almost all categories of Russian citizens. Thus, the shares of carriers of this value vary from about 40 to 75% of the number of this or that category of respondents. In general, we can talk about a certain eclecticism of consciousness of Russian citizens, the value structure of which is a configuration of different elements of value systems. As for trust in LSG bodies, the respondents who trusted them to a greater or lesser degree were predominantly carriers of socialist values, while liberal-

democratic values were quite widespread among citizens who demonstrated some distrust level in local government (this is probably due to the mismatch between the real state of affairs in the modern Russian LSG system and the ideal-typical characteristics inherent in this socio-political institution).

#### *Current state of LSG institution and its perception by citizens*

The third group of determinants of the population's trust in LSG bodies includes a system of indicators characterizing the structure and functionality of this socio-political institution at the present stage of Russian society development, the specifics of its formation and the effectiveness of its activities, and the specifics of its perception by the ME residents.

It should be noted that in the 1990s, LSG was conceived as an institution of grassroots democracy, its independence (within the limits of its authority), its autonomy from the government, and the broad involvement of the population in the development processes of the Russian territories were assumed. However, throughout practically all of its existence, LSG has been undergoing reform, which has resulted in an increasing trend of “governmentization”, its incorporation into the chain of command.

The processes taking place in the Tver Oblast are similar to those in Russia as a whole. Thus, as of November 1, 2022 the region included 136 ME<sup>3</sup> (including 9 urban districts, including two closed administrative-territorial entities – CATE, 22 municipal districts, 9 municipal areas, 17 urban and 79 rural settlements. Between 2012 and 2022, the total number of municipalities in the region decreased, the number of districts (urban and municipal) increased, and the number of municipal districts (by 75% compared to 2012), urban (by 60.5%) and rural (by 75.2%) settlements decreased significantly. At the same time, during recent years the number of MEs using direct elections to fill the position of LSG head has been decreasing and, on the contrary, the number of municipalities using a competitive model for the election of heads of ME has been growing. Direct elections are preserved only during the formation of the deputy corps of LSG representative body.

However, our surveys of Tver Oblast population indicate a discrepancy between the real municipal practices spreading in the region and the perceptions and expectations of citizens in LSG. Thus, the majority of residents of municipalities in the Tver region support the use of direct elections in the process of replacing LSG head (from 30.5% in 2012 to 59.4% in 2022, monitoring) and the preservation of the settlement level in the system of territorial organization of LSG (option “at the settlement level – LSG, at the district level – public administration”: from 43.5% in 2017 to 46.7% in 2022, monitoring; option “LSG at two levels”: from 33.6% in 2017 to 36.9% in 2022, monitoring), which gives more opportunities for active citizen participation in LSG. The match/mismatch between actual municipal practices and the expectations of the population in LSG affects the level of citizens' trust in LSG structures, and

<sup>3</sup> Ministry of Regional Policy of the Tver Oblast. Available at: <https://минтер.твeрскаяобласть.рф/>

this influence is quite sustainable. In particular, in 2012, when the practice of electing ME heads in direct elections was widespread in the region, the trust level in the head of the municipality was higher among those categories of the population who considered his/her election by all residents of the municipality the most effective model, as compared to other citizen groups<sup>4</sup>. In 2022, the municipalities of the region will not use direct elections of ME heads; the competitive model dominates; accordingly, measurements of the level of public trust in the head of LSG show higher levels among those categories of citizens who support the competitive model of electing ME heads<sup>5</sup>.

The factors influencing the level, nature, and content of Russians' trust/distrust in the institution of LSG may include their perceptions of the qualification composition of municipal bodies, models of LSG officials' behavior, and the assessment by residents of municipalities of the local government performance. Thus, those categories of the population who negatively assess the level of municipal employees' qualifications are more characterized by distrust of local authorities than other groups of citizens (in 2017, 36.6% vs 26.6, monitoring)<sup>6</sup>. Residents of municipalities in the Tver region who indicated corruption and nepotism of municipal employees as one of the most significant problems hindering the work of LSG

<sup>4</sup> Trust in the head of ME: 10.5% of respondents supporting direct elections; 8.1% of citizens supporting the election of the head of ME by deputies from their own membership; 6.1% of respondents supporting the appointment of the head (by the governor, etc.); 5.1% of citizens supporting the election of the head by decision of the general meeting of residents, 2012, monitoring.

<sup>5</sup> Trust in the head of ME: 18.6% of respondents supporting the implementation of a competitive model for electing the head of MO; 16.3% of citizens supporting the appointment of the head (governor, etc.); 9.8% of respondents supporting direct elections; 8.4% of citizens supporting the election of MO head by deputies from their own membership, 2022, monitoring.

<sup>6</sup> The total shares of the responses indicated are, on the one hand, “definitely trust” and “rather trust”, and, on the other hand, “definitely do not trust” and “rather do not trust”.

bodies demonstrate a higher distrust level in local government as compared to respondents for whom this problem turned out to be less significant (in 2017 51.0% vs 22.1, monitoring)<sup>7</sup>. The importance of this factor is confirmed by all-Russian studies, according to which the majority of Russians assess local authorities as the most corrupt, which affects the level of institutional trust in them (Malkina et al., 2020; Petukhov, 2020). Thus, according to an all-Russian survey conducted by FCTAS RAS in October 2018, in the group of respondents who assessed local government as corrupt, 58% did not trust LSG bodies, only 21% of respondents trusted them (Petukhov, 2020). The trust level in LSG bodies is significantly higher among those categories of citizens who positively evaluate the work of the local government conducted by its representatives during the last year, which is recorded both by the results of multi-year monitoring (2012–2014, 2016–2017, 2019, 2022, monitoring), and by the data of the study conducted in the autumn of 2022, aimed at analyzing public trust in LSG bodies (*Tab. 4*). This observation is confirmed by the results of a correlation analysis using the Spearman correlation index, which showed the presence of a moderate correlation between trust in local government and a positive assessment of the work and performance of LSG bodies during the past year ( $r = 0.395$ ).

The scientific literature notes that a significant role in the formation of public trust/distrust in local government is played by the level of transparency of municipal bodies and the ability to influence their decisions (Ilyicheva, Lapin, 2022; Petukhov, 2017; Petukhov, 2020; Buell et al., 2020), which is confirmed by the results of our research. For example, respondents who are informed about the personality of ME head have two times higher rates of trust in him than uninformed citizens (15.4 and 5.7, respectively, 2019, monitoring). A higher trust level in local government is characteristic of those residents of municipalities in the region, who assess the degree of influence of the average citizen on the activities of LSG bodies as high or medium<sup>8</sup>.

*Personal characteristics of the subject of trust*

Another group of determinants of public trust in LSG bodies is associated with the peculiarities of the socio-status characteristics of the subject of trust and the specificity of their attitudes, views, perceptions, system of values, behavioral reactions, etc. Thus, our study revealed the dependence of trust in local government on a number of socio-demographic characteristics of respondents (data from 2019, monitoring). The trust level is higher among the elderly people in comparison with the young ones: 11.5% of the respondents

Table 4. Dependence of the trust level of the residents of the Tver Oblast in LSG bodies on the nature of the assessment of their work and performance during the last year, 2022, survey of trust, % of respondents

Trust level	Assessment of the work and performance of LSG bodies during the last year			
	Totally positive	Rather positively	Rather negatively	Totally negative
Absolutely trust	57.1	8.6	3.7	0
Rather trust	33.9	65.0	9.0	5.2
Rather do not trust	5.4	14.7	60.8	32.8
Absolutely do not trust	0	1.7	15.5	55.2

Source: own research findings.

<sup>7</sup> The total shares of the responses indicated are, on the one hand, “definitely trust” and “rather trust”, and, on the other hand, “definitely do not trust” and “rather do not trust”.

<sup>8</sup> In the head of ME: high degree – 18.8%, average degree – 14.8%, low degree – 7.3%; in ME administration: high degree – 24.0%, average degree – 13.7%, low degree – 11.1%; in the representative body of ME: high degree – 6.6%, average degree – 4.8%, low degree – 5.6%, 2021, monitoring.

aged 55 and older, 12.1% of those aged 30–54, and 10.9% of those aged 18–29 trust ME head; 6.6% of the elderly citizens, 6.8% of the middle-aged people and 3.8% of the young people trust the representative body of ME. Citizens with a high level of education are more likely to trust the administration and the representative body of ME, while respondents with incomplete secondary education demonstrate a higher trust level in ME head<sup>9</sup>. The respondents' type of occupation is also a factor that differentiates citizens' attitudes in the institution of LSG. The highest level of trust in municipal bodies is typical of military personnel, law enforcement officers (in the head of ME – 33.3%, the administration of ME – 22.2%, the representative body of ME – 22.2%), public sector employees (in the head of ME – 15.3%, the administration of ME – 12.3%, the representative body of ME – 9.8%), business representatives (in the administration of ME – 12.5%, the representative body of ME – 9.4%). However, entrepreneurs trust the head of ME to a lesser extent (6.2%) in contrast to its administration and representative body. As for the financial situation of the respondents (it was determined by their self-assessment), a higher trust level in the representative body and the head of ME is typical of wealthy citizens (in the head of ME – 23.1%, the representative body of ME – 7.7%), and people with medium and low income level in ME administration (10.1 and 7.3%, respectively). Other researchers also point to the importance of the factor such as citizens' material well-being (Reutov, Reutova, 2016).

<sup>9</sup> In the head of ME: incomplete secondary education – 21.1%, complete secondary education – 11.9%, specialized secondary education – 9.4%, higher education – 12.3%. In the administration of ME: incomplete secondary education – 7.9%, complete secondary education – 10.2%, specialized secondary education – 7.1%, higher education – 10.8%. In the representative body of ME: incomplete secondary education – 5.3%, complete secondary education – 4.2%, specialized secondary education – 4.8%, higher education – 8.9%.

#### *System of interaction within the functioning of LSG institution and its perception by the population*

The fifth group of determinants of public trust in LSG bodies is related to the level, nature, and content of interaction of citizens with various structures related to this sociopolitical institution, and the specifics of the population's perception of this interaction. Thus, the results of our study show that trust in municipal structures by citizens who have had real experience in interacting with them is expressed more than by respondents who have no such experience (2019, monitoring). However, this applies only to the experience of interaction that had some kind of positive result for the citizen. If the residents of municipalities, as noted in the scientific literature, had personal experiences of corruption during their interaction with representatives of local government, then their trust level in LSG structures decreases (Malkina et al., 2020; Petukhov, 2020).

The level of Russians' trust in the institution of LSG is significantly influenced by their activist attitudes and their involvement in various self-government practices, in which they have to interact in one way or another with representatives of municipal bodies (Maykova, Simonova, 2023). In particular, respondents who agree that residents' active life position contribute to improving the situation in the municipality (2019, monitoring; 2022, trust survey), and are focused on participation in local community activities and solving common problems (2022, monitoring; 2022, trust survey), demonstrate in most cases a higher trust level in LSG bodies compared to other categories of citizens.

Russians expressing their readiness to realize their passive suffrage are characterized by a higher trust level in the representative body of LSG, but they trust ME head to a lesser degree compared to respondents who do not aspire to self-realization as a municipal deputy (2022, monitoring). As for the real participation of the population in various municipal practices, the indicators of trust/distrust under the

influence of this factor turn out to be quite unstable. For example, according to the data of the 2019 study (monitoring), citizens involved in public activities and having membership in public organizations and NPOs trust the head and administration of ME more; their trust level in these institutions of municipal governance is almost two times higher than among other groups of respondents. However, in the study of 2022 (trust survey), we record a similar indicator (higher) only among the category of citizens who “absolutely trust” the institute of LSG (14.6% vs 7.8% of respondents who are not members of nongovernmental organizations). In particular, there are also insignificant differences in the trust level in LSG bodies among categories of citizens who participated and did not participate during the last year in the life of their settlement, in solving common problems to its residents (2022, trust survey).

A more significant impact on the trust level has the nature of evaluating one’s own experience of interaction with employees of LSG bodies (*Tab. 5*). This observation is confirmed by the results of a correlation analysis using the Spearman correlation index, which showed a moderate relationship between trust in local authorities and a positive assessment of their own experience of interaction with employees of LSG bodies ( $r = 0.305$ ).

The data of our research indicate that involvement in various practices of LSG becomes a significant factor influencing the level of confidence

in ME in the presence of the impact of related factors (the value of participants, the significance of interaction, its effectiveness, etc.).

### Conclusion

Thus, the results of our research demonstrate a rather low trust level of citizens in the bodies of LSG compared to the trust level in a number of other government institutions (in particular, the President of the RF). The share of respondents expressing trust in municipal authorities, as a rule, is about a third (or less) of the population of the Tver region, which confirms the conclusions made by other researchers in the course of all-Russian surveys, and the studies conducted in individual entities of the RF. Unlike most of our predecessors, we are focused on analyzing the trust in LSG bodies as a whole and in the individual components of this socio-political institution (the head, administration and representative body of ME). Such an approach allowed us to identify the dominance throughout almost the entire observation period (2012–2020) of the personalized nature of trust in LSG bodies and the formation of a tendency toward depersonalization starting in 2021 (the trust level in the administration of ME becomes higher than the trust level in ME head), indicating, according to the authors, the formation of institutional-type trust. In the course of the study of the Tver Oblast, the waviness of the dynamics of trust in LSG in 2012–2022 and the predominance of an increasing trend in general were recorded.

Table 5. Dependence of the trust level of residents of the Tver Oblast in LSG bodies on the nature of the assessment of their own experience of interaction with their employees, 2022, trust survey, % of respondents

Trust level	Assessment of their own experience of interaction between citizens and LSG bodies’ employees			
	Totally positive	Rather positively	Rather negatively	Totally negative
Absolutely trust	37.7	8.5	3.9	0
Rather trust	49.2	54.0	9.1	3.2
Rather do not trust	3.3	19.3	61.0	38.7
Absolutely do not trust	1.6	3.4	16.9	51.6

Source: own research findings.

Special attention is paid to the factors influencing the level, nature, content and dynamics of Russians' trust in LSG bodies. Based on theoretical analysis and empirical research, we have proposed a theoretical and methodological framework that allows us to build a system of determinants of public trust in LSG bodies: 1) national traditions and mentality; 2) social context and its perception by the population; 3) current state of LSG institution and its perception by citizens; 4) personal characteristics of the subject of trust; 5) system of interaction within the functioning of LSG institution and its perception by the population. This approach complements and develops the scientific conclusions of the predecessors, since such a grouping of factors determining trust in LSG was not undertaken by researchers working on this issue. The analysis of the influence of these groups of factors on the level of citizens' trust in LSG bodies showed that the previously identified by other researchers' relationship of the dynamics of trust in LSG with the stages of the economic cycle is not confirmed by the materials of our study. Our research demonstrates the presence of a weak direct dependence of the trust level on most economic factors. It is not the economic situation itself that determines the trust of citizens in LSG bodies, but its perception by the population. However, the importance of the material well-being of citizens as a factor affecting the trust level in local authorities is confirmed.

The study revealed that the factors most influencing the growth of the trust level in local authorities include a positive assessment of the work and performance of LSG bodies, a positive assessment by citizens of their own experience of interaction with employees of LSG bodies, a high

or average assessment of the degree of influence of an ordinary citizen on the activities of LSG bodies. This allows us to explain the current state of trust in municipal authorities using the provisions of institutional theories.

A number of problems related to the credibility of the LSG bodies were mentioned. Thus, the negative impact on trust in this institution of the perception that municipal bodies are corrupt is quite stable, and the discrepancy between the real municipal practices aimed at minimizing citizen participation in decision-making (use of the competitive model when replacing ME head) and the expectations of the population concerning LSG (focus on the use of direct elections). In this regard, the results of our research confirm and complement the data of all-Russian surveys. Ways to solve these problems could include improving the system of anti-corruption measures in relation to LSG bodies; conducting explanatory work among the population regarding the rationale for reforming LSG system (introducing a competitive model for electing LSG heads, etc.); improving the system of communication between the municipal government and the population, including the use of new information and communication technologies.

The theoretical and methodological construct proposed in the article may serve as the basis for further theoretical and empirical research, filled with new data on the determinants of trust in LSG bodies. The study also has practical value, connected to the development of methodological recommendations and the development of measures of state and municipal policy aimed at improving the ways to increase the population's trust in LSG and government bodies.

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## Students' Digital Literacy: Competence-Based Approach



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**Abstract.** Currently, digital technology has a significant impact on socio-economic development in various societal spheres. In this regard, the importance of the formation of digital competencies in student youth is increasing. Modern generation should have these competences in order to work effectively and use the digital environment safely. The article presents an overview and systematization of scientific concepts that reveal the content of digital literacy. We show how the scientific category “digital literacy” correlates with “digital competence”. Concrete facts have confirmed that the use of digital technology in education involves the formation of digital competencies, the importance of which is beyond doubt, as well as the fact that digital literacy promotes the development of skills in search, analysis, critical understanding of the information received; it also helps to use digital platforms and network technology competently and in compliance with the basics of security in the digital environment. In this regard, the purpose of our research is to identify the level of formation of digital competencies in students in the higher education

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system (on the example of the Chelyabinsk Oblast). Scientific novelty of the work lies in theoretical substantiation of the content of digital literacy and systematization of approaches using a competence-based approach. In this context, the results of a survey of students of four universities in Chelyabinsk, aimed at identifying regional features and problems of the formation of digital competencies in the higher education system, are of interest. The findings of our research can become an important methodological tool in determining risk groups by the level of formation of digital competencies in students, developing methods for the safe use of digital content, preventing the spread of destructive online practices among young people and promoting their safe use of digital content.

**Key words:** higher education system, student youth, informatization, digital literacy, digital technology, digital competencies, digital security.

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### Introduction

Analyzing innovation processes in Russia, we should note that all of them are aimed at developing the potential of the digital economy and, to some extent, contribute to increasing competitiveness, ensuring economic growth, strengthening the national sovereignty of the state and improving citizens' quality of life. Under the current circumstances, digitalization affects aspects of company management and the modernization of technological processes that determine the development of production. Moreover, the digital transformation of the industrial sector requires improving the quality of professional training. It is important for university graduates to master information and communication technologies to maintain the intellectual and creative potential, making professional decisions, while taking into account the economic, moral aspects of the innovative development of society. This issue is actively discussed at the international expert level: in the leading analytical centers of the UN<sup>1</sup>, in the World

Economic Forums<sup>2</sup>, Worldskills<sup>3</sup>, in reputable international scientific publications (Belshaw, 2016; Gil-Garcia et al., 2017; Kullaslahti et al., 2019; Mersyanova et al., 2022).

The President of the Russian Federation V.V. Putin noted at the Saint Petersburg International Economic Forum (SPIEF 2017): “We intend to multiply the number of specialists in the digital economy and, in fact, we will have to address quite a broad challenge, a national-level challenge – to achieve general digital literacy” (Dolidze, Cherdakov, 2018). Thus, the head of state indicated the importance of implementing the program “Digital Economy of the Russian Federation” of July 28, 2017 1632-r, which by RF Government Resolution became the main focus of the country's strategic development for 2017–2030<sup>4</sup>.

<sup>2</sup> Willige A. How Do We Make Sure Our Children Are Fluent in Digital? World Economic Forum. Available at: <https://www.weforum.org/agenda/2017/01/ways-to-preparekids-for-jobs-of-future/> (accessed: November 17, 2022).

<sup>3</sup> Loshkareva E., Luksha P. et al. (2017). Future Skills. What we need to know and be able to do in a new complex world. Moscow: WorldSkills Russia.

<sup>4</sup> The Digital Economy Program: RF Government Resolution 1632-r, dated July 28, 2017. Available at: <http://publication.pravo.gov.ru/Document/View/0001201708030016> (accessed: January 12, 2023).

<sup>1</sup> United Nations E-Government Survey 2018. United Nations Department of Economic and Social Affairs. Available at: <https://publicadministration.un.org/publications/content/pdf>

Before the adoption of the program, the development of digital literacy received somewhat superficial attention, which caused risks in the use of digital technology by the population in practice. It is the implementation of the program “Digital Economy of the Russian Federation” provided an opportunity for the wide application of the “digital literacy” concept. The use of information technology as a technological means of communication, a kind of tool for creating a digital educational space contributes to the formation of skills required for human existence in a digitized world. The program defines that the share of the population with digital competencies should be 40%. However, in reality, the pace of digitalization is a little bit ahead of the Russians’ digital skills.

Moreover, the process of digitalization of society is addressed in federal strategic documents: Presidential Decree 203 of May 9, 2017 “On the Strategy for the Development of Information Society in the Russian Federation for 2017–2030”; the project “Modern Digital Educational Environment in the Russian Federation” in the context of the state program “Development of Education”<sup>5</sup>. The Strategy for Information Society Development states the importance of “developing innovative educational technologies, including distance and e-learning”<sup>6</sup>. In modern conditions, the problem of expanding digital consumption and the formation of a digital culture is becoming more and more relevant. The education system has a significant role in the process of digital competence

formation<sup>7</sup>. Thus, the federal project “Digital Learning Environment” states the need to update the content of education and create opportunities for students to freely navigate in the digital space. It is important to understand that digital literacy as a set of specific knowledge and skills becomes an integral element of professional and general cultural competence of the person. Moreover, in order to adapt to the new trends in social relations, the education system must restructure its content using new teaching methods and techniques. It is for a reason that, the state program “Development of Education for 2018-2025” focuses on the need to equip educational institutions with online services for the implementation of vocational education programs in the context of digital transformation<sup>8</sup>. In this case, the strategic task is to train competent personnel to operate in the digital economy. At the same time, we should emphasize the important role of pedagogical support for the media platforms, digital technologies in the educational process, giving flexibility to the learning opportunities of students, raising them to the center of the networked world and contributing to their readiness for professional and personal self-development.

As we see, in the context of the era of digital education, the process of digital literacy development among students becomes relevant. On the one hand, it is caused by the widespread use of digital technology in society, and on the other hand, by a lack of readiness to safely perceive and use digital content. In our opinion, this is what determines the need for scientific understanding of the new possibilities of information and educational

<sup>5</sup> On Approval of the State Program of the Russian Federation “Development of Education”: RF Government Resolution 1642, dated December 26, 2017 (amended from December 24, 2021) (with additions entered into force from January 6, 2022). Available at: [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_286474/792cf113479908cd6826e29248342aae7d22626b/](http://www.consultant.ru/document/cons_doc_LAW_286474/792cf113479908cd6826e29248342aae7d22626b/)

<sup>6</sup> On Protecting Children from Information Harmful to Their Health and Development: Federal Law 436-FZ, dated December 29, 2010 (latest revision). Available at: [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_108808/](http://www.consultant.ru/document/cons_doc_LAW_108808/)

<sup>7</sup> On Approval of the Information Security Concept for Children: RF Government Resolution 2471-r, dated December 2, 2015. Available at: [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_190009/65c73cdecf9794a8f8f67bdb438d964c9336f436](http://www.consultant.ru/document/cons_doc_LAW_190009/65c73cdecf9794a8f8f67bdb438d964c9336f436)

<sup>8</sup> On the Strategy for the Development of Information Society in the Russian Federation for 2017–2030: Presidential Decree 203, dated May 9, 2017. Available at: [http://www.consultant.ru/law/podborki/informacionnoe\\_obschestvo](http://www.consultant.ru/law/podborki/informacionnoe_obschestvo)

environment of universities for the digital literacy formation, and the study, the purpose of which is to identify the level of students' digital competence formation in the higher education system (on the example of the Chelyabinsk Oblast). Nowadays, it is important for universities to form digital competencies and to train future specialists for working in the digital world. In the study, we set tasks for theoretical generalization and systematization of scientific approaches to the study of digital literacy; substantiation of its most important components; identification of criteria and the level of formation of digital competence among students of universities of the Chelyabinsk.

#### Literature review

Within the framework of digital policy and economy, the modern educational environment is characterized by a high rate of informatization and places new demands on all spheres of human activity. The modern professional needs to have comprehensive abilities to meet the challenges of the time. In addition, in a digital economy conditions there is an increasing need for professionals who are able to continuously improve their knowledge and skills, easily adapt to new production technologies, effectively use modern information technology tools.

Typically, digital society is a complex technosocial system in which rapidly spreading technology determines modes of human activity, behavior, and ways of thinking. As researchers note, digitalization is a transformation, and technologies are the tools with which it occurs, covering all spheres of society (Dashchenko, 2018; Sukhareva, 2018). This generates a modernization of the higher education system aimed at "equipping" students with key competencies: political, social, communicative, informational, and professional<sup>9</sup>.

<sup>9</sup> Bologna Process: Learning Outcomes and Competency-Based Approach (2009). Moscow: Research Center for Educational Quality Problems.

Knowledge becomes an important source of professional and personal improvement of students, which is possible only with the application of innovative methods in the educational process, comprehension of the digitalization processes and generalization of users' experience in the network environment.

The development of the information society has led to the spread of the concept of "digital literacy", which refers to the set of knowledge necessary for the safe and effective use of digital resources, the ability to understand and apply the information provided in a variety of formats and a wide range of sources. In the global scientific community, the term first appeared at the turn of the century (Gilster, 1997, Berman, 2017; Soldatova et al., 2017; Sharikov, 2018; Kullaslahti, Ruhalahti, 2019). Paul Gilster was the first who used the term "digital literacy" in a book published in 1997 with the identical title "Digital Literacy". He interprets this concept as the ability of the actor to find the necessary information on the Internet; conscious synthesis and correct work with digital material; the ability to create an innovative product, to solve problems in the digital environment, to form the skill of safe use, new opportunities of digital technology. At the same time, the researcher is convinced that being in the field of hypertext makes it possible to quickly navigate from one resource to another, it forms new patterns of human behavior, features of communication, which contributes to the development of network thinking (Gilster, 1997). Since then, the concept has become more and more varied as digital technology has spread. An analysis of the interpretation of the concept "digital literacy" revealed a wide range of interpretations, which confirms the value of this concept in today's digital society (*Tab. 1*).

Table 1. Variety of concepts of “digital literacy”

Representatives (authors)	Content of the concept
P. Gilster (Gilster, 1997)	Ability to understand and use information with the help of computers
A. Martin, J. Grudziecki (Martin, Grudziecki, 2006); C. lordache, I. Mariën, D. Baelden (lordache et al., 2017)	Ability to apply digital tools and instruments for identification, management; evaluate, analyze, and synthesize digital resources, create media expressions, and communicate with others in the context of specific life situations to enable meaningful social action and to reflect on this process
J. Kullaslahti, S. Ruhalahti, S. Brauer (Kullaslahti et al., 2019)	Ability to access, understand, integrate, evaluate, and create secure content through digital technologies for creation of workplaces and entrepreneurship
L. Limberg, O. Sundin, S. Talja (Limberg et al., 2012)	Ability to search, analyze, and critically evaluate the information contributes to solving a variety of problems
D. Berman (Berman, 2017)	A person’s ability to use digital tools to his or her advantage
A.F. Yakunin (Yakunin, 2016); S.G. Davydov, O.S. Logunova (Davydov, Logunova, 2015)	Ability for safe participation, critical reflection on production and content consumption
O.V. Eltsova, M.V. Emelyanova (Eltsova, Emelyanova, 2020)	Personal formation of the subject, including a system of knowledge, skills and abilities in the use of digital resources, positive motivation and digital activity
M.V. Slesar (Slesar, 2018)	Ability of create content with the help of digital technology using computer programming skills, information search and share, communication
Source: Own compilation based on a literature review.	

Thus, despite our common position in assessing digital literacy as a general awareness of an individual’s possible goals, tasks, and ways of using digital tools, some researchers subsume the understanding of “digital literacy” under digital resource skills; another group of scholars emphasizes the effective use of digital resources for problem solving.

Digital literacy is the set of knowledge and skills necessary to use digital technology and Internet resources safely and effectively. It includes digital competencies, digital consumption and digital security. Digital competence is a multifaceted moving goal that is constantly evolving as new technologies appear (Falloon, 2020; Zhao et al., 2021). Researchers suggest that digital competence can be replaced by digital literacy in an educational context, as it pays significant attention to ethical and social aspects, security. In the context of education, digital competence is considered as the ability to apply the knowledge and skills necessary

for implementation, evaluation, and continuous revision of the educational process content. While studying specialized disciplines, students should not only acquire knowledge, but also improve digital competencies necessary for competing in the labor market (Koloskova, 2021). The formation of digital competencies must correlate with meaningful content of the digital economy key competencies, which include communication, critical and creative thinking in a digital environment, self-development under uncertainty, and information management. At the same time, digital competencies should be perceived not only as technical skills, but also as skills focused on the cognitive, social and emotional aspects of working and living in a digital environment.

Digital consumption reflects the level of availability of digital technology: hardware and software. Forming digital competencies, the higher education system is designed to prepare students not only for the employment, but also for life in the

digital reality, which means that it is not enough only to master digital technology. Consequently, higher education must lay a solid foundation and form a flexible system for the development of digital competencies of students. Digital security should include mastery of safe networking skills, protection of personal data, ensuring the confidentiality of information. Thus, building digital competencies means developing students' abilities to use a variety of digital tools for work productivity.

According to C. Davis and co-authors, the digital technologies create opportunities for enriching the learning experience, expanding the horizons of learning (Davis et al., 2017). Moreover, the use of digital technology makes students active participants instead of passive consumers of information, which forms their syncretic thinking and information security through the creation of a digital space (Friedrich, 2013; Belshaw, 2016; Hoff, 2016; Woodworth et al., 2017). For example, D. Belshaw suggested eight key components of digital literacy (cognitive, constructive, communicative, critical, civic, cultural, creative, confident use) that promote quality human interaction with the digital environment (Belshaw, 2016). It should be kept in mind that fake news has become dominant in the world, exacerbating the problem of not only finding information, but also of evaluating digital content (Saunders, 2018). Furthermore, digitalization and convergence have led to global changes in communication. Today, new patterns of digitalization use are vague, hybrid, and more complex than before (Bjur et al., 2013; Schørder, 2014). Most scholars agree that digital literacy is seen as an individual's ability to create and use content with the help of digital technology, including information search and selection skills, network communication, and computer programming.

Unfortunately, Russian researchers began to study these problems relatively recently (Lisenkova,

2017; Rozina, 2017; Sharikov, 2018; Astakhova, 2019; Antipina et al., 2020). For example, A.V. Sharikov reveals the content of four approaches to the study of digital literacy (communication and technology, media and information, psychological and pedagogical, industrial). Subsequently, based on the conditional division of the outlined approaches, the scientist proposed a component model of digital literacy, including technical and technological and content and communication capabilities, technical and technological and socio-psychological threats (Sharikov, 2018). In turn, pointing out the importance of digital competencies of students, L.V. Astakhova identifies key types of information activities: consumer (search, selection, evaluation, interpretation, protection of digital content), reproductive (interaction and interchange of digital content), productive (creation, integration and processing of content), reflective (identification of digital needs) (Astakhova, 2019). Practice confirms that digital literacy skills are necessary for any person not only to exist in the digital environment, but also to function successfully in it to find effective solutions to many problems in any sphere of life (Antipina et al., 2020). In our opinion, digital literacy should be multi-component.

G.U. Soldatova and E.I. Rasskazova hold a similar position, pointing to the need to transition from digital literacy to digital competence, aimed at the formation of knowledge, skills, motivation, responsibility, which will allow using information and communication technologies effectively, critically, and at the same time use information and communication technologies safely (Soldatova, Rasskazova, 2014). This point of view is shared by V.S. Petrova and E.E. Shcherbik, who emphasize the formation of the so-called "skills of effective use of new technologies" (Petrova, Shcherbik, 2018) in the framework of the competence approach. At the same time, they proposed a system called "areas of digital competence", including information literacy,

communication, content creation, security, and the ability to solve technical problems. It is these structural components of digital competence that are recognized as fundamental components of student's digital literacy.

As we can see, most researchers come to the consensus that the understanding of digital reality can teach a person to objectively assess the information obtained, and the use of digital technology becomes a source of development, which should be formed in the educational environment of the educational institution. And digital tools are becoming a common attribute of the educational process. However, students need constant support in including digital practices, especially in an academic context. Thus, a theoretical analysis of scientific concepts reveals the content of digital literacy, which represents the ability to effectively and safely use of digital technology, the use of digital knowledge, skills and abilities to solve problems in a particular context. In addition, the process of its formation involves mastering the algorithms of search for information, knowledge of information resources, risks and opportunities in the digital environment, the ability to assess the quality and reliability of content in the information space.

### **Research methodology**

The basis of our research is a competence approach, which allows us to assess the level of digital competence and safe behavior on the Internet. Digital competencies are important components, so-called indicators of digital readiness of students, because as digital technology develops and spreads rapidly, the need for digital competencies of every citizen to build an effective digital society increases.

We assessed digital literacy level by nine competencies: digital technical literacy (searching, filtering information and digital content); evaluation and analysis of data, information and digital content; computer literacy, including mastery of

desktop software skills; operation of peripheral computer devices; creation and development of digital content; modification and integration of digital content; communication and cooperation (sharing information through digital technologies, digital etiquette, responsibility); digital security competencies (protecting personal data and ensuring privacy, protecting health); digital technology problem solving (solving technical problems, identifying needs and technology solutions). Conditionally, the formation of digital competence was divided into three levels: high, medium and low. In our opinion, the advantage of the methodological approach is that it allows us to consider students not only as an object of the digital environment that has professional knowledge and is able to use various information and communication technologies, but also as a subject, ready for effective work activities (information environment, communication, consumption, technosphere), whose behavior is based on a sense of responsibility.

To implement the purpose and objectives of the work we used a set of scientific methods: comparative, statistical, correlation analysis, sociological methods. The study was conducted in March – May 2022 by the Department of Sociology of the Institute of Media, Social Sciences and Humanities of South Ural State University (National Research University) and the Research Center for Monitoring and Prevention of Destructive Manifestations in the Educational Environment of the Chelyabinsk Institute for Development of Professional Education. On the basis of the quantitative method on a standardized questionnaire surveyed, 1st–5th-year students of higher educational institutions in Chelyabinsk at the age of 17 years and older. The sample size was 1972 people, the sample was representative, the error did not exceed 5%, the method of conducting – questionnaire at the place of full-time education of the respondent, method of data collection – direct

survey. Students from four universities participated in the survey: South Ural State University for the Humanities and Pedagogy, South Ural State University, Chelyabinsk State University and Chelyabinsk State Institute of Culture and Arts. These are technical and socio-humanitarian universities, which allowed us to identify the features of knowledge and problems of formation of digital competencies in the context of digital technology, media and information literacy, security, problem solving among students of different professional orientation of training. Sociological information was processed using IBM SPSS Statistics (version 22.0) with the use of correlation coefficients.

### **Results of the research**

Using a competency-based approach, we consider digital competencies as tools and indicators of digital literacy that include a basic set of knowledge, skills, and attitudes for using the Internet. The use of digital technology tools helps the student effectively and safely operate in a digital environment to achieve educational, professional, and personal goals. Digital literacy creates a digital eco-environment, renews the content of sociocultural processes, including communication, and enables students to be free and safe in a digital space where security is a key component.

This is confirmed in the results of our study. It was important to find out how students define digital literacy. The results of the study showed that the majority of respondents understand digital literacy as the ability to use digital technology in learning/work, the ability to freely and safely navigate in the digital space and the availability of knowledge in the field of information, electronic security. Moreover, the ability to use digital technology in learning/work is more significant for students of the Institute of Culture (79.3%) than for other universities. At the Pedagogical University, respondents preferred skills in the digital learning environment (44.6%) and possession of

relevant information about the new opportunities of the network space (53.2%). It is noteworthy that competences such as information search on the Internet and its analysis and possession of relevant information about the new possibilities of the network space and readiness to work in a digital educational environment are also relevant for the respondents. At the same time, the vast majority of respondents do not consider communication in social networks as a key criterion, an indicator of digital literacy, most likely due to the fact that for today's youth online communication is already normal. In everyday life, students use social networks for communication actively, and sometimes completely switch to online communication only, easily create groups of interest, meet, communicate, exchange opinions on various issues, discuss current topics, movies, music, etc. The study found no statistically significant differences in the understanding of digital literacy among students of different gender, age, place of residence, and standard of living. At the same time, most students are of the opinion that digital literacy is necessary for working remotely, finding new opportunities to earn money online, critically comprehending the information received, being able to navigate the interface, and forming a basic set of skills for problem solving.

During the study, we have identified a number of problematic issues that relate to the aspects of students' safe use of the Internet. The results of the student survey showed that the level of digital literacy depends largely on the level of IT skills, knowledge and skills in the field of media security on the Internet. Moreover, digital literacy is noticeably higher among respondents with a high level of IT skills. However, respondents aged 22 and older (23.0%) are more likely to have a high level of IT skills than other age groups of students. In addition, it was found that there were more such respondents among boys (21.3%) compared to

girls (10.4%). For every second student with a high level of knowledge and skills in the field of media security, the skills of possessing relevant information about the new possibilities of the network space are important, which certainly indicates the actualization of the content of educational programs. It was noted that respondents aged 23–24 years (56.1%) show a heightened interest in mastering information. The results of the survey showed that almost 2/3 of students have an average knowledge of IT-technology (65.6%), with a significantly higher share among respondents aged 17–18 years (72.5%). However, among the latter, there are those who believe that there are no threats in the Internet space (20.0%). This proves the need to constantly inform students about the existing Internet threats, the formation of skills and abilities to resist destructive content with the help of digital technology. Thus, according to VCIOM, in 2021 for the vast majority of young people (96%) aged 18–24 the Internet and social networks are the main sources of information that they use daily (74%)<sup>10</sup>. It is well known that social networks are the most active tool for spreading destructive and extremist ideas. The results of our study show that respondents have more developed digital technical literacy skills, including searching and filtering information and digital content, than media security competencies. This is confirmed in other studies conducted in Russia in recent years (Brodovskaya et al., 2019; Strekalova, 2019; Vedyashkina, Vedyashkina, 2021).

At the same time, it was found that the share of respondents of the Institute of Culture, who have formed the competence of technical literacy, compared with the students of other universities, is small. Only one in five students has the ability to operate peripheral devices on a personal computer,

and to solve problems related to digital technology. Moreover, boys (32.6%) have developed these competencies more often than girls (16.9%). Every second boy owns personal computer software (55.5%). Among girls, only one-third have these skills. In turn, girls have developed communication and cooperation skills, including information exchange through digital technology, digital etiquette (44.4% vs 39.9%).

The issue of media security competence among university students remains problematic. The study found that despite mastery of digital competencies in general, only one-third of university respondents are proficient in security skills, including personal data protection, privacy, health. There is a small number of respondents (10.7%) who are able to fully modify and integrate digital content. The results of the correlation analysis for these variables are presented in *Table 2*.

Nowadays, the digital environment for many young people is a source of information, a technology and a space for communication. Young people trust the data posted on the Internet, they learn about the latest news in the country and the world on digital platforms, and find the necessary information.

The results of the survey showed that the most popular among students are social networking platforms such as “VKontakte” (90.6%), “Telegram” (72.5%), “YouTube” (63.4%), “TikTok” (47.8%). These platforms are used equally often by students at all of these universities. Among the respondents there were many who are regularly active on Instagram, in spite of the bans<sup>11</sup> (32.5%). On the Internet every fourth respondent, regardless of the university, orientation of professional training, age and gender, faces content that contains signs of aggression (60.1%), demonstrates

<sup>10</sup> Media consumption in Russia today. VCIOM Sputnik survey. Available at: <https://ok.wciom.ru/fileadmin/userupload/2021media.pdf> (accessed: October 17, 2022).

<sup>11</sup> The platform is prohibited by Russian law and is classified as extremist in Russia.

Table 2. Formation of digital competencies of university students depending on the level of IT-technology proficiency and knowledge, skills in the field of media security on the Internet, %

Digital competencies	All interviewed	Level of IT skills				Level of knowledge and skills in the field of media security on the Internet					
		High	Average	Low	Difficult to answer	High	Above average	Average	Below average	Low	Difficult to answer
Digital technical literacy, including searching and filtering data, information, and digital content	56.6	73.7	60.2	37.1	28.3	71.1	64.9	52.2	34.8	21.6	29.6
Evaluation and data analysis, information and digital content analysis	44.9	56.4	46.6	32.9	32.1	59.9	48.6	41.0	33.3	29.7	22.5
Computer literacy, including mastery of desktop computer software skills	43.8	68.0	44.8	25.2	27.4	54.9	51.3	38.8	31.9	13.5	23.9
Communication and cooperation; includes information exchange via digital technology, digital etiquette	43.1	49.4	46.5	31.9	17.9	50.7	50.2	40.6	27.7	24.3	14.1
Security, including protection of personal data and ensuring confidentiality, health protection	31.7	40.9	33.4	19.5	24.5	46.7	38.1	25.8	14.2	18.9	16.9
Operation of peripheral devices on a personal computer	20.9	35.1	20.9	12.1	11.3	27.6	24.4	17.9	13.5	10.8	14.1
Digital problem solving; includes solving technical problems, identifying needs and technology solutions	20.0	42.1	18.8	9.3	13.2	33.9	25.5	12.8	12.1	13.5	11.3
Creating and developing digital content	19.6	30.5	20.3	11.8	7.5	31.6	20.4	16.0	10.6	10.8	23.9
Digital content modification and integration	10.7	18.1	10.0	8.0	8.5	19.1	11.8	6.6	7.1	16.2	14.1
Difficult to answer	9.8	3.5	7.3	17.9	31.1	2.6	5.0	11.6	15.6	16.2	47.9
None	3.7	0.0	2.3	11.5	5.7	0.7	3.3	3.4	9.2	21.6	1.4
Others	0.1	0.0	0.2	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0
The amount exceeds 100%, since the respondent could give several answers. Source: own compilation based on the results of a sociological survey.											

destructive, suicidal behavior (52.3%), contributes to the spread of drugs (11.0%), and is a platform for the development of the forbidden “Columbine” movement (8.4%). At the same time we identified other threats to the digital environment, which are of concern to respondents: leakage of personal data caused by the network (74.1%), viruses and phishing (63.3%), hacking personal pages (60.1%). Almost every second student is concerned about the threat of online bullying, and girls (50.8%) are more likely to be bullied than boys (37.6%). All this confirms the relevance and importance of improving digital literacy and safety of today’s youth in the Internet space. The need to develop appropriate methods and technologies for the safe use of digital content in universities and to prevent the spread of destructive Internet practices among young people has been substantiated.

### **Conclusion**

The digital transformation of the economy requires students to develop digital literacy in the learning process. In the present conditions, not only the competitiveness of future professionals, but also their quality of life in the future depends on the formation of digital competencies. In the learning process, young students actively use a variety of digital technologies. Unfortunately, the pace of digitalization is outpacing users’ skills in mastering it. The results of our research confirmed a significant “sagging” of critical digital competencies and professional skills. Besides, it was revealed that the majority of students master IT-technologies mainly at the average level. It is important to understand that possession of an insufficient level of digital competence significantly reduces the competitiveness of the future specialist in the labor market, which creates a need to focus on

fundamental changes in the content of educational programs, the active use of digital technology and control over the process of forming digital competences in the process of training students. It should be remembered that in the context of the spread of destructive and extremist content on the Internet, it is the development of digital literacy that largely determines the lives and health of students. In this regard, teachers should inform students about the threats and risks of the digital environment, carry out preventive activities, teach how to use various digital resources safely, and monitor compliance with ethics and communicative literacy in the digital environment whenever possible. It is important to teach students how to critically evaluate information on the Internet and how to use reliable and verified digital resources and services. To improve the digital literacy of students at the university level, it is necessary to work on the implementation of systemic, interdisciplinary training practices with the mandatory mastering and application of digital skills as a learning tool. Moreover, it is necessary to develop a unified methodological approach to monitoring the formation of digital competencies. We believe that these activities will increase the level of digital competence of students. The results of our research are of practical significance for assessing the digital competencies of students, including digital security competencies, the level of digital literacy, identifying risk groups for exclusion from digital development processes; developing measures aimed at preventing threats and risks of the digital environment for young people; making managerial decisions, developing strategic programs at the regional and municipal levels, including within the framework of the national program “Digital Economy of the Russian Federation”.

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## Impact of Remittances on the Trade Balance in the Countries of the South Asian Region



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**Abstract.** The present study empirically examines the relationship between trade balance and remittances in five selected countries of the South Asian Association for Regional Cooperation (SAARC). Besides the joint impact of remittances on the trade balance, the individual impact of remittances on Bangladesh, India, Sri Lanka, Pakistan, and Nepal and comparison among these countries are also provided. To conduct this analysis, annual data of 20 years from 1991–2019 were collected from World Bank and Penn World database. Pooled OLS, random effect, and fixed models are used to estimate the joint impact of remittances. Further, dummy variable interaction models are used to estimate the individual impact of remittances on five South Asian countries. Our panel regression analysis confirms the increasing impact of remittances on the trade deficit of five South Asian countries by triggering import-led consumption expenditures. Other control variables, exchange rate, foreign direct investment, investment, and human

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capital have a significantly negative impact on the trade balance. On the other hand, rent has a significant positive impact on the trade balance of SAARC countries. Dummy variable interaction model confirms the negative impact of remittances on India, Nepal, and Pakistan, while remittances have an insignificant impact on Bangladesh and Sri Lanka. The paper provides various policy implications for SAARC region.

**Key words:** remittances; trade balance, South Asia, panel data.

### Introduction

Remittances are considered a stable source of household income in developing countries (Alferi et al., 2005). Every year South Asian migrants send a large amount of remittances (Sutradhar, 2020). South Asia receives about 10% of global remittances from 2015 to 2019. They exceed the foreign direct investment and foreign aids except for Maldives and Afghanistan. Within South Asia, India is the largest recipient globally, receiving about 360 billion USD from 2015 to 2019. Remittances are used to raise domestic savings, minimize the constraints associated with foreign exchanges and balance of payments (Sutradhar, 2020). Remittances help to reduce poverty reduction and economic development<sup>1</sup>.

On the negative impact, it could damage the economic growth when skilled and highly educated laborers migrate, also known as brain drain (Topxhiu, Krasniqi, 2017). It also hampers economic growth through exchange rate appreciation and makes the trade sector less competitive<sup>2</sup>. It adversely impacts the labor supply decision of families by increasing their preference for more leisure after receiving remittances in the form of non-labor income (Sutradhar, 2019). It also increases the inequality between families with remittances and those without remittances. Further,

remitted income is mainly spent on consumption rather than productive activities (Hasan, Shakur, 2017).

During the study period (1991–2019), Nepal has the largest remittances inflow as a share of GDP in the SAARC region (16.43%) and fifth in the world. Nepal is followed by Sri Lanka (7.36%), Bangladesh (5.92%), Pakistan (4.35%), and lastly, India (2.75%; *Fig. 1*).

However, South Asian countries have been accumulating a deficit in their trade balance during the same period. *Figure 2* shows the difference between exports and imports as a percentage of GDP.

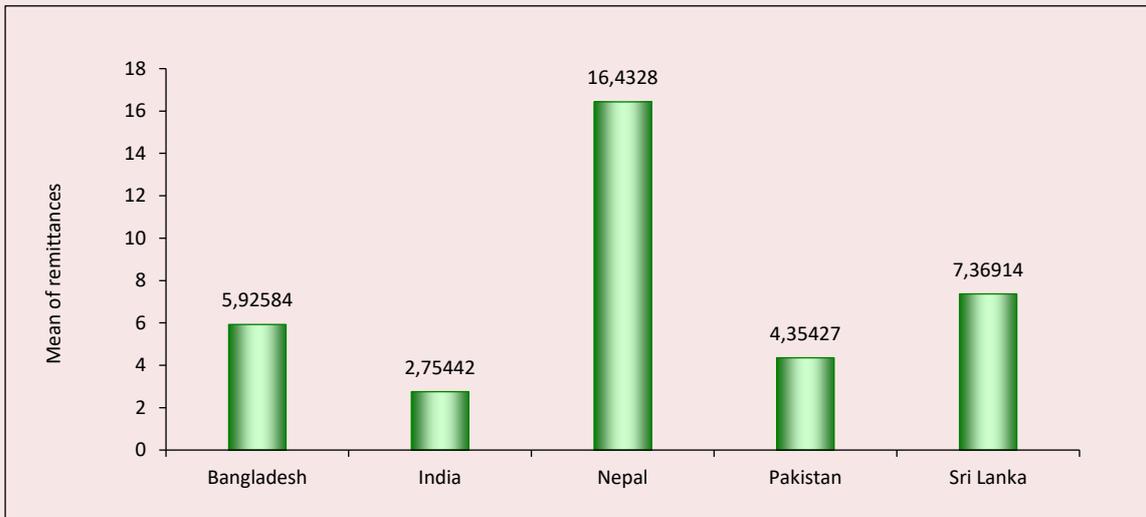
One of the possible reasons for the huge trade balance of SAARC countries is the current account deficit due to a weak export structure. South Asia has an unusual export pattern with primary exports and low intensive manufactured exports (Wood, Mayer, 2001). S. Lall (Lall, 2000) examines that South Asia suffers from the deterioration of their small share although having a substantial industrial base. Exports from South Asia are reliant on low technology. The trade deficit for a sustained period increases debt level and low sovereign credit rating, which deteriorates the future international borrowings (Hasan, 2003).

Remittances impact trade balance in different ways. First, remitted income can be consumed, invested, or saved domestically. Local domestic goods can be produced with investment and used as import substitutes, and the rest can be exported. In this way, remittances help reduce the trade deficit and assist in job creation. On the other hand, the

<sup>1</sup> Migration and Remittances for Development in Asia. Washington, DC: World Bank, Asian Development Bank, 2018.

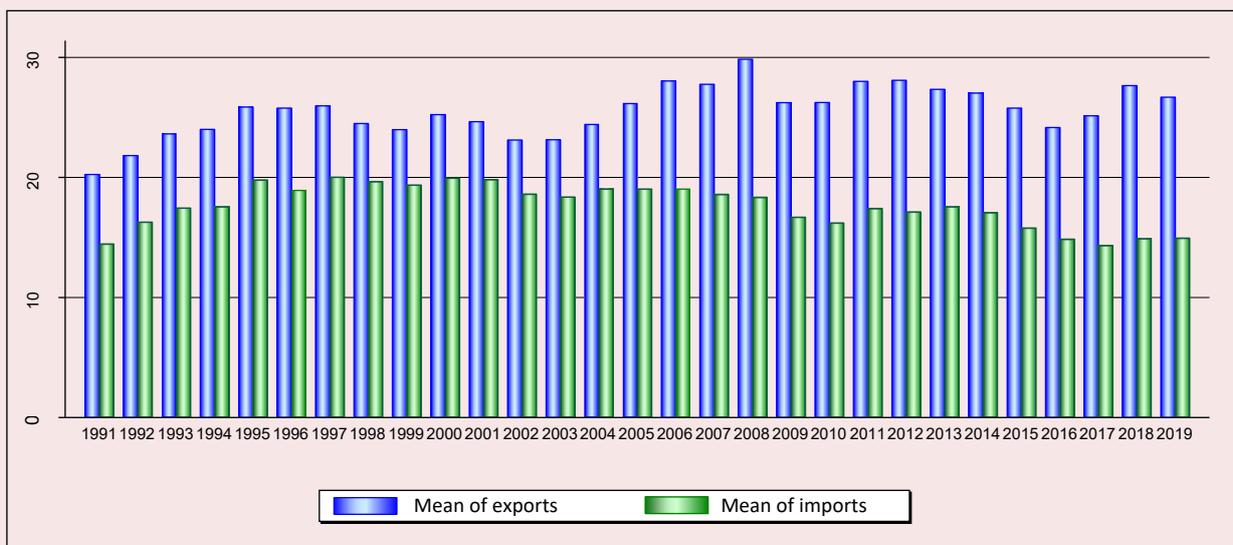
<sup>2</sup> Ratha D. (2013). The impact of remittances on economic growth and poverty reduction. Policy Brief, 8. Available at: <https://www.migrationpolicyinstitute-europe.com/research/impact-remittances-economic-growth-and-poverty-reduction>

Figure 1. Average remittance inflow in SAARC countries (1991–2019)



Source: own calculation based on World Bank data, 2021.

Figure 2. Mean of exports and imports (1991–2019)



Source: own calculation based on World Bank data, 2021.

impact of remittances on export competitiveness, exchange rate, and Dutch disease effect has been an important debate in recent years. Remitted income appreciates the local currency and might impact the long-run growth of the economy. Remittances may exhibit Dutch disease effect on the tradable sector of the economy if remittances inflow causes overvaluation of local currency. On the other hand,

remittances increase the purchasing power, and preferences towards imported goods may increase. Also, large remittances inflow reduces the labor force participation and therefore leads to adverse economic development. This fact results in the deterioration of the external balance of remittances receiving country and could worsen the overall balance of payments of the country.

The question arises at which extent remittances inflows impact the trade balance of SAARC countries. The contribution of present research is threefold: the present study empirically examines the relationship between trade balance and remittances in five selected countries of the SAARC region. To the best of authors knowledge no similar study is found in SAARC countries. Besides the joint impact of remittances on the trade balance, the individual impact of remittances on Bangladesh, India, Sri Lanka, Pakistan, and Nepal and comparison among these countries are also provided. To conduct this analysis, annual data of 20 years from 1991–2019 were collected from World Bank and Penn World database. Second, our research study follows the study by Farzanegan and Sherif (Farzanegan, Sherif, 2016), which examines how remittances affects the trade balance of Middle East and North Africa. Lastly, study examines the link between household consumption, remittances and trade balance.

The originality of this research paper is that it uses the country-specific impact of remittances and the overall impact of remittances on five countries of the SAARC region, as most of the previous research works provide only joint impact of remittances for emerging or group of developing countries. The joint impact of remittances on five SAARC countries is obtained using Pooled ordinary least square (OLS), random effects (RE), and fixed effects (FE). Then, the dummy interaction model is used to examine the separate impact of remittances of each five countries. The regression model results confirm the significant negative impact of remittances on the trade balance of five SAARC countries. The dummy variable interaction model confirms the significant negative impact of remittances on India, Nepal, and Pakistan.

The paper is structured as follows: the “Literature review” section reviews previous studies on the relationship between remittances and trade

balances. The “Theoretical model” section discusses the trade balance model. The “Methodology” section explains the variables of the model, data sources, relevant econometric model, and empirical estimation of the present study. The “Empirical results” section presents results of relevant econometric models. Lastly, “Conclusion” presents the concluding results and policy recommendations.

#### **Literature review**

This paper aims to examine the impact of remittances on the trade balances of five South Asian countries. These countries receive huge amounts of remittances each year, among which India is the top remittance receiver of the world (Sutradhar, 2019). There are various researches available on the impact of remittances. Since the present paper focuses on the trade balance, this section will review the relevant and appropriate previous studies to get a better idea about the theme of the topic.

Farzanegan and Sherif (Farzanegan, Sherif, 2016) argue that the inflow of remittances fosters the trade deficit of MENA countries, and the effect of remittances depends on domestic capital formation. The negative impact of remittances is obtained after controlling inflation, institutions, income and exchange rate, and year and country fixed effect. Khan et al. (Khan et al., 2021) examine various determinates of the trade deficit of seven SAARC countries from 1990 to 2017. Using Feasible Generalized Least Square (FGLS) and panel-corrected standard error (PCSE), the authors found a significant positive impact of domestic consumption on the trade deficit of SAARC countries. Further, infrastructure has a significant positive impact on trade deficit while exchange rate and financial deepening have a significant negative impact on the trade balance of SAARC countries.

Okodua and Olayiwola (Okodua, Olayiwola, 2013) studied the impact of remittances on the trade balance of Sub-Saharan African countries during

2002–2011. Using one-step GMM and two-step GMM, the authors found negative and significant impacts of remittances on the trade balance. The other variables that are positive and significant are the real exchange rate and GDP. Tung (Tung, 2018) examined the impact of remittances on the trade balance of 17 Asia-Pacific countries during 1980–2015. OLS, two-stage least square, and PGMM confirm the significant negative impact of remittances on the trade balance. Other variable GDP per capita growth rate has a negative impact while the exchange rate positively impacts the trade balance.

On the positive side, various studies suggest that remittances inflow does not reduce the trade balance and has no Dutch disease effect. Nguyen (Nguyen, 2017) found the positive and significant impact of remittances inflow on the trade balance of Malaysia during 1990–2015. The findings indicate no symptoms of Dutch disease. Bouhga-Hagbe (Bouhga-Hagbe, 2004) found that remittances covered almost all trade deficits and explained Morocco's current accounts surplus. Lartey (Lartey, 2018) found the positive impact of remittances on the trade balance of developing and emerging economies. However, the lagged effect of remittances is negative and could be due to underlying characteristics of Dutch disease. Further, a more flexible exchange rate dampens the positive effect of remittances on the trade balance.

### Theoretical model

We follow the theoretical model of trade balance with remittances developed by Farzanegan and Sherif (Farzanegan, Sherif, 2016):

$$TB_i = (Y_i, Z_{ij}, Y_j, K_i, R_j), \quad (1)$$

where  $TB_i$  is the country trade balance of country  $i$ ;  $Y_i$  – represents the domestic income;  $Y_j$  is foreign income;  $Z_{ij}$  is the bilateral exchange rate,  $K_i$  is the capital stock of country  $i$ ;  $R_j$  shows the foreign remittances inflow from country  $j$ .

$TB$  is positively related to the real exchange rate ( $TB_i/Z_{ij} > 0$ ) and foreign income ( $TB_i/Y_j > 0$ ) while negatively related to domestic income ( $TB_i/Y_i < 0$ ), remittances ( $TB_i/R_j < 0$ ) and capital formation ( $TB_i/K_i < 0$ ).

Remittances of the model are treated as exogenous as its impact on imports is not direct but depends on household expenditure on imported products. Given the weak industrial sector in developing countries and are unable to provide substitutes for manufactured imports, the partial derivative of remittances to trade balance is negative. Capital stock represents an investment in physical capital and human capital. Developing countries are growing economies, have no domestic substitutes, and therefore expect a negative impact of capital stock on  $TB$ .

The impact of the exchange rate is explained in terms of the J-curve and Marshall-Lerner conditions. According to the J-curve hypothesis, depreciation worsens the trade balance in the short run. It improves in the long run if both the export supply and import demand are relatively inelastic in the long run than in the short run. Also, the Marshall – Lerner condition states that depreciation (currency devaluation) worsens the trade balance if the sum of demand elasticities of imports and exports is less than one (Akoto, 2019). In addition, domestic income is negatively related to trade balance because imports are positively impacted by domestic income. Further, foreign income stimulates the country's exports, therefore, have a positive impact on the trade balance (Falk, 2008).

The study (Farzanegan, Sherif, 2016) shows the average impact of remittances on the trade balance of Middle Eastern and North African (MENA) economies but does not show individual impact. This paper aims to examine the magnitude of remittances for five South Asian countries and their Impact in Bangladesh, India, and other countries in 1990–2019.

### Methodology

Our main prediction is that remittance inflows have a negative impact on the trade balance of five SAARC countries. Our main hypothesis is that trade balance is affected by remittance-induced consumption expenditure. We tested this hypothesis by looking at two-panel regression equations, first between household final consumption expenditure and remittances and then between household final consumption and trade balance. To measure the marginal impact of remittances and other control variables, we use unbalanced panel data from 1991 to 2019, comprising 135 observations. For measuring individual marginal impacts of remittances, the paper uses the application of interaction dummies. The pooled OLS, Random effect, and fixed effect models are used for estimating equation (1). Further, a dummy interaction model is used to capture individual impacts. The descriptions of models are as follows:

$$TB_{it} = \alpha + \beta R_{jt} + \gamma' Z_{ijt} + \varepsilon_{it} \quad (2)$$

$$TB_{it} = \alpha + \pi_i + \theta_t + \beta R_{jt} + \gamma' Z_{ijt} + \varepsilon_{it} \quad (3)$$

$$TB_{it} = \alpha + \pi_i + \theta_t + \beta R_{jt} + \delta(D_i \times R_{jt}) + \gamma' Z_{ijt} + \varepsilon_{it}, \quad (4)$$

where  $TB_{it}$  is the trade balance of country  $i$ ;  $\pi_i$  is the time-invariant or country-specific effect;  $\theta_t$  is the time effect;  $R_{jt}$  is the remittance inflow from country  $j$ . Subscript ( $i$ ) represents home countries and ( $j$ ) represents foreign countries ( $i, j = 1, 2, \dots, N$ ), where. Subscript ( $t$ ) represents time ( $t = 1, 2, \dots, T$ ), where  $T = 20$ .  $\varepsilon_{it}$  is error term and is assumed to be independent and identically distributed (iid) with mean zero and variance 1. To reduce the omitted variable biases, we include  $Z_{ijt}$  as a vector of explanatory variables including the annual growth of GDP as a proxy of domestic income, a weighted average of GDP growth rate for the other four SAARC countries as a measure of foreign income (Farzanegan, Sherif, 2016), a real exchange

rate as a ratio of domestic currency to a weighted average of foreign currencies, in addition, we use domestic credit to the private sector as a measure of a country's financial sector development to capture the effect of saving channels and degree of export competitiveness (Ramirez, Sharma, 2008). Further, we include nature resource rents to capture the impact of natural resource exploitation, which constitutes a large share of exports in resource-rich countries. The human index as human capital per worker based on an average year of schooling and returns to education is used as a proxy of human capital and the role of education. The inflation rate is used as a proxy of macroeconomic stability (Barro, Sala-i-Martin, 2004). In addition, we use foreign direct investments (FDI) inflow to capture the impact of FDI that can encourage the country to develop infrastructure and FDI-led export growth strategies (Pfaffermayr, 1996). The description of variables and their data sources are presented in *Table 1*.

To capture the omitted variable that arises due to heterogeneity across different cross-sections, a fixed-effect model can reduce the omitted variable bias of country-specific factors. There are chances of endogeneity problems in the trade balance model as high chances of reverse feedback from trade deficit on independent variables like investment and remittances. Both are measured as a percentage of GDP. Trade deficit may shape the GDP and therefore can aid as a denominator to remittances and independent investment variables. The problem of endogeneity can solve by using a generalized method of moments (GMM) estimation and instrumental variables (IV). However, both methods are biased when the sample size is small. The present study has not had such a large sample to use GMM or IV estimators. The problem of endogeneity can be solved using the lag of independent variables. The past development of investment and remittances can affect the current values of trade deficit, but current values of trade deficit cannot affect past

Table 1. Definitions and sources of the variables

Variable	Definition	Data sources
Tb	Trade balance comprises exports of goods and services minus imports of goods and services (as a % share of GDP)	World Bank (2021)
Remittances	Personal remittances comprise personal transfers and compensation of employees (as a % share of GDP)	World Bank (2021)
Income	Annual growth of real GDP per capita	World Bank (2021)
Foreign income	Average annual growth rate of four SAARC countries	World Bank (2021)
Exchange rate	The real effective exchange rate is the nominal measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator 2010	Penn World (2021)
FDI	Net Inflows of foreign direct investments (as a % share of GDP)	World Bank (2021)
Investment	Gross fixed capital formation (as a % share of GDP)	World Bank (2021)
Rents	Total natural resources rents (as a % share of GDP)	World Bank (2021)
Inflation	Inflation rate (GDP deflator index)	World Bank (2021)
Human capital	Index of human capital per person, based on years of schooling and returns to education	Penn World (2021)
Credit	Domestic credit to the private sector as a proxy for the financial sector development refers to financial resources provided to the private sector by financial corporations (as a share of GDP)	World Bank (2021)
Source: own calculation.		

values of investment and remittances (Bjorvatn & Farzanegan, 2013). Therefore lag of independent variables is incorporated in our study.

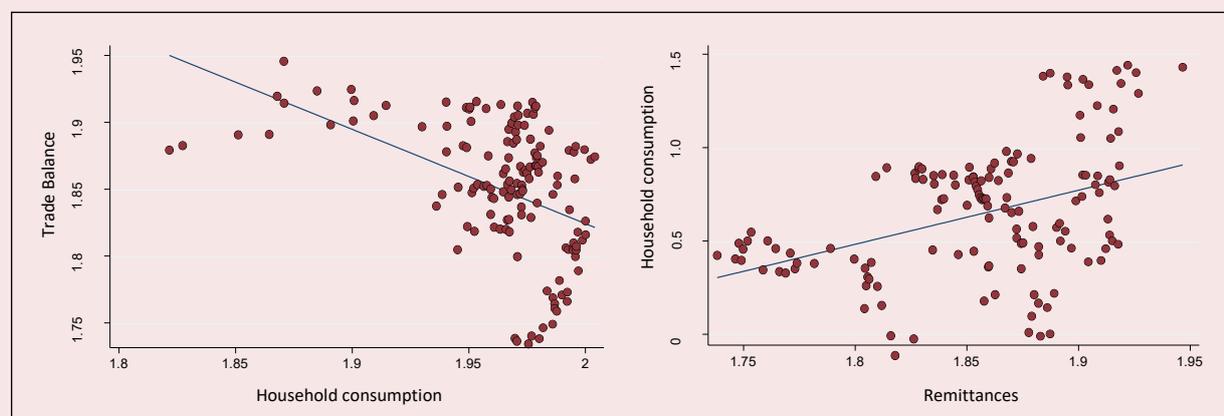
In the first step, equation (2) parameters are estimated using pooled OLS model with no country-specific and time-specific effect. Then parameters of equation (3) are then evaluated by a fixed effect model, which controls the correlation between explanatory variables and individual effects. The estimation of equation (4) is obtained through the random effect model, which assumes that individual effects are uncorrelated with explanatory variables. Time dummies are included in both random effect and fixed-effect models. In the second step, pooled OLS, RE, FE regressions are run for dummy variable interaction terms as given in equation by equation (4). Finally, necessary tests are conducted to decide which model is best among pooled OLS, RE, or FE models. The Breusch – Pagan LM test is conducted to select a model between Pooled OLS and RE models. Then to choose between FE and RE, the Hausman test is used. Finally, we get the value of F-statistics from the FE model to choose a model between Pooled OLS and FE.

### Empirical results

Figure 3 presents the correlation graph between household consumption expenditure and remittances; and between trade balance and household consumption. The results confirm that remittances increase the household consumption expenditures. Further, household consumption expenditure has a negative effect on the trade balance. This implies that remittances increase domestic consumption, and an increase in consumption is full filled through imports. Therefore, the negative trade balance effect is derived from remittance-induced consumption expenditures. Our results resemble the research work of Farzanegan and Sherif (Farzanegan, Sherif, 2016).

To measure the marginal impact of remittances on the trade balance, we empirically test the hypothesis that remittances increase the inflow of imports of goods and services and raise the trade deficit. Our estimation starts by examining the impact of remittances on the trade deficit. Both trade deficits and remittances are measured as a percentage share of GDP. Also, all variables are taken in natural log form. Further, 100 is added to the log of trade deficit, i.e.,  $\text{Log}(100 + TB)$ , as a

Figure 3. Panel regression line between: 1) household final consumption expenditures and trade balance; 2) household consumption expenditures and remittances



Sources: World Bank (2021); own calculation.

Table 2. Results of Pooled OLS, random effects and fixed effects

Variable	Pooled OLS	RE	FE
Remittances	-0.0696*** (-9.33)	-0.0827*** (-11.36)	-0.0550*** (-8.76)
Exchange rate	-0.0338** (-1.99)	-0.200*** (-6.95)	-0.0805** (-2.31)
Income	-0.00787 (-0.96)	-0.00101 (-0.07)	0.00181 (0.19)
Investment	-0.0530* (-1.92)	-0.0271 (-1.09)	-0.0741** (-2.29)
Credit	-0.00558 (-0.35)	-0.0607*** (-3.81)	0.0143 (1.09)
FDI	0.00114 (1.31)	0.000155 (0.18)	-0.00125* (-1.86)
Rent	0.0131** (2.23)	-0.0315*** (-4.13)	0.0318*** (3.37)
Inflation	-0.0180*** (-3.01)	-0.00948 (-1.55)	-0.00251 (-0.56)
Foreign income	-0.0177 (-0.90)	0.0917 (1.23)	0.0429 (0.81)
Human capital	0.166*** (5.19)	0.124*** (4.29)	-0.402*** (-4.75)
Constant	2.132*** (50.06)	2.343*** (28.84)	2.257*** (22.37)
Adj R sq	.467	.6011	.5985
Wald chi <sup>2</sup>	298.40***	502.20***	21.38***
Time dummies		Yes	Yes
Hausman test	95.78***		
Breusch and Pagan Lagrangian multiplier test for random effects	0.00		
F-test that all $u_i=0$ :	28.27***		
Observations	135		
t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01			

natural log cannot define negative values. We use one year lag of all explanatory variables to reduce the problem of endogeneity. *Table 2* reports the pooled OLS, RE, and FE results, which confirms the significant negative impact of remittances on the trade balance in South Asian countries. The result of the Breush – Pagan LM test confirms that pooled OLS is a better choice than RE. Further, the Hausman test supports FE over RE. Finally, F-test confirms the presence the unobserved heterogeneity, and therefore FE model is more appropriate than pooled OLS. So, the FE model is more appropriate among pooled OLS, RE, and FE models for our study. These results resemble the research work of Topxhiu and Krasniqi (Topxhiu, Krasniqi, 2017).

In the FE model, the adjusted  $R^2$  is 0.5985, indicating that independent variables explain 59.85% variation in the trade balance. The results of the FE model indicate that a 1% increase in remittances leads to a 0.055% decrease in trade balance (or increases imports at the expense of exports) in South Asian countries. Both impacts of domestic income and foreign income have an insignificant impact on the trade balance. The results of remittances and income resemble the research work (Farzanegan, Sherif, 2016) for the Middle East and North Africa.

The exchange rate has a significant and negative impact on the trade balance of South Asian countries. A 1% increase in exchange rate leads to a 0.08% decrease in trade balances. The research work (Rifa et al., 2021) also verifies the negative impact of the exchange rate on the trade balance in Sri Lanka. Further, rent and credit have an insignificant impact. Investment has a negative impact, as predicted by our theoretical model. 1% increase in investment leads to a 0.074% decrease in the trade balance.

FDI has a weak negative and significant impact on the trade balance of south Asian countries. 1% increase in FDI decreases foreign trade balance by 0.001%. It is because the relationship between FDI and exports is complex. They may act as

complementary or substitutes, and it varies with time. Further, Human capital has a significant negative impact on the trade balance in South Asian countries, with a coefficient of -0.402. It is because South Asian countries have a low level of human capital, and on the other hand, imports are rising continuously (Bhattacharya, 2014). The negative coefficient of human capital is empirically validated in (Farzanegan, Sherif, 2016).

*Table 3* presents the pooled OLS, RE and FE regression results for the dummy variable interaction regression model. To choose the appropriate model, we ran different post-estimation tests. The Hausman test is used to choose the appropriate model between the RE and FE model, and results confirm the FE model is a better choice. The results of the Breush – Pagan LM test supports pooled OLS over the RE model. Further F-statistics confirm unobserved heterogeneity, and the FE model is more appropriate than pooled OLS. Therefore based on post estimation tests, the FE model is more appropriate for the dummy variable interaction model. The value adjusted  $R^2$  of FE is 0.59, and it implies that the independent variables explain 59% variation in the trade balance. Bangladesh is the base country in our dummy interaction model. The results indicate that remittances have a significant and negative impact on the trade balance of India, Nepal, and Pakistan; 1% increase in remittances leads to 0.048%, 0.089% and 0.053% decrease in trade remittances respectively. The impact of remittances on the trade balance in Bangladesh and Sri Lanka is statistically insignificant.

### Conclusion

The paper examines the impact of remittances on the trade balance of five South Asian economies in 1991–2019. The correlation result confirms that remittances increase household consumption. The inability of SAARC countries to match remittance-induced consumption adds additional pressure to the trade balance by increasing consumption imports. As a result, increasing remittances in five SAARC countries is leading to higher trade deficits.

Table 3. Results of dummy variable interaction model

Trade balance	Pooled OLS	RE	FE
Remittances (Bangladesh)	0.0117 (1.34)	0.0100 (0.96)	0.0254 (1.55)
Remittances (India)	0.0416*** (3.34)	0.00371 (0.28)	-0.0483** (-2.55)
Remittances (Nepal)	-0.0810*** (-12.11)	-0.0789*** (-10.74)	-0.0890*** (-5.41)
Remittances (Pakistan)	-0.0810*** (-12.11)	-0.0518*** (-4.57)	-0.0532*** (-2.81)
Remittances (Sri Lanka)	0.00146 (0.11)	0.0727*** (3.71)	-0.0460 (-0.64)
Exchange rate	-0.0296** (-2.66)	-0.182*** (-6.29)	-0.144*** (-3.84)
Income	-0.0142** (-2.71)	-0.0112 (-1.23)	-0.00816 (-0.93)
Investment	-0.115*** (-4.21)	-0.131*** (-4.51)	-0.126*** (-4.08)
Credit	0.0261* (2.37)	-0.0128 (-1.02)	-0.00116 (-0.08)
FDI	-0.000824 (-1.33)	-0.000493 (-0.79)	-0.000713 (-1.18)
Rent	0.00513 (0.71)	0.0138 (1.65)	-0.00443 (-0.36)
Inflation	-0.00481 (-1.12)	-0.00257 (-0.57)	-0.00199 (-0.47)
Foreign income	-0.00964 (-0.76)	0.0186 (0.37)	0.0362 (0.77)
Human capital	-0.0306 (-0.59)	-0.169** (-2.94)	-0.258*** (-2.86)
Constant	2.175*** (62.00)	2.463*** (29.24)	2.402*** (24.84)
Adj R sq	0.67	0.6752	.5985
Modified Wald test	924.82***	1254.00***	11.04*****
Time Dummies	No	Yes	Yes
Hausman test (FE vs RE)	33.84***		
Breusch and Pagan Lagrangian multiplier test (OLS vs RE)	0.00		
F-test (OLS vs RE)	5.99***		
Observations	135		
t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01			

We use panel pooled OLS, random effect, fixed effect, and dummy variable interaction model to measure the marginal impact of remittances on the trade balance. Our regression results confirm a significant negative relationship between remittances and trade balance. The partial elasticity regression coefficient of remittances on the trade balance is -0.055, implying a 1% increase in remittances leads to a 0.05% decrease in the trade balance of SAARC countries. The negative

coefficient of remittances suggests that a large portion of remittances in SAARC countries are used for non-productive activities like consumption expenditures. Other control variables, exchange rate, foreign direct investment, investment, and human capital, significantly negatively impact the trade balance. On the other hand, rent has a significant positive impact on the trade balance of SAARC countries. Dummy variable interaction model confirms the negative impact of remittances

on India, Nepal, and Pakistan, while remittances have an insignificant impact on Bangladesh and Sri Lanka.

Although the dummy variable interaction model provides additional insights into this research by helping to separate the individual impact of remittances on the trade balance, however, to estimate the exact magnitude of remittances inflow through informal channels and their contribution to the trade balance of SAARC countries are beyond the scope of the paper. Further research should focus on informal channels of remittances inflow. In addition, panel data for more countries and extended periods may provide more robust results. Also, controlling more variables related to migration, brain drain, and institutional factors can be a different research topic.

The policy implications of paper applies both emerging countries as well as SAARC countries. To facilitate the productive use of remittances and promote the favorable impact of remittances on the trade balance, government and policymakers of South Asian and emerging countries should promote various financial services like remittances back bonds, saving incentives, and interest premiums on deposits remitted inflows to facilitate the savings. Further, cooperation between various international financial institutions, banks, and interested groups needs to develop cooperative schemes that facilitate savings from remittances and direct them towards manufacturing and industrial investments. This will help to boost the weak industrial sector in SAARC and emerging countries and reduce the huge trade deficits.

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## Problems of Legal Support of Chinese-Russian Economic Cooperation



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**Abstract.** In recent years, the economies of China and Russia and their trade relations have withstood the global economic downturn and the pandemic tests. The volume of trade between the countries has exceeded the 100 billion USD mark for three years in a row. Cooperation has expanded from trade to investment, finance, energy, aerospace, high technology, high-speed railways, agriculture and other areas; from cross-border trade to major strategic projects where the economic interests of the countries are very closely intertwined. However, at the same time, there are certain problems in trade and economic cooperation between China and Russia, including a slowdown in the economic development of the two countries, flaws in the trade structure, system mechanisms, legal framework, etc. Alongside a slow recovery of the world economy and a rapid expansion of Chinese-Russian economic and trade cooperation, these problems hinder the free and favorable development of trade and economic cooperation between the two countries. The aim of the study is to examine the experience of the European Union and the North American Free Trade Area in the field of economic integration, especially the guarantees of the relevant legal systems in the field of trade and economic cooperation, and identify whether they can be useful for the development of Sino-Russian trade and economic cooperation. We show that by creating and improving the legal system, modernizing bilateral investment agreements, intensifying the study of free trade zones, strengthening the link between The Belt and Road Initiative and the Eurasian Union, as well as improving the cooperation mechanism of the BRICS countries, it is quite possible to provide legal

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guarantees of Chinese-Russian trade and economic cooperation. The main methods used in this work are empirical research, case analysis and comparative analysis.

**Key words:** China, Russia, economic cooperation, development status, constraints, legal protection.

### Introduction

Since February 2022, after the start of the special military operation in Ukraine, the United States of America and the European Union have imposed several packages of economic sanctions against Russia, including financial restrictions, trade embargoes, asset freezes and technology separation. Russia's economic and political focus is shifting from West to East (Klimova, Gu Fangzhou, 2015). All this contributes to the accelerated development of Chinese-Russian economic and trade relations. In cooperation between the two sides, success has been achieved in the fields of energy, finance, trade, science and technology, and infrastructure.

In the context of the new development model, good relations with large neighboring countries are of particular significance. Being an important pole of the international community, Russia is a "world-class player" with great international influence, and its status and role in the international arena cannot be ignored. In light of the trilateral relations between China, the United States, and Russia, especially when relations between China and the United States are relatively fragile, Russia is becoming a very constructive international force. Strengthening Sino-Russian trade and economic cooperation and finding a solution to the dilemma of economic development as soon as possible have become common needs and strategic requirements of China and Russia in an epidemic situation (Hu Ming, Tian Wenquan, 2021). Further strengthening of the Sino-Russian trade and economic cooperation is expected in the future; however, due to the increasing complexity of international economic and political changes caused by various uncoordinated factors, difficulties will inevitably arise (Li Shuangshuang, 2022).

### Research overview

Due to the continuous development of Sino-Russian economic and trade cooperation, the increase in its level has become a serious problem that causes common concern among scientists in related fields in China and Russia. Let us note several areas of research.

#### *Studying the status quo and the mechanism of cooperation*

Liu Huaqin believes that with the ongoing development of economic cooperation between China and Russia, thanks to the efforts of the two governments, the institutional environment of bilateral trade and economic cooperation has improved, but there still remains the problem of the failure of systems and mechanisms. In this regard, China and Russia should continue to strengthen the institutional structure of bilateral trade and economic cooperation in order to ensure long-term institutional guarantees of sustainable development<sup>1</sup>.

#### *Studying the risks of Sino-Russian economic and trade cooperation*

E.V. Bogolomov, Deputy Chairman of the Saint Petersburg Bar Association of Russia and Executive Director of the Kuznev Law Firm, pointed out that the sanctions imposed against the background of the Russian-Ukrainian conflict by Western countries have seriously affected the Russian economy and business environment. New opportunities have opened up for Chinese-Russian economic cooperation, but legal, commercial and sanctions

<sup>1</sup> Liu Huaqin. Trade and economic cooperation in a changing world. Available at: <http://www.ojji-oys.org/UploadFile/Issue/r0ok5aiq.pdf>

risks have emerged. The exclusion or minimization of the above risks is preparatory work before the implementation of cooperation<sup>2</sup>.

Wang Yuwei believes that the current Sino-Russian economic and trade cooperation is mainly associated with the risks of judicial assistance and financial and legal risks. The best solution to this problem should be the rule of law and legal concepts and the accelerated creation of a system of state legal services for Chinese-Russian economic and trade cooperation<sup>3</sup>.

#### *Studying the prospects of Chinese-Russian trade and economic cooperation*

The rule of law plays an important role in the process of Chinese-Russian economic cooperation. Despite the fact that relations between China and Russia can now be called the best period in the history of cooperation, there are still many opportunities for the growth of mutual investments and the strengthening of trade and economic cooperation between the two countries. On the one hand, the lack of a proper understanding of the Russian market and business environment, and on the other hand, the impact of potential secondary sanctions from Europe and the United States and the underestimation of Russia's national credit arouse concern among some investors.

N.O. Starkova and E.S. Balanutsa believe that in modern conditions, the systematic development of two neighboring states (Russian Federation and China) cannot be carried out separately due to their geopolitical and economic interests (Starkova, Balanutsa, 2015).

<sup>2</sup> Opinion of E.V. Bogolomov an expert with the Saint Petersburg Bar Association of Russia. Available at: [http://www.legaldaily.com.cn/Finance\\_and\\_Economics/content/2022-06/08/content\\_8730253.html](http://www.legaldaily.com.cn/Finance_and_Economics/content/2022-06/08/content_8730253.html)

<sup>3</sup> Wang Yuwei (2018). Studies on the prevention and control of legal risks in Sino-Russian economic and trade cooperation against the background of The Belt and Road Initiative. Available at: <http://vip.lninfo.com.cn/article/detail.aspx?id=74826770504849564955485748>

#### *Current situation regarding Chinese-Russian economic cooperation*

In recent years, China and Russia have continuously deepened mutual political trust. The significant economic and political weight of the two countries, their geographical proximity, generally positive history of modern relations, long experience of economic ties and noticeable political rapprochement in recent years contribute to the growth of the intensity and quality of economic cooperation (Podolsky et al., 2016). In 2019, the heads of both states raised the level of bilateral relations to the “comprehensive strategic partnership of China and Russia in a new era”, providing political guarantees of comprehensive and multidisciplinary cooperation. The synergy between The Belt and Road Initiative and the Eurasian Economic Union, as well as between the China – Mongolia – Russia economic corridor and the Advanced Development Zone of the Russian Far East will open up new opportunities for further expansion of cooperation between China and Russia.

Since the beginning of the coronavirus pandemic, Chinese-Russian trade and economic cooperation has been developing by leaps and bounds due to the repeated ups and downs of the global epidemic and the weak economic recovery. The volume of bilateral trade between China and Russia reached 146.887 billion USD in 2021, which is a record figure for the fourth year in a row. China has been Russia's largest trading partner for 12 years (Sun Zhuangzhi et al., 2022). From January to October 2022, the scale of Sino-Russian trade reached the highest level (*Tab. 1*); cooperation in various fields continues to deepen.

Energy cooperation has always been the most important, fruitful and large-scale area of Chinese-Russian trade and economic cooperation, as well as its “cornerstone”. According to statistics from the

Table 1. Sino-Russian trade from January to October 2022, billion yuan

Indicator	Volume of Sino-Russian bilateral trade		Annual growth rate, %	
	from January to October	October	from January to October	October
Total volume of bilateral trade	748.72	84.19	21.2	31.7
Total exports to Russia	342.56	35.6	20.8	10.4
Total imports from Russia	406.16	48.59	21.5	53.4

Source: General Administration of Customs of the People's Republic of China. Available at: <http://www.customs.gov.cn/customs/xwfb34/mtjj35/4062162/index.html>

General Administration of Customs of the People's Republic of China, in 2021 China imported Russian energy carriers amounting to 334.29 billion yuan, which is 47.4% more than last year (65.3% of the total value of China's imports from Russia)<sup>4</sup>. Russia remains China's largest source of energy imports, the second largest source of crude oil imports and the largest source of electricity imports.

Cooperation between China and Russia in the financial sphere is continuously strengthening. In 2020, more than half of the trade transactions between China and Russia were carried out in euros, yuan and rubles, and not in dollars. According to statistics from the Central Bank of Russia and the Customs Administration of China, the yuan currently accounts for more than 17% of bilateral trade settlements between China and Russia and more than 12% of Russia's international reserves. The role of the Chinese currency as a means of payment is gradually increasing<sup>5</sup>. Cooperation in the financial sphere contributes to the diversification of the international monetary system and will help effectively avoid all kinds of sanctions that the United States can take against the two sides through the hegemony of the dollar. In the future, China and Russia will continue to support the expansion

of pricing and local currency settlements in bilateral trade, investment and loans; and services will ensure stable development of bilateral trade.

The governments of the two countries signed the Agreement on Economic and Trade Relations, the Agreement on Avoidance of Double Taxation and the Sino-Russian Intergovernmental Agreement on Investment Guarantees, which provide legal protection for investors. The promotion of The Belt and Road Initiative put forward by China has given a new impetus to trade and economic cooperation between China and Russia. Being a key force in The Belt and Road Initiative, Russia not only actively supports the development of this project, but also contributes to its synergy with the Eurasian Economic Union. However, there are factors that determine whether it will be possible to bring economic cooperation between the two states to a higher level. Therefore, the creation of a long-term and stable legal system for economic development of the two countries should become an important part of future cooperation between China and Russia.

#### **Factors constraining the development of Chinese-Russian economic cooperation**

Trade and economic cooperation between China and Russia is developing rapidly, but some problems still remain. Further development of bilateral trade and economic cooperation is hindered by a slowdown in the economic growth of the countries, unreasonable trade structure, flaws in governance mechanisms, unstable investment environment, corruption, lack of law and order

<sup>4</sup> General Customs Administration: The volume of trade between China and Russia in 2021 for the first time exceeded 900 billion yuan. Available at: <https://wap.yzwb.net/wap/news/1924862.html> (accessed: February 27, 2022).

<sup>5</sup> China has been Russia's largest trading partner for 12 consecutive years – fruitful economic and trade cooperation between China and Russia. Available at: [http://www.cnjjwb.com/index.php?s=szb&c=home&m=szb\\_content&id=11475](http://www.cnjjwb.com/index.php?s=szb&c=home&m=szb_content&id=11475) (accessed: October 3, 2022).

(Zhang Chao, Zhao Haifeng, 2018), and concerns about the rise of China. In practice, economic relations between the two countries can develop both for the better and for the worse: there are a number of factors that contribute to and hinder the further deepening of economic ties (Ngo, 2021). There also exist some problems that cannot be ignored.

*Russia's economic development is facing difficulties*

Being the only country in the world that fully provides itself with natural resources, Russia has a huge market of 146 million people. At the same time, the country has sufficiently integrated industrial and state economic systems that have an incomparable superiority compared to other countries in terms of economic security and counteraction to strikes. At the same time, the Russian economy has a number of problems, including an irrational structure, potential dangers of the economic growth model and long-term problems of dependence on other countries in the international economic paradigm. Since the beginning of the Russian-Ukrainian conflict, the United States and Western countries have introduced unprecedented economic and financial sanctions against Russia. The Central Bank of Russia has frozen almost 300 billion USD of foreign exchange reserves, and several large banks of the Russian Federation have been excluded from the international interbank system for transmitting information and making payments (SWIFT). The most favorable treatment regime has been abolished, many companies are leaving the Russian market, and tough energy sanctions have been imposed. Sanctions have become an important tool and a long-term political choice for the United States and its allies to contain and isolate Russia, as well as a variable affecting its economic development (Li Jianmin, 2022).

The sanctions imposed by the West are aimed at undermining the financial and economic situation

in Russia, provoking panic in the market, hitting the banking system, and creating a large-scale shortage of goods. In order to eliminate the consequences of sanctions and stabilize the domestic economic situation, Russia has taken a number of anti-sanctions measures: a decree on settlements in rubles, a decree on parallel imports, a decree on import substitution, the creation of an independent financial messaging system of the Bank of Russia (SPFS). To some extent, this shows that the West's "economic blitzkrieg" against Russia has not worked in the short term, and the West's plan for sanctions to quickly destroy the Russian economy has failed. But in the long run, sanctions will still have a serious detrimental effect on the Russian economy. In fact, sanctions affected not only Russia, but also other countries and regions of the world, including those not involved in the conflict. It can even be argued that the package of Western sanctions since 2014 has indeed put Russia on a lower growth trajectory, and their cumulative impact is growing over time (Tao Shigui, Gao Yuan, 2020). However, the introduction of large-scale sanctions against Russia by the Collective West naturally raised the question of deepening and expanding economic relations with China<sup>6</sup>.

*Slowing down the speed of China's economic development*

At the moment, Chinese society is at the stage of transition from a production-oriented society to a consumption-oriented society. The Chinese economy is moving from an investment-based economy to a consumption-based economy. And the goal of China's economic development is changing from high-speed development to high-quality development. In the process of China's economic and social transformation, economic

<sup>6</sup> Timofeev I. (2022). Russian-Chinese economic cooperation: Opportunities and barriers in new conditions. Available at: <https://russiancouncil.ru/analytiks-and-comments/analytiks/rossiysko-kitayskoe-ekonomicheskoe-sotrudnichestvo-vozmozhnosti-i-prepyatstviya-v-novykh-usloviyakh/>

Table 2. Annual GDP growth rates, %

Year	I quarter	II quarter	III quarter	IV quarter
2017	7.0	7.0	6.9	6.8
2018	6.9	6.9	6.7	6.5
2019	6.3	6.0	5.9	5.8
2020	-6.9	3.1	4.8	6.4
2021	18.3	7.9	4.9	4.0
2022	4.8	0.4	3.9	

Note: The annualized growth rate represents the growth rate compared to the same period of the previous year.  
Source: National Bureau of Statistics of the People's Republic of China. Available at: [http://www.stats.gov.cn/xxgk/sjfb/zxfb2020/202210/t20221024\\_1889593.html](http://www.stats.gov.cn/xxgk/sjfb/zxfb2020/202210/t20221024_1889593.html)

growth is slowing down every year (Guo Changqing, 2019). The government has already realized the existence of the problem, so it is making efforts to promote reforms and vigorously develop high-tech industries and new service industries, hoping to create new growth points for China's economic development. However, the benefits of the reform will not be apparent for a short time. At the same time, the COVID-19 pandemic has posed severe challenges to the country's economy.

China's GDP growth target for 2022 was about 5.5%, but economic growth slowed in the first quarter due to stronger-than-expected factors such as the pandemic. According to the National Bureau of Statistics of China, as of July 15, China's GDP grew by 2.5% year-on-year in the first half of the year and by 0.4% in the second quarter (*Tab. 2*). Currently, the risk of stagflation in the global economy is increasing, the influence of external destabilizing factors and uncertainty are growing, and the triple pressure of a reduction in domestic demand, supply shocks and weakening expectations continues to persist.

In the short term, the slowdown in China's economic growth is mainly due to the COVID-19 pandemic and the restraining influence of Western countries led by the United States. Judging by the trend of long-term development, the decline in China's economic growth may become an objective unavoidable phenomenon. In order to promote general prosperity in the conditions of slowing economic growth, the country will face a number of

problems, including medium- and long-term major problems related to population aging, a new type of urbanization, technological progress, an increase in the income gap of residents, various cultural and social conflicts, and the complication of the external environment.

#### *Irrational structure and small volumes of trade between China and Russia*

China and Russia are developing countries. In the sphere of foreign trade, due to their difference in the availability of resources, economic and trade cooperation between the two countries has long suffered from problems such as irrational structure and unitary form. In recent years, the structure of China's exports to Russia has been constantly improved and modernized. The manufacturing industry accounts for the vast majority of China's exports to Russia. At the same time, the share of high-tech products in the exported manufacturing industry is increasing, while primary products and raw materials occupy a dominant position in Russia's exports to China (Qi Shaozhou, Fu Zexi, 2017). Over the past 20 years, economic cooperation between China and Russia has increasingly focused on raw materials<sup>7</sup>.

In addition, despite the rapid pace of development in recent years, in terms of total volume, bilateral trade between China and Russia occupies

<sup>7</sup> Hillman E. (2020). China and Russia: Economic Unequals. Center for Strategic & International Studies. Available at: <https://www.csis.org/analysis/china-and-russia-economic-unequals>

a relatively small share in China's foreign trade. In 2021, the total volume of trade between China and Russia was about 2.43% of China's total foreign trade<sup>8</sup>, while in the same period, the total volume of trade between China and Europe (excluding Russia) was 13.7%. Thus, on the basis of consolidating the current growth trend of Sino-Russian trade and further optimizing the structure of trade, China and Russia should explore new growth points and new forms of cooperation in bilateral trade and economic cooperation. Based on traditional trade in goods, as well as an actively developing field of high technologies, energy, resources, finance, investment, industrial cooperation in such areas as various forms of economic and technological directions of cooperation development, the use of digital economy, green development, biological medicine and new sources of growth, trade and economic cooperation between China and Russia reveals a model of diversification, scale and quality of bilateral trade and economic relations of "double enhancement".

*Mechanisms of Sino-Russian trade and economic cooperation are awaiting further improvement*

Trade facilitation has become an important way for the countries to improve the business environment, reduce trade costs and enhance trade efficiency (Li Jianmin, 2020). Economic and trade cooperation between China and Russia is generally based on intergovernmental trade agreements. The trading system and the system of trade and economic services in accordance with international practice have not yet been properly built.

Due to the efforts of the Russian and Chinese governments, the bilateral trade system is improving. However, there are still problems related to the unreliability of the system's mechanisms, including

<sup>8</sup> A preliminary review of the results of the Russian-Ukrainian conflict in 2022 and an analysis of their impact on various industries. Available at: <https://www.vzkoo.com/read/202205300dca8eb6e5fd65ac11a750c3.html> (accessed: June 30, 2022).

the mechanism for protecting the interests of workers, the dispute settlement mechanism, the mechanism of cross-border payments and settlements, the mechanism of customs clearance, etc. Let us consider, for example, the protection of the rights and interests of Chinese workers in Russia. Due to the quota restriction imposed in Russia on attracting foreign labor to enterprises, the quota application procedure is cumbersome, and the execution cycle is long. The provisions on the localization of workers have made it difficult for Chinese enterprises to operate in Russia, and the rights and interests of Chinese workers in Russia cannot be protected. If we take Chinese and Russian investments as an example, then due to differences in the investment legislation of the countries, Chinese investors in Russia face financial risks, risks of the investment environment and currency settlements, intellectual property risks, logistics, tax and other risks. To some extent, they influenced the willingness of Chinese companies to invest in Russia. Only by creating an appropriate risk control mechanism and a full dispute settlement mechanism will it be possible to establish investment relations and increase the level of desire to invest. China and Russia should constantly strengthen the institutional structure of bilateral trade and economic cooperation to ensure long-term institutional guarantees of sustainable development (Liu Huaqin, 2019).

**Legal system of regional economic cooperation**

In the context of regional economic cooperation, let us turn to the experience of the European Union (EU) and the North American Free Trade Area (NAFTA). Their creation was aimed at promoting free trade within regions and even around the world, and their main systems demonstrate mature legal characteristics (Shen Sibao, Fu Rong, 2008). In this regard, China and Russia can learn from the experience of the EU and NAFTA legal systems.

*Legal system of the European Union*

Today, the European Union is the largest customs union in the world. It has a fairly advanced legal system, including “primary law” and “secondary law”. The concept of “primary law” refers to treaties, annexes and memoranda signed between member governments to create the EU, as well as to international treaties and agreements of the EU, such as the Treaty of Rome, while secondary law refers to regulations and resolutions jointly adopted by EU institutions. The principle of the rule of law in the EU is one of the pillars of this legal system. In other words, EU law will always be more effective than the laws of EU members that do not comply with it.

To a certain extent, the members of the European Union have sacrificed State sovereignty, which has led to the creation of a number of institutions of “supranational sovereignty”, such as the Council of the European Union, the European Commission, the European Parliament and the European Court of Justice. From the point of view of legislation, the member States give the EU significant legislative power. In fact, the main activity of the EU is to adopt and interpret these laws through the European Court of Justice.

The EU possesses not only an improved legislative mechanism, but also a fairly reliable legal system, including constituent treaties, annexes and memoranda signed between member States, as well as provisions and resolutions adopted by EU institutions. These laws have supreme force in the European Union. At the same time, member States are required to take active measures to strengthen the integration of laws with each other. For example, the White Paper on Completing the Internal Market, published by the EU, and the corresponding Single European Act, the main purpose of which is to eliminate border control and harmonize product standards to create a free single market. Through the European Court of Justice with supranational sovereignty, the EU not

only controls the implementation of its laws, but is also endowed with extensive jurisdiction to resolve disputes.

Despite Brexit, the financial crisis, the refugee crisis and other factors, the EU remains the organization with the highest level of integration of regional organizations in the world. The EU not only implements within itself the free movement of goods, services, capital and human resources, but it has also established a perfect legal system as a guarantee of “freedom”. The EU legal system is unique, and no other legal system can compare with it, despite the fact that it relies on many elements. The key to understanding the principles of its work is to avoid attempts to include them in national systems and to consider their behavior from different points of view<sup>9</sup>. This complete set of economic, social and legal systems is unparalleled in other regional organizations and represents a model for future regional integration and economic globalization.

*Legal system of the North American free trade area*

The North American free trade area, which was formed after adopting the North American Free Trade Agreement (NAFTA), is the most developed integration grouping along with the European Union. It is the world’s first regional trade organization, which includes both developed and developing countries. Since NAFTA members emphatically insist on state sovereignty, the assignment of sovereign rights is very limited. NAFTA supports the orientation toward the model of the European Union in the aspect of economic integration. The difference lies in the absence of a desire to form political supranational bodies<sup>10</sup>. It is

<sup>9</sup> Bolado L. Overview of the EU legal system. Available at: <https://www.lexisnexis.co.uk/legal/guidance/overview-of-the-eu-legal-system> (accessed: October 15, 2019).

<sup>10</sup> Zelenskaya T. NAFTA is... North American Free Trade Area. NAFTA: Goals and objectives. Available at: <https://fb.ru/article/176971/nafta---eto-severoamerikanskaya-zona-svobodnoy-torgovli-nafta-tseli-i-zadachi>

for this fundamental reason that NAFTA is unique in terms of the legal system. In other words, in accordance with the different needs of the member countries in the organization of regional integration, it develops an organizational structure and a legal system with the characteristics of both soft law and rigid legislation. Thanks to the flexible system structure, this model not only properly solves many problems caused by the different levels of economic development of NAFTA member countries, but also creates new ways of North – South cooperation that have a sufficiently strong value as a model to follow in regional integration (Wang Chunjie, 2009).

The North American free trade area seeks to realize the free movement of goods, services and capital within the region. However, the abolition of customs taxes and quotas alone is not enough to implement free trade. It is necessary to improve the legal system. The North American Free Trade Commission does not have the right to make laws, so the legal system of NAFTA is quite elementary. There is only the North American Free Trade Agreement and the corresponding annexes to it. This agreement in the United States is considered an international treaty and has the same status as federal law. Although the North American Free Trade Commission does not have the legislative power to guarantee the free flow of intraregional trade, the North American Free Trade Agreement can to some extent adjust the domestic legislation of member countries and resolve legal issues and contradictions. For example, when it comes to health and environmental laws, NAFTA requires member countries to integrate their laws, prohibits the use of laws as a means of hindering trade, and establishes mechanisms for mutually recognized product standards. This ensures the liberalization of trade turnover from a legal point of view and helps to avoid hidden trade protection. As for the dispute resolution mechanism, NAFTA provides for it in chapters 11, 19 and 20 of the North American Free Trade Agreement, respectively, and also establishes

dispute settlement mechanisms on environmental and labor issues in two additional agreements: the North American Agreement on Environmental Cooperation and the North American Agreement on Labor Cooperation. In general, NAFTA does not have a single dispute resolution mechanism, and the dispute resolution model combines diplomatic and judicial methods. However, this method of dispute resolution is flexible and non-coercive, which can provide a sufficient legal guarantee of dispute resolution within the region.

The lack of institutional legal guarantees of Chinese-Russian trade and economic cooperation has indirectly contributed to the increase in trade barriers between the two countries and hindered bilateral trade and economic cooperation. China and Russia can borrow from the successful experience of free trade zones in North America and the European Union. The difference between China and Russia in terms of historical background, social culture and legal system is very great. At this point, there is sufficient similarity with the relationship between the United States, Canada and Mexico, so China and Russia, within the legal framework of the future free trade area, can borrow from NAFTA a simple and soft organizational structure, as well as a flexible legal system. Such a model is currently also the main one in China's free trade with other countries. The European Union has the deepest degree of integration, especially in terms of legal conflicts. Its experience can also be used by China and Russia as a guideline for improving the relevant provisions.

#### **Legal guarantees of Chinese-Russian economic cooperation**

According to the Agreement between the People's Republic of China and the Russian Federation signed by the Russian and Chinese leaders in June 2018, both parties emphasize the need to continue joint efforts to promote comprehensive practical cooperation. From a legal point of view, China and Russia should create a

legal environment suitable for the development of a market economy. A cooperation agreement should be signed between the two countries to develop bilateral trade and economic cooperation and ensure its legal guarantees. It is necessary to comply with international law and, in particular, actively implement various agreements within the WTO, apply the WTO dispute resolution mechanism to protect their respective rights and interests, actively implement The Belt and Road Initiative, BRICS mechanisms and other platforms for the development of trade and economic cooperation. Let us take a closer look at the aspects that provide reliable legal guarantees for Chinese-Russian economic cooperation.

*Improving and implementing the legal framework of Chinese-Russian trade and economic cooperation*

In recent years, China and Russia have signed a number of bilateral agreements on cooperation in the field of economy and trade, including the Sino-Russian Intergovernmental Agreement on the Promotion and Protection of Investments, Sino-Russian Intergovernmental Agreement on the Avoidance of Income Tax, Double Taxation and Tax Evasion, Sino-Russian Intergovernmental Agreement on Economic and Trade Relations, Sino-Russian Intergovernmental Agreement on the Settlement of Government Loans and Debt Obligations, etc. This laid a solid legal foundation for the development of Sino-Russian trade and created a healthy environment for economic development of the two countries. However, with the deepening and development of bilateral cooperation, some agreements signed over the years have ceased to correspond to reality. The current situation in the sphere of bilateral cooperation requires either the signing of a new cooperation agreement, or making adjustments to important points of the existing agreement such as market access, settlement of investment disputes and debt issues to create a softer institutional environment for Sino-Russian trade and economic cooperation.

In February 2022, during the visit of Russian President Vladimir Putin to China and his visit to the opening ceremony of the Winter Olympic Games in Beijing, the relevant departments of China and Russia signed a number of documents on cooperation in key areas. In particular, the customs offices of the two countries signed an agreement on planning mutual recognition of “authorized economic operators” (AEO). Mutual recognition of AEO will continue to have a stimulating effect, as well as contribute to increasing the level of trade and economic cooperation between China and the Eurasian Economic Union. On the same day, both sides signed a Memorandum of Understanding on Promoting Investment Cooperation in the Field of Sustainable (Green) Development.

*Raising the level of Sino-Russian investment cooperation and substantiating the creation of a free trade zone between China and Russia*

Both China and Russia are market economies, playing an important role in the international market. Since the beginning of the Russian-Ukrainian conflict, the economic dependence of China and Russia has been continuously increasing. Raising the level of Sino-Russian investment cooperation and creating a Sino-Russian free trade zone are strategic choices of the countries that will contribute to overcoming the crisis (Zhan Siyu, Li Yamin, 2010). It will also help both parties to avoid risks due to economic globalization.

In 2006, China and Russia signed the Sino-Russian Intergovernmental Agreement on Investment Guarantees, which officially entered into force in 2009. The agreement provides legal guarantees in the sphere of trade between China and Russia. At the present stage, the expansion of bilateral investment is an important direction for achieving qualitative development of trade and economic cooperation between the countries in the future. Thus, the economic and trade departments of Russia and China should start exploring the possibility of increasing the level of Chinese-

Russian investment cooperation and strive to create more effective institutional mechanisms for its implementation. Along with the deepening of the Sino-Russian comprehensive strategic partnership in the new era, the creation of a closer Sino-Russian free trade zone is a win-win choice for both sides. If China and Russia can sign a free trade agreement, it will not only promote trade and economic contacts between the two countries, but also provide a reliable legal guarantee of their economic cooperation.

In accordance with the current situation in the sphere of trade and economic cooperation between China and Russia, efforts still need to be made to achieve the goal of creating a free trade zone. It is necessary to increase the transparency of the judicial process and the fulfillment of mutual obligations for WTO accession. Relevant agencies should create platforms for exchange and cooperation, timely eliminate potential dangers in the economy and trade, as well as adjust mutually beneficial friendship and cooperation agreements between governments in accordance with the state of development of Sino-Russian trade and economic cooperation. We should strive to overcome customs and non-customs barriers, change the tax rate and the external tax rate within the jurisdiction, effectively use methods of resolving trade disputes, accelerate the free circulation of goods, services and capital between the two countries.

#### *Synergy between The Belt and Road Initiative and the Eurasian Economic Union*

The synergy between The Belt and Road Initiative and the Eurasian Economic Union can promote the relationship between them by creating a platform of cooperation for trade and economic contacts and also provide legal guarantees of trade and economic cooperation between the two countries in legal terms. The Eurasian Economic Union (EAEU) is the result of Vladimir Putin's promotion of integration in the region of the Commonwealth of Independent States (CIS). There is hope that the EAEU will be able to play the role of a bridge between Europe and the Asia-Pacific

region in a multipolar world. However, the synergy of The Belt and Road Initiative and the Eurasian Economic Union also faces such problems as differences in the stages of development, divergence of interests, low level of cooperation, flaws in business environment and a lag in the construction of the system. Nevertheless, China and Russia can continue to promote synergy between The Belt and Road Initiative and the Eurasian Economic Union in order to stimulate communications and economic development in the region of the Eurasian continent. Russia is not yet actively participating in China's broad initiative to develop infrastructure throughout Asia, known as the "One in the Whole Area" initiative, but this may change as interstate relations improve<sup>11</sup>.

In May 2018, an agreement on trade and economic cooperation between the People's Republic of China and the Eurasian Economic Union was officially signed. Thus, a legal framework and mechanisms of interaction were formed to address issues of trade and economic cooperation between the EAEU and China. The agreement provides an important legal guarantee for the formation of a common economic development space, implementing synergy between The Belt and Road Initiative and the EAEU, as well as the coordinated development of The Belt and Road Initiative and partnerships in Greater Eurasia (Zhao Mingwen, 2020).

#### *Deepening the cooperation mechanisms of the BRICS countries*

The BRICS countries attract the attention of the whole world not only because of their economic models and the viability of their economies, but also because they play an increasingly important role in the global governance agenda as beneficiaries of the latest round of globalization and the top countries among the economically lagging ones. As a result of more than a decade of development, the BRICS

<sup>11</sup> Lotspeich R. The economic integration of China and Russia. Available at: <https://theasiadialogue.com/2018/03/14/economic-integration-of-china-and-russia/>

countries have become an important platform for cooperation between states with emerging markets. The 14th BRICS Summit was successfully held in June 2022. Official applications from Argentina and Iran for membership, following the BRICS summit, further attracted attention to the organization around the world. In 2021, the total GDP of the BRICS countries amounted to 24.5 trillion USD (24% of the global volume). Today, the BRICS countries cooperate in many areas and have formed cooperation mechanisms, such as the New Development Bank, the BRICS Contingent Reserve Arrangement, the BRICS Business Council and the BRICS Think Tank Council, which show their significant role in the international economy. For this reason, the BRICS countries can also become an important platform for trade and economic cooperation between China and Russia. Since the beginning of the Russian-Ukrainian conflict, Russia has called on the BRICS countries to unite in order to create a new payment system called BRICS Pay, as well as to choose BRICS Pay for conducting internal transactions in order to implement the dedollarization of trade within the BRICS.

Looking to the future, it is necessary to continue to innovate and build a rules-based and market-oriented new model of Sino-Russian trade and economic cooperation in order to provide long-term institutional guarantees for sustainable development of China and Russia (Liu Huaqin, 2019).

## Conclusion

The consistent strengthening of strategic partnership between Russia and China is taking place against the background of growing global turbulence and chaotic international relations (Kortunov et al., 2020). Currently, China is the most promising and at the same time optimal partner for Russia. This can be judged by various indicators, which primarily include the complementarity of the economies of the countries (Ganeeva, Tulueva, 2016). Stable partnership relations between China and Russia provide a solid foundation for the trade and economic development of the two countries. However, in practice, due to various reasons, the success of trade and economic cooperation between Russia and China is still not satisfactory. Further development of bilateral relations also puts forward new requirements for trade and economic cooperation. In order to detect and solve problems in the spheres of economy and trade, as well as strengthen trade and economic cooperation between Russia and China, it is necessary to pay attention to improving legal guarantees in order to ensure stable and long-term legal support for trade and economic cooperation. The study and implementation of political and legal guarantees of Chinese-Russian economic cooperation will contribute to the further improvement and strengthening of relations between the two countries in the context of international economic and political changes.

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## On the Results of the Conference “Consolidation of Russian Society in the New Geopolitical Realities” in the Framework of the First Lapin Readings



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November 17–18, 2022, the First Lapin Readings under the title “Consolidation of Russian Society in New Geopolitical Realities” were held at the Institute of Philosophy, Russian Academy of Sciences. They were organized by the Center for the Study of Social and Cultural Change (CSSCC) of the Institute of Philosophy, Russian Academy of Sciences (IPh RAS) and Vologda Research Center of the Russian Academy of Sciences (VoIRC RAS). The conference represented a revival of annual

scientific events for participants of the program “Problems of Socio-Cultural Evolution of Russia and Its Regions”. The program was launched 23 years ago. Its initiator and ideological inspirer was Nikolai Ivanovich Lapin, RAS Corresponding Member, head of CSSCC IPh RAS. After his passing away, the CSSCC staff made a proposal to hold regular Lapin Readings, to continue the traditions of scientific discussion on socio-cultural issues regarding the development of Russia and its regions.

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This proposal was supported by all participants of the program. The purpose of the conference is to consider the problems of population consolidation in the all-Russian and regional context in the new situation of international sanctions and changes in geopolitical realities in which modern Russia is included.

The conference was attended by representatives of 17 Russian regions, including Moscow, Saint Petersburg, Perm Krai, the Bryansk, Vologda, Irkutsk, Kursk, Nizhny Novgorod, Smolensk, Tyumen, Sverdlovsk, Tula, Ulyanovsk oblasts, the republics of Bashkortostan, Karelia, Chuvashia, Chechnya, as well as the Republic of South Ossetia. In addition to reputable scientists, it was attended by university students from Moscow, Saint Petersburg, the Kursk, Vologda, Ulyanovsk, Tyumen oblasts, the Republic of Bashkortostan and the Chuvash Republic. In total, two plenary sessions and five sections were held. Opening greeting speeches in front of the participants of the First Lapin Readings were delivered by A.A. Guseinov, Doc Sci. (Philosophy), RAS Academician, IPh RAS acting director, M.F. Chernysh, Doc Sci. (Sociology), RAS Corresponding Member, FCTAS RAS director, and V.A. Ilyin, Doc Sci. (Economics), Professor, RAS Corresponding Member, VolRC RAS scientific director. All of them spoke with gratitude about Nikolai Ivanovich Lapin, who had made a huge contribution to Russian science.

The conference participants shared the results of historical and current sociological research, findings of their studies, and methodological and philosophical reflections. The conference has become interdisciplinary in terms of ways of searching for new knowledge, generalizing the results and analyzing specific historical realities regarding the development of Russian society, as well as in terms of methodological foundations and methodological tools for obtaining the materials involved and ways of forming scientific discourse.

During the **first plenary session**, scientists turned to the legacy of N.I. Lapin. L.A. Belyaeva, Doc. Sci.

(Sociology), Professor, acting head of CSSCC IPh RAS, spoke about the joint work with N.I. Lapin, how the project “Socio-Cultural Portraits of Russia’s Regions” had been created. This project brought together the efforts of philosophers, sociologists, economists from Russian regions that are most diverse in their socio-cultural, modernization and other characteristics. Analyzing the deep modernization differences between RF constituent entities, N.I. Lapin was one of the first to raise the question of what is behind these differences. Ms Belyaeva continued to study the heterogeneity of Russian society, including noting the possible risks that heterogeneity carries, and proposed new ways to explain modernization differences between Russian regions. This helped to reveal some new ideas, formulate new problems that require further consideration.

I.V. Katerny, Doc. Sci. (Sociology), professor at MGIMO University of the Ministry of Foreign Affairs of Russia, made a report “*From Crisis Society to Crisis Sociality: To the 30th anniversary of N.I. Lapin’s Work ‘The Hard Years of Russia’*”. Based on the All-Russian study “Our Values Today”, the author conducted a deep analysis of the possibilities of humanization as a starting process of social reformation in Russia. This humanistic idea can also be proposed to overcome the current crisis, transition to post-conflict reconstruction in a new Russia.

Scientists from the Institute for Demographic Research FCTAS RAS: G.I. Osadchaya, Doc. Sci. (Sociology), Professor, and T.N. Yudina, Doc. Sci. (Sociology), Professor, presented a joint report “*Values, Interests, Group Solidarity and Social Management*”, dedicated to the sociological school under the leadership of N.I. Lapin and V.A. Yadov. They spoke about the experience of teaching sociologists through participation in research, in-depth study of theory and modern methods in practice, in live and creative communication. The school has educated a whole galaxy of outstanding scientists and has made an invaluable contribution to the development of Russian sociology.

M.M. Yusupov, Cand. Sci. (Sociology), associate professor at the Chechen State University, in his report *“Methodology and Method of Studying Values in N.I. Lapin’s Research”*, highlighted some aspects of the theoretical and methodological approach and method of studying socio-cultural values, developed together with like-minded colleagues. The speaker gave an example of implementation of a methodological approach in the monitoring “Socio-Cultural Portrait of Russia’s Regions”, interregional comparison of research findings. An important conclusion was made: with all the inevitable regional specifics, all RF constituent entities are in the same civilizational or socio-cultural space.

Another aspect of N.I. Lapin’s scientific heritage, concerning trust in institutions, was revealed by V.A. Podolsky, Cand. Sci. (Politics), associate professor at the State Academic University for the Humanities. Mr Podolsky noted that N.I. Lapin had considered the social state to be the most important institutional embodiment of justice, necessary to justify trust, relying both on the sociological theories of the 20th century and on classical political and philosophical works.

The final report of the first plenary session was delivered by A.A. Shabunova, Doc. Sci. (Economics), VolRC RAS director. Ms Shabunova spoke about the most important results and prospects of conducting research under the program “Problems of Socio-Cultural Evolution of Russia and Its Regions”, and also shared the immediate plans of the program coordinators. The development of scientific research requires joint intellectual and organizational efforts of scientists – representatives of all regions participating in the program. The conference participants made important proposals aimed at implementing the initiatives. In particular, it was proposed to update the methodology for studying socio-cultural evolution in order to organize an All-Russian sociological study of the civilizational heterogeneity of Russian society.

The **second plenary session** discussed the development of consolidation potential in modern Russia. The session was opened by V.A. Kozlovsky, Doc. Sci. (Philosophy), Professor, director of the Sociological Institute of the RAS – Branch of FCTAS RAS in Saint Petersburg, with the report *“Transformation of the Civilizational Identity of Russian Society in the Context of Multiple Modernization”*. He gave an understanding of civilizational identity as a set of social forms of modernity, which includes methods (rules, values and norms) of socio-cultural construction, understanding, interpretation and actions of established social groups. The speaker paid special attention to various dimensions of the civilizational identity of Russians in the context of modernization processes: forms and degrees of social and cultural integration; economic, social and cultural dominants that determine the meaning and spirit of the modern era; unique types of differentiation of modern societies; forms of socio-cultural interaction of transforming modern societies in the context of globalization; changing models of environmental management and consumption; key parameters of life paths and models of social action of a modern person; semantic structures of everyday experience and standards of life set by science and technology; a collective view of innovation, anomie, as well as anomalies of modern society.

The transformations of Russian federalism in the new geopolitical realities were analyzed in the report of Yu.D. Granin, Doc. Sci. (Philosophy), IPh RAS leading researcher. The scientist noted that in 1990–2022 the country has evolved from the model of “cooperative federalism” to the model of “centralized federation”. The latter model can be fully integrated into the imperial development paradigm characteristic of Russia. Mr Granin’s report caused a lively discussion about the fate of Russian federalism, relationship between the concepts of locality and civilization, possibilities for and barriers to maintaining the balance of federal centralism and regional diversity.

The report “*Civic Participation Practices of Residents of the Central Chernozem Region*” delivered by E.A. Kogay, Doc. Sci. (Philosophy), Professor, department head at Kursk State University, represented civic participation as an indicator of civic culture. Based on the analysis of the results of field sociological studies conducted in the Voronezh, Kursk and Lipetsk oblasts in 2020–2021, the speaker came to the conclusion about the potential readiness of residents to interact with the authorities in addressing social issues and the significant potential of civic participation. However, practical implementation of this potential requires the creation of adequate conditions and development of more effective tools and mechanisms.

The final report “*Center – Periphery in the Perception of Rural Residents*” was delivered by G.F. Romashkina, Doc. Sci. (Sociology), professor at the University of Tyumen. The report was based on the analysis of the results of quantitative and qualitative research – mass sociological surveys, in-depth interviews of residents of rural areas, experts of various levels from the Tyumen Oblast. The speaker systematized the ideas about the center-peripheral features, on the basis of which their mental, socio-economic and economic-geographical connotations were revealed; the structure of regional identities was revealed in the context of the influence of factors such as education, income level and employment. A lower degree of life satisfaction, greater dependence and weaker consolidation of residents of small peripheral cities compared to rural residents and residents of large cities were found.

**Section 1 “Civilizational Challenges of Russia’s Development in New Socio-Political Circumstances”** brought to the fore the problems concerning the impact of modern modernization processes on various spheres of life of Russian society. A report “*On the Civilizational Meanings of the Modern Stage of Modernization*” by I.N. Sizemskaya, Doc. Sci. (Philosophy), chief researcher at IPh RAS, focused on the importance of addressing the universal,

humanistic meanings of modernization processes. Ms Sizemskaya emphasized the methodological consistency of the concept of step-by-step integrated modernization developed by the staff of CSSCC IPh RAS, pointed out the need to consider an important parameter of modern modernization processes – the formation of “knowledge in the status of people’s understanding of each other and the natural and social space surrounding them”. In addition, she outlined the topical issue of modernization regulation models, noting that the movement along the “authoritarian mode” creates difficult situations.

Yu.M. Reznik, Doc. Sci. (Philosophy), Professor, chief researcher at IPh RAS, in his report “*Domestic Philosophy in Search of Answers to the Civilizational Challenges of Russia*” pointed out the importance of referring to the Russian philosophical heritage. One of the fundamental ideas of this heritage can be considered the idea of ecocentrism, which can become a fruitful worldview for future social development. V.P. Veryaskina, Cand. Sci. (Philosophy), Associate Professor, senior researcher at IPh RAS, in her report “*Challenges of Russia’s Civilizational Development in the 21st Century: Forecasts, Trends and the Image of the Future*” pointed out the need to forecast possible changes in the modern geopolitical context. Based on the generalization of a number of scientific forecasts, she emphasized that at present the ideas of pan-subjectivity and consolidation of human potential are of fundamental importance. The development of spiritual culture, historical traditions and historical memory should be directed at strengthening this potential.

M.N. Yakovleva, researcher at the Institute of Sociology FCTAS RAS, in her report “*Problems of Cultural and Civilizational Identity of Russia in the Context of Globalization*” also raised issues of the revival of spiritual values of Russian society. She linked the split of Russian society with the contradiction of traditional Russian identity and mindless borrowing of Western mental stereotypes and

behavior standards. Emphasizing the importance of modern reinterpretation of the cultural and civilizational identity of Russian society, especially youth, through the introduction of new patterns of mental stereotypes and behavior, Ms Yakovleva noted that reinterpretation must necessarily take into account the traditional Russian identity and, in particular, the fundamental principles of morality and religion of the peoples of Russia.

During the work of **section 2 “Socio-Cultural Development of Russia’s Regions”**, a detailed analysis of the results of field sociological research conducted within the framework of the program was carried out, as well as questions about the reflection of the results of these studies in educational practice were considered. Thus, within the framework of the report *“Socio-Economic Vulnerability of the Development of Russian Regions in Modern Conditions”*, Yu.M. Pasovets, Cand. Sci. (Sociology), associate professor at Kursk State University, focused on the conditions of instability and risks of modern socio-cultural processes. As a key factor promoting vulnerability of regional development, Ms Pasovets presented a contrasting profile of socio-economic stratification on the example of Central Chernozem Region areas. A.V. Vinokurov, Cand. Sci. (Psychology), associate professor at Smolensk State Institute of Arts, in his report *“The Formation of the Digital Economy and Culture Industry in the Smolensk Oblast”* spoke about the leading directions of the digital transformation program of the region, approved in December 2021. He addressed the issue of changing the communicative culture of the youth of the Smolensk Oblast under the influence of the electronic environment, stressed the importance of analyzing the neural network effects of the digital economy and culture of the Western Border region of Russia.

E.B. Plotnikov, Cand. Sci. (History), Associate Professor, department head at Perm State University, and Yu.S. Markova, Cand. Sci. (Sociology), associate professor at Perm State University, in their

report *“Social Design as a Technology for Overcoming Socio-Cultural Risks in Municipalities”* focused on the importance of improving technologies for overcoming existing threats arising in the boundaries of the zones of municipalities of the Perm Oblast. They considered various ways of overcoming socio-cultural risks, which were embodied in social projects of industrial enterprises. The scientists also pointed out a number of risks that require relevant projects to be developed so as to reduce the following risks: low standard of living, lack of support for socially vulnerable categories of citizens, availability of information, the need to preserve the historical memory of a small homeland, etc. They also shared their experience of introducing materials obtained during the implementation of the program *“Problems of Socio-Cultural Evolution of Russia and Its Regions”* into the educational process at Perm State University.

M.A. Gruzdeva, Cand. Sci. (Economics), senior researcher at VolRC RAS, in her report *“Socio-Cultural Characteristics of the Region through the Prism of Crisis Transformations”* presented an analysis of data obtained during seven waves of sociological surveys in the Vologda Oblast. This allowed her to recreate the dynamics of the region’s socio-cultural development, identify the leading transformations of the territorial identity and value structure of the population, carried out under the influence of economic crises and external challenges.

N.M. Lavrenyuk-Isaeva, Cand. Sci. (Sociology), deputy director of the Ufa University of Science and Technology, in her report *“Socio-Constructive Activism in Noncentral Areas of Russian Cities”* considered one of the solutions to the problem of consolidation of Russian regions. She noted that it is advisable to begin the consolidation of Russians through their involvement in constructive “close” practices concerning everyday pastime. Accordingly, Ms Lavrenyuk-Isaeva called the development of socio-constructive activism of local urban communities an effective way to solve the problem.

V.S. Bogdanov and A.A. Pochestnev, both Cand. Sci. (Sociology) and senior researchers at the Institute of Sociology FCTAS RAS, based their report *“The Problem of Expert Group Formation in Regions with Different Levels of Socio-Cultural Development”* on expert surveys. They consistently revealed the influence of the existing regional management systems on regions’ modernization processes. The speakers came to the conclusion that it is necessary to typologize regions not only by technical, technological, socio-economic, socio-cultural components of socio-cultural modernization, but also by the degree of development of the institutional and regulatory component.

M.V. Moroshkina, Cand. Sci. (Economics), senior researcher at the Institute of Economics of the Karelian Research Center of the Russian Academy of Sciences, in her report *“Central and Peripheral Regions of the Northwestern Federal District”* touched upon the problem of geographical accessibility of NWFD regions, while noting the ambivalence of the influence of the border situation on the development of the region. She proposed the calculation of the peripheral level of the region based on the assessment of geographical location and the volume of regional market. With the help of this calculation, the classification of regions can be carried out, as well as their ranking depending on the level of availability of the regional market. L.I. Rozanova, Cand. Sci. (Economics), senior researcher at the Institute of Economics of the Karelian Research Center of RAS, in her report *“The Impact of Investments on Social Sustainability in the Region”* noted the importance of state investment support for the development of Northwestern Federal District territories. This support can help to attract private investors, develop small and medium-sized businesses, as well as depopulation processes, and ultimately increase the level of social stability in the regions of the federal district under consideration.

The work of the **section 3 “Identity in the Context of Consolidation of Russian Society”** was

built around the issues of overcoming the malfunctions in traditional components of identity in modern Russia. Thus, K.S. Mokin, Doc. Sci. (Sociology), leading researcher at the Institute of Sociology FCTAS RAS, in his report *“Territorial Identity: Forms and Mechanisms of [Re]configuration (Comparative Analysis of the Saratov Oblast and the Republic of Kabardino-Balkaria)”* presented an analysis of factors influencing the transformation of the territorial identity of Russian citizens, and also proposed conditions for the formation of an identification matrix. The speaker stressed that territorial identity is one of the leading types of social capital of regions’ residents, performing both mobilization and socio-cultural presentation functions of territorial communities. V.G. Kharitonova, Cand. Sci. (History), associate professor at Chuvash State Institute of Humanities, prepared her report *“The All-Russian Civil, Regional and Ethnic Identity of the Population of Chuvashia”* in collaboration with I.I. Boyko, Doc. Sci. (History), Professor; the report was based on the materials of a number of sociological surveys. This made it possible to recreate the state and dynamics of various levels of identity of the population of Chuvashia. It is noted that the hierarchical combination of different types of identity does not indicate the presence of confrontations of representatives of different nationalities in the republic. It should be understood that identities are not rigid constructions; they can be changeable and even situational.

R.M. Valiakhmetov, Cand. Sci. (Sociology), Associate Professor, dean of Bashkir State University, in his report *“Specifics of the Formation and Manifestation of Ethnic, Regional and Civic Identities in the Republic of Bashkortostan”*, continued to study the above topic. He emphasized that the basis of any identity is made up of deep socio-cultural values and factors. When considering certain types (forms) of identities, researchers sometimes artificially “enclose” them in a certain framework. The speaker noted that it is also necessary to take into account and,

accordingly, more carefully and closely study multi-component, cross-border identities, sub-regional sub-ethnic identities, etc. K.G. Dzugayev, Cand. Sci. (Philosophy), associate professor at the South Ossetian State University named after A.A. Tibilov, presented his report “*The Republic of South Ossetia: Alternative Identity*” in which he pointed out the variability of the choice of identity for South Ossetians. He noticed the emergence of a new political and cultural reality in the Republic of South Ossetia following the results of the 2022 presidential election. And this new reality has led to numerous active discussions among the region’s residents, carried out at various levels, covering social networks, labor collectives, neighboring communities and related groups.

Yu.V. Latov, Doc. Sci. (Sociology), Associate Professor, chief researcher at the Institute of Sociology FCTAS RAS, prepared the report “*Modernization of the Mental and Cultural Values of Russians and Urbanization: An Inverted U-Shaped Dependence*” jointly with N.V. Latova, Cand. Sci. (Sociology), leading researcher at the Institute of Sociology FCTAS RAS. The report noted the ambiguous nature of socio-cultural modernization in Russia at the beginning of the 21st century. Based on the analysis of the results of all-Russian sociological surveys conducted in the 2000s–2020s by the Institute of Sociology FCTAS RAS, the speaker traced the patterns of the current state of the mental and cultural characteristics of residents of various types of Russian cities. At the same time, he drew attention to the reduced commitment of residents of metropolitan megacities to modernization characteristics, compared with residents of smaller cities. He presented an inverted U-shaped model of differences, which is manifested among residents of different cities in requests for information and cultural content, in adherence to cultural and modernization values, as well as in the prevalence of various types of social

participation. I.I. Sulima, Dr. Sci. (Philosophy), Associate Professor, department head at Minin Nizhny Novgorod State Pedagogical University, in her report “*Ways of Forming Linguistic Unity: Methodology of Attitude toward Language*” considered linguistic identity in the context of consolidation processes. The speaker came to the conclusion that the basis for the consolidation of Russian society should be the native language, the languages of art, as well as the languages of science. Accordingly, the education system faces the task of minimizing foreign-language borrowing, since it is the language that is the basic element that determines national identity.

**Section 4 “Youth in the Face of Modern Challenges”**, in accordance with its name, brought together established scientists, students and postgraduates. V.T. Tarasov in the report “*Elements of Historical Consciousness in Young People*” compared the historical consciousness of youth on the example of Russia and university students of Chuvashia in different periods of the USSR and Russia. On the basis of a conditional comparison of representatives of youth from different historical periods, the process of formation of their historical consciousness in dynamics was studied. Mr Tarasov presented the age cohorts as the youth of the corresponding periods, whose consciousness was formed under various models of political relations. The aim was to find out the impact of specific social practices and ideological influences on the younger generation in various historical periods. The results of longitudinal studies were processed using factor analysis, the most significant discrepancies in the conditional values of factors were shown. In particular, significant differences were observed in the prerequisites for and level of religious consciousness and social optimism in the youth of the USSR and modern youth.

L.S. Ruban, Doc. Sci. (Sociology), Professor, department head at the Institute of Socio-Political

Research, presented the report “*Studying National and Civic Identity of Students in the Framework of the Three Generations of Russian Youth*”. Over 30 years of sociological surveys of Soviet and, later, Russian schoolchildren, three generations of young people were studied: the last Soviet generation, the generation of the transitional period and the first post-Soviet generation. As Ms Ruban showed, in 1990–1991 and 1995–1998, 75–80% of students defined their Homeland as a small homeland. Later, in 2001–2007, a new trend began to take shape, expressed in the awareness of the Homeland as a strong country protecting its citizens. During this period, 44% of respondents thought so, and 34% characterized the Fatherland as a small homeland.

E.V. Kargapolova, Doc. Sci. (Sociology), professor at Plekhanov Russian University of Economics, prepared a joint report with D.N. Matreshkina and A.D. Chubarova, students of the said university. Their report “*Health-Preservation Practices of Russian Youth: Correlates of Differentiation*” discussed the results of a specific sociological study conducted via questionnaire method in February 2020 among students of universities in Moscow and the Moscow Oblast (N = 2600). The co-authors presented the main correlates of health-preservation practices, primarily family, part-time work experience, financial situation of students.

E.V. Andrianova and M.V. Khudyakova, both Cand. Sci. (Sociology), associate professors at the University of Tyumen, delivered a report “*The Image of the Future as Perceived by Rural Youth: The Possibility of Consolidation*”. Preserving the traditions of rural field sociology, the research group collected 152 expert and in-depth interviews, photo and video information on the territory of 14 districts of the Tyumen Oblast (summer 2020). To identify the image of the future of rural settlements, a subsample of 59 interviews was formed. Conducting in-depth face-to-face interviews made it possible to determine the life experience of the informant, their

attitude toward the current state of the village and the vision of prospects for the development of the territory. In 2021, nine focus groups were organized and conducted with visits to the districts of the Tyumen Oblast. The authors confirmed that there is no single “image of the future”, but there are some common fragments that form the main types of ideas about the future, demonstrating the axes of distinction among rural and urban youth: economic activity, social activity, intergenerational transition, territorial identity, socio-cultural identity, youth activity.

Yu.A. Davydova, Cand. Sci. (History), associate professor at Plekhanov Russian University of Economics, together with students of the same university A.D. Sokolov and D.I. Piskarev, prepared a report “*The Image of the Motherland as Perceived by Students*”. In the course of the study, students of Moscow universities were asked about associations related to the concept of “homeland”; 4,276 response words were received. The study showed that the largest number of responses was given by the group “Place/territory” (40%), the most common words were “home” (37% of references) and “Russia” (17%). The second group in terms of the number of responses was “Cultural/historical heritage”, which included 13% of respondents’ answers, the priority words were “fatherland” (28% of references) and “patriotism” (27%). The third group “Family” (12%) correlates with the associations “family” (44%) and “mother” (32%). Thus, the small homeland, the place where they live; the country as a whole, cultural and historical heritage, family, parents symbolize the concept of “homeland” for the overwhelming number of respondents.

G.F. Romashkina and V.A. Davydenko, both Doc. Sci. (Sociology), professors at the University of Tyumen, presented an interdisciplinary concept of human capital. The speakers coordinated various theoretical ideas about the origin of the advantages of developed human capital, its connection with the social context, human characteristics and a variety

of ideas about human capital as such, psychological characteristics, human behavior in the labor market.

Further, a report of a theoretical and methodological nature “*The Research Potential of the Cognitive Mapping Method in the Social Sciences*” was made by K.V. Rakova, junior researcher at IPh RAS. The content analysis of domestic scientific research published in the period from 2010 to 2021 allowed the author to assess the research potential of the cognitive mapping method. The weaknesses of the method included high time costs, limitations in the application of the results and conclusions obtained in the study of other problems in the social sciences, limitations in the classification and grouping of responses. The advantages of the method include the ability to see the latent mental attitudes of an individual in relation to a particular event, phenomenon, individual or social group, a low level of formalization, original empirical material, opportunities to identify “social mood” of an individual or a group.

Methodological issues were also discussed during the conference. The participants noted that currently many scientists, using traditional sociological methods, face difficult to resolve issues of accessibility, relevance and representativeness of data. For example, it is necessary to take into account the limitations of various empirical research technologies in modern social sciences, such as longitudinal studies, snowball studies, involving online techniques, and critically approach various methods of obtaining qualitative and quantitative data in their interrelation.

In conclusion, the conference participants and members of the coordinating council discussed major results and prospects for the development of the program “Problems of Socio-Cultural Evolution of Russia and Its Regions”. First of all, they pointed out the need to update the methodology, to include the most important modern aspects in it, such as the formation and development of local civilizations, assessment of identities, formation of the core culture of Russian society, its diversity, complementarity and contrast in territorial, ethnic, religious and modernization characteristics, threats to the consolidation of society. In addition, it is necessary to continue studying digitalization in regional communities, the processes of self-organization and/or disorganization of public life, as well as the development of an institutional-subjective (integrating the capabilities of regional management institutions and individual subjects) mechanism for regulating socio-cultural processes in territorial communities. The conference participants recognized the need to conduct Lapin Readings in various regions of Russia in order to continue the unique traditions of the program, interregional coordination, generalization of the experience of socio-cultural, traditional sociological and socio-economic research. The development of traditions is associated with a deep historical, cultural and philosophical level of comprehension, comparison and generalization of knowledge, reaching a new level, including the study of civilizational heterogeneities and the search for new interdisciplinary forms.

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# PUBLIC OPINION MONITORING

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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 Oblast<sup>1</sup>.

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 "wave" of the monitoring (February 2023) and for the period from February 2022 to February 2023 (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), 2011 (the last year of Dmitry Medvedev's presidency), and 2012 (the first year of Vladimir Putin's third presidential term).

We also present the annual dynamics of the data for 2018 and for 2020–2022<sup>2</sup>.

In December 2022 – February 2023, the share of positive assessments of the RF President's work increased slightly (by 2 percentage points, from 59 to 61%). The proportion of negative judgments decreased by 3 percentage points (from 25 to 22%).

Compared to February 2022, the level of approval of the head of state's work increased by 13 percentage points (from 48 to 61%); the proportion of negative assessments decreased by 10 percentage points (from 33 to 23%)<sup>3</sup>.

<sup>1</sup> The surveys are held six times a year in Vologda, Cherepovets, and in eight districts of the oblast (Babayevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District and Sheksninsky 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 Oblast's adult population. Sampling error does not exceed 3%.

More information on the results of VolRC RAS surveys is available at <http://www.vscs.ac.ru/>

<sup>2</sup> In 2020, four "waves" of the monitoring were conducted. Surveys in April and June 2020 were not conducted due to quarantine restrictions during the spread of COVID-19.

<sup>3</sup> Hereinafter, the results of a comparative analysis of the data from the survey conducted in February 2023 and the results of the monitoring "wave" conducted in February 2022 are given in the frame.

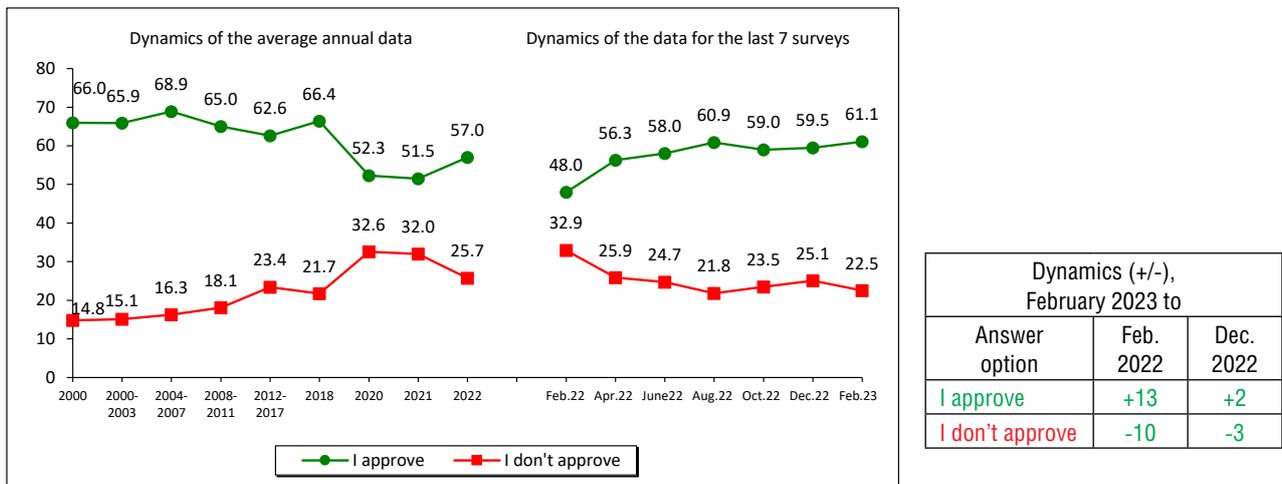
How would you assess the current work of..? (% of respondents)

Answer option	Dynamics of the average annual data									Dynamics of the data for the last 7 surveys							Dynamics (+/-), Feb. 2023 to	
	2000	2007	2011	2012	2018	2020	2021	2022	Feb. 2022	Anp. 2022	June 2022	Aug. 2022	Oct. 2022	Dec. 2022	Feb. 2023	Feb. 2022	Dec. 2022	
<b>RF President</b>																		
I approve	66.0	75.3	58.7	51.7	66.4	52.3	51.5	57.0	48.0	56.3	58.0	60.9	59.0	59.5	61.1	+13	+2	
I don't approve	14.8	11.5	25.5	32.6	21.7	32.6	32.0	25.7	32.9	25.9	24.7	21.8	23.5	25.1	22.5	-10	-3	
<b>Chairman of the RF Government*</b>																		
I approve	-*	-*	59.3	49.6	48.0	38.7	39.9	45.4	37.6	43.6	45.5	47.5	48.1	50.1	49.3	+12	-1	
I don't approve	-	-	24.7	33.3	31.6	40.4	37.6	32.0	37.7	32.5	31.4	29.4	31.3	29.9	27.9	-10	-2	
<b>Governor</b>																		
I approve	56.1	55.8	45.7	41.9	38.4	35.0	36.7	40.9	33.9	38.2	41.2	43.3	43.0	45.5	47.1	+13	+2	
I don't approve	19.3	22.2	30.5	33.3	37.6	42.5	40.5	35.8	41.6	37.3	34.3	32.5	33.9	35.2	33.0	-9	-2	

Wording of the question: "How do you assess the current work of ...?" According to the survey technique, sampling error does not exceed 3%, so hereinafter changes with a difference of 2 p.p. are not taken into account or are considered insignificant; they are highlighted in blue in the tables. Positive changes are highlighted in green, negative changes are highlighted in red.

\*Included in the survey since 2008.

Figure 1. How would you assess the current work of the RF President? (% of respondents, VoIRC RAS data)



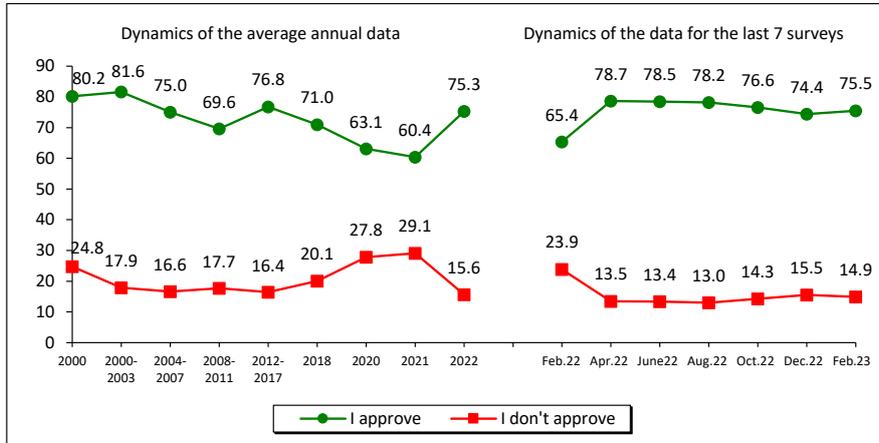
Hereinafter, all graphs show the average annual data for 2000, 2018, 2020, 2021, 2022, as well as the average annual data for the periods 2000–2003, 2004–2007, 2008–2011, 2012–2017, corresponding to the presidential terms.

For reference:

According to VCIOM, the level of approval of the President's work from December 2022 to the first half of February 2023 did not change and amounted to 74–75%.

Compared to February 2022, the share of positive assessments has increased significantly – by 10 percentage points (from 65 to 75%).

**In general, do you approve or not approve of the work of the RF President?  
(% of respondents; VCIOM data)**



Dynamics (+/-), February 2023 to		
Answer option	Feb. 2022	Dec. 2022
I approve	+10	+1
I don't approve	-9	-1

Question: "In general, do you approve or not approve of the work of the President of the Russian Federation?"

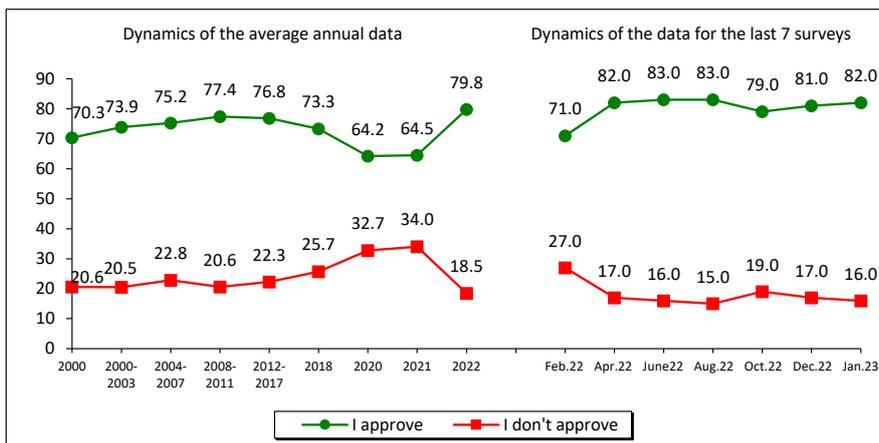
Data for February 2023 represent the average for two surveys: (February 5 and 12).

Source: VCIOM. Available at: <https://wciom.ru/>

*According to Levada-Center\*, the share of positive assessments of the President's work in December 2022 – January 2023 was 81–82%.*

*From February 2022 to January 2023, the level of approval of the President's work increased by 11 percentage points (from 71 to 82%).*

**In general, do you approve or not approve of the work of Vladimir Putin as President of Russia?  
(% of respondents; Levada-Center\* data)**



Dynamics (+/-), January 2023 to		
Answer option	Feb. 2022	Dec. 2022
I approve	+11	+1
I don't approve	-11	-1

Question: "In general, do you approve or not approve of the work of Vladimir Putin as President of Russia?"

Source: Levada-Center\*. Available at: <https://www.levada.ru>

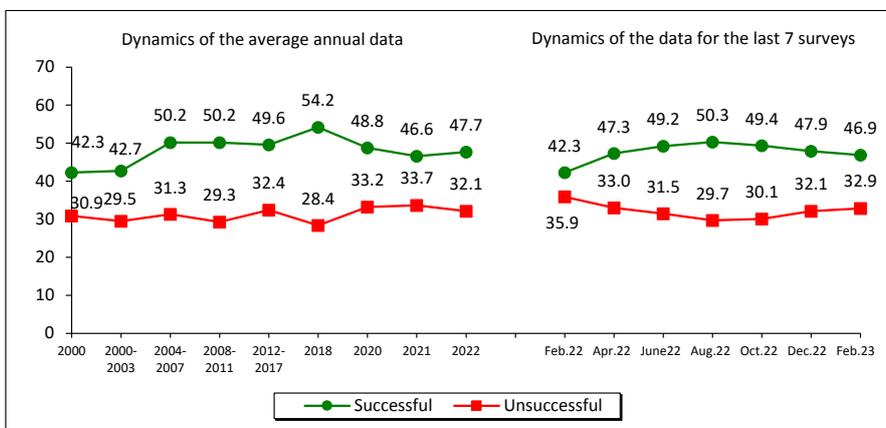
\* Included in the register of foreign agents.

In your opinion, how successful is the RF President in coping with challenging issues?  
(% of respondents; VolRC RAS data)

Over the past two months, the share of those who consider the RF President’s work to strengthen Russia’s international positions to be successful did not change significantly (47–48%). The proportion of those who hold to the opposite point of view remains stable as well (32–33%).

From February 2022 to February 2023, the share of positive assessments of the actions of the head of state to strengthen international standing increased by 5 percentage points (from 42 to 47%); the share of negative judgments decreased by 3 percentage points (from 36 to 33%).

Strengthening Russia’s international position

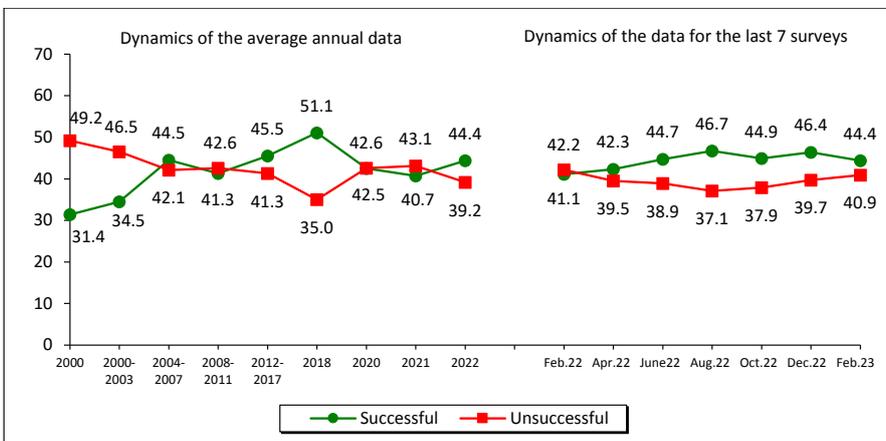


Dynamics (+/-), February 2023 to		
Answer option	Feb. 2022	Dec. 2022
Successful	+5	-1
Unsuccessful	-3	+1

In December 2022 – February 2023, the share of Vologda Oblast residents who positively assess the work of the head of state to restore order in the country, decreased by 2 percentage points (from 46 to 44%). The proportion of negative assessments has not changed significantly (40–41%).

From February 2022 to February 2023, the share of people who positively assess the work of the head of state to restore order in the country increased by 3 percentage points (from 41 to 44%); the proportion of negative judgments has not changed (41–42%).

Imposing order in the country

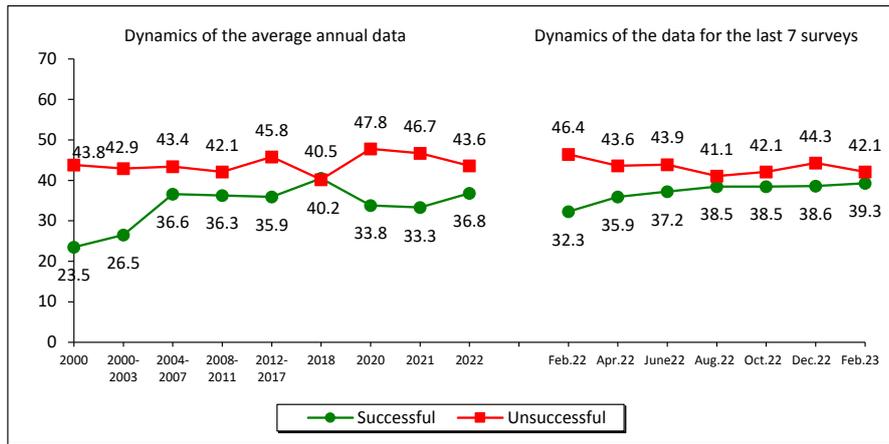


Dynamics (+/-), February 2023 to		
Answer option	Feb. 2022	Dec. 2022
Successful	+3	-2
Unsuccessful	0	+1

In December 2022 – February 2023, the share of positive assessments of the success of the President’s work to protect democracy and strengthen citizens’ freedoms did not change and amounted to 39%. The proportion of negative judgments decreased by 2 percentage points (from 44 to 42%).

Positive changes are noted for the period from February 2022 to February 2023: the share of positive assessments increased by 7 percentage points (from 32 to 39%), the proportion of negative ones decreased by 4 percentage points (from 46 to 42%).

**Protecting democracy and strengthening citizens’ freedoms**

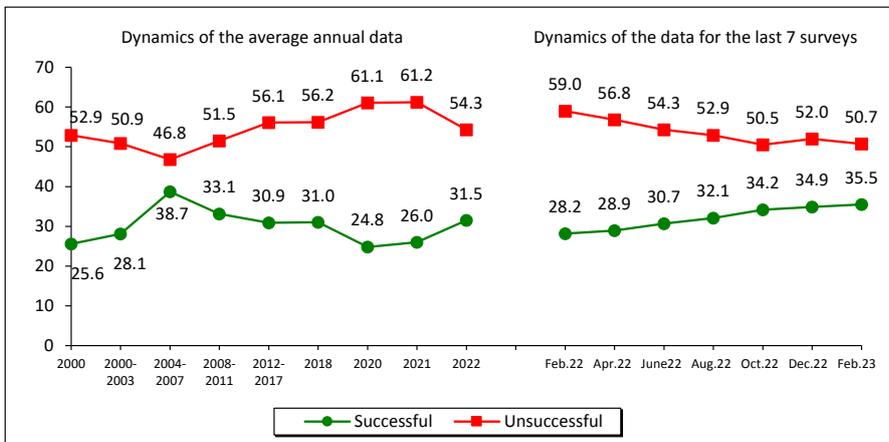


Dynamics (+/-), February 2023 to		
Answer option	Feb. 2022	Dec. 2022
Successful	+7	+1
Unsuccessful	-4	-2

In December 2022 – February 2023, public opinion regarding the President’s work aimed at boosting the economy and increasing the welfare of citizens did not change significantly: the share of positive assessments was 35–36%, the proportion of negative ones was 51–52%.

From February 2022 to February 2023, the share of positive assessments increased by 8 percentage points (from 28 to 36%), the share of negative ones also decreased by 8 percentage points (from 59 to 51%).

**Economic recovery and increase in citizens’ welfare**



Dynamics (+/-), February 2023 to		
Answer option	Feb. 2022	Dec. 2022
Successful	+8	+1
Unsuccessful	-8	-1

The structure of political preferences of Vologda Oblast residents did not change over the past two months: the share of people whose interests are expressed by the United Russia party is 38–39%, the Communist Party – 9–10%, the Liberal Democratic Party – 6%, the Just Russia party – 5%, the New People party – 1%.

From February 2022 to February 2023, we note an increase in support for the United Russia party (by 8 percentage points, from 31 to 39%), as well as a decrease in the proportion of people who find it difficult to make their choice or who believe that none of the parliamentary parties expresses their interests (by 3 percentage points, from 42 to 39%).

Which party expresses your interests? (% of respondents; VoIRC RAS data)

Party	Dynamics of the average annual data												Dynamics of the data for the last 7 surveys							Dynamics (+/-), Feb. 2023 to	
	2000	2007	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	Feb. 2022	Apr. 2022	June 2022	Aug. 2022	Oct. 2022	Dec. 2022	Feb. 2023	Feb. 2022	Dec. 2022
United Russia	18.5	30.2	31.1	33.4	29.1	35.4	38.0	37.9	31.5	49.8	31.7	35.2	31.1	34.2	34.9	36.2	36.7	38.3	39.1	+8	+1
KPRF	11.5	7.0	10.3	16.8	10.6	8.3	14.2	9.2	8.4	18.9	9.3	10.1	9.5	11.2	10.2	10.4	9.9	9.3	9.5	0	0
LDPR	4.8	7.5	7.8	15.4	7.8	10.4	21.9	9.6	9.5	7.6	9.9	7.3	9.4	7.7	7.8	6.8	6.0	6.3	5.9	-4	0
Just Russia – Patriots for the Truth	–	7.8	5.6	27.2	6.6	4.2	10.8	2.9	4.7	7.5	4.7	4.9	5.7	4.5	4.8	4.9	4.5	4.7	4.6	-1	0
New People*	–	–	–	–	–	–	–	–	–	5.3	2.3	1.5	1.6	1.3	1.6	1.9	1.1	1.5	1.3	0	0
Other	0.9	1.8	1.9	–	2.1	0.3	–	0.7	0.5	–	0.2	0.3	0.7	0.3	0.1	0.1	0.5	0.0	0.1	-1	0
None	29.6	17.8	29.4	–	31.3	29.4	–	28.5	34.2	–	33.9	30.6	32.4	30.8	30.7	29.3	30.6	29.9	28.0	-4	-2
I find it difficult to answer	20.3	21.2	13.2	–	11.7	12.0	–	11.2	11.1	–	10.0	10.1	9.6	10.0	9.9	10.5	10.8	9.9	11.4	+2	+2

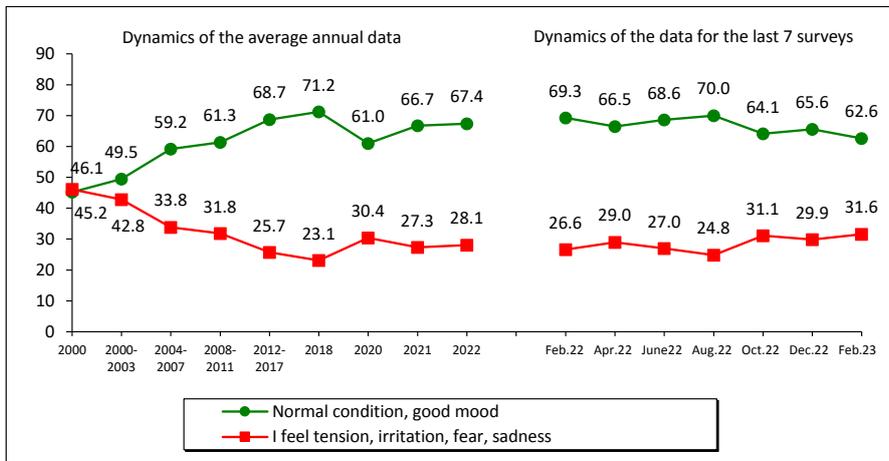
\* The New People party was elected to the State Duma of the Russian Federation for the first time following the results of the election held on September 17–19, 2021.

Estimation of social condition (% of respondents; VoIRC RAS data)

Over the past two months, the social mood of Vologda Oblast residents slightly deteriorated. The proportion of people describing their daily emotional state as “normal, fine” decreased by 3 percentage points (from 66 to 63%). The proportion of those who experience mainly “tension, irritation, fear, sadness” increased by 2 percentage points (from 30 to 32%).

Compared to February 2022, there is a decrease in the share of positive assessments of social mood by 6 percentage points (from 69 to 63%), as well as an increase in the proportion of negative assessments (by 5 percentage points, from 27 to 32%).

Social mood

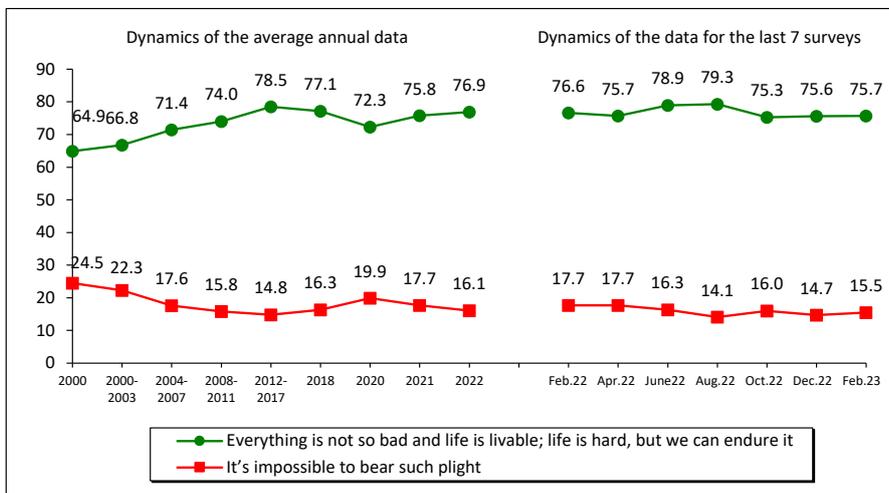


Dynamics (+/-), February 2023 to		
Answer option	Feb. 2022	Dec. 2022
Usual condition good mood	-6	-3
I feel tension, irritation, fear, sadness	+5	+2

In December 2022 – February 2023, the share of those who believe that “everything is not so bad and life is livable; life is hard, but we can endure it” remained stable (76%). The proportion of those who note that “it’s impossible to bear such plight” did not change as well (15–16%).

From February 2022 to February 2023, the share of positive assessments of the stock of patience was 76–77%; at the same time, the share of negative assessments decreased by 2 percentage points (from 18 to 16%).

Stock of patience

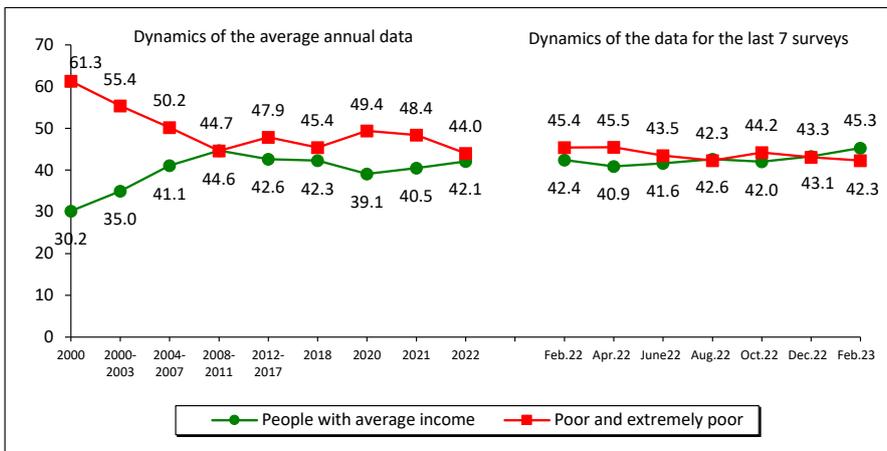


Dynamics (+/-), February 2023 to		
Answer option	Feb. 2022	Dec. 2022
Everything is not so bad and life is livable; life is hard, but we can endure it	-1	0
It's impossible to bear such plight	-2	+1

The proportion of Vologda Oblast residents subjectively classifying themselves as “poor and extremely poor” over the past two months did not change significantly (42–43%); the share of those who subjectively classify themselves as “middle-income people” increased slightly (by 2 percentage points, from 43 to 45%).

Compared to February 2022, the proportion of “middle-income people” increased by 3 percentage points (from 42 to 45%), the share of the “poor and extremely poor” slightly decreased by 3 percentage points as well (from 45 to 42%).

**Social self-identification**



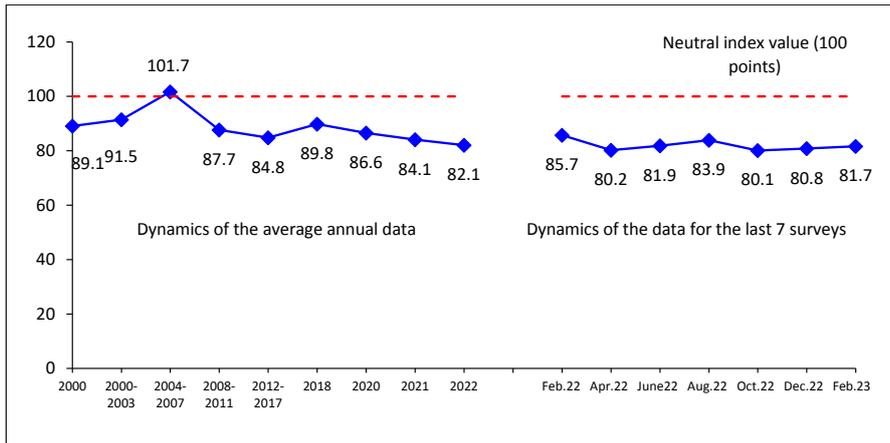
Dynamics (+/-), February 2023 to		
Answer option	Feb. 2022	Dec. 2022
People with average income	+3	+2
Poor and extremely poor	-3	-1

Question: “What category do you belong to, in your opinion?”

In December 2022 – February 2023, the Consumer Sentiment Index (CSI) was 81–82 p.

Compared with February 2022, there is a decrease in the CSI by 4 points (from 86 to 82 points), which indicates a growth in people’s pessimistic forecasts about the future of the Russian economy and their personal financial situation.

**Consumer Sentiment Index**  
(CSI, points; data of VoIRC RAS for the Vologda Oblast)



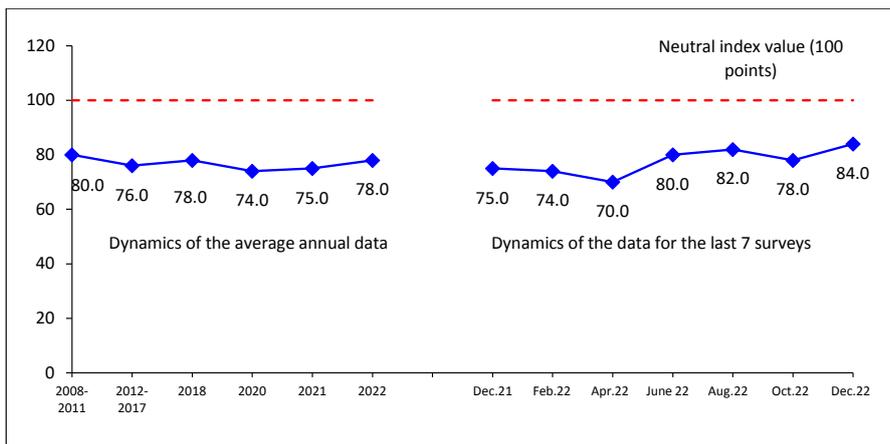
Dynamics (+/-), February 2023 to		
CSI	Feb. 2022	Dec. 2022
Index value, points	-4	+1

*For reference:*

*According to the latest data from the all-Russian conducted by Levada-Center\*, positive changes are noted in the dynamics of the CSI for the period from October to December 2022 (the CSI increased by 6 points, from 78 to 84 p.).*

*For the period from February to December 2022, the CSI increased by 10 points (from 74 to 84 p.).*

**Consumer Sentiment Index (CSI; Levada-Center\* data for Russia)**



Dynamics (+/-), December 2022 to		
CSI	Feb. 2022	Dec. 2022
Index value, points	+10	+6

The index is calculated since 2008.

Latest data are as of December 2022.

Source: Levada-Center\*. Available at: <https://www.levada.ru/indikatory/sotsialno-ekonomicheskie-indikatory/>

\* Included in the register of foreign agents.

Social mood over the past two months experienced mainly negative dynamics. The majority of the socio-demographic groups showed a decrease in the proportion of people who characterize their daily emotional state a positive, especially among those who, according to self-estimates of own income, make up the group of bottom 20% (by 9 percentage points, from 55 to 46%), as well as among people under the age of 30 (by 8 percentage points, from 79 to 71%).

From February 2022 to February 2023, mainly negative changes are also observed in social mood trends: the proportion of people showing positive emotions decreased in all major socio-demographic groups, especially among the 20% of the least affluent residents of the Vologda Oblast (by 14 percentage points, from 60 to 46%) and people with secondary/secondary vocational education (by 12 percentage points, from 69 to 57%).

Social mood in different social groups (answer option: "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 (+/-), Feb. 2023 to	
	2000	2007	2011	2012	2018	2020	2021	2022	Feb. 2022	Apr. 2022	June 2022	Aug. 2022	Oct. 2022	Dec. 2022	Feb. 2023	Feb. 2022	Dec. 2022
<b>Sex</b>																	
Men	50.1	65.9	64.5	69.1	72.8	60.8	65.7	66.8	65.5	68.3	67.4	69.9	65.0	64.7	62.5	-3	-2
Women	43.3	61.7	62.0	65.8	69.8	61.2	67.4	67.9	72.3	65.1	69.7	70.2	63.3	66.5	62.7	-10	-4
<b>Age</b>																	
Under 30	59.1	71.3	70.0	72.3	80.0	67.6	73.5	77.6	75.3	81.8	77.3	77.8	74.5	78.7	70.6	-5	-8
30–55	44.2	64.8	62.5	67.9	72.6	61.8	69.5	69.4	70.7	71.1	68.8	72.0	65.2	68.5	63.9	-7	-5
Over 55	37.4	54.8	58.3	62.1	65.2	57.4	60.5	61.1	65.3	55.2	65.3	64.6	58.7	57.2	58.1	-7	+1
<b>Education</b>																	
Secondary and incomplete secondary	41.7	58.4	57.4	57.2	64.8	56.1	62.1	64.6	68.7	63.0	65.8	68.5	58.9	62.7	57.2	-12	-6
Secondary vocational	46.4	64.6	63.6	66.7	72.2	63.5	66.7	68.3	68.3	69.8	70.5	71.0	65.8	64.3	63.7	-5	-1
Higher and incomplete higher	53.3	68.6	68.3	77.0	76.8	63.3	71.5	69.5	71.5	66.9	69.7	70.8	67.5	70.6	67.3	-4	-3
<b>Income group</b>																	
Bottom 20%	28.4	51.6	45.3	51.5	57.3	43.4	54.6	57.0	60.5	61.5	58.4	55.4	50.7	55.4	46.2	-14	-9
Middle 60%	45.5	62.9	65.3	68.7	71.9	62.6	67.3	68.1	68.8	64.2	70.3	73.2	65.9	66.1	62.2	-7	-4
Top 20%	64.6	74.9	75.3	81.1	82.9	75.6	79.9	78.3	81.5	81.9	75.7	77.0	78.7	74.9	73.8	-8	-1
<b>Territory</b>																	
Vologda	49.2	63.1	67.1	73.6	71.0	60.9	60.3	59.8	63.2	60.2	61.0	61.5	55.7	57.2	54.5	-9	-3
Cherepovets	50.8	68.1	71.2	76.2	75.8	60.4	71.0	71.2	72.6	70.1	72.8	74.6	67.9	69.1	65.9	-7	-3
Districts	42.2	61.6	57.1	59.8	68.7	61.4	67.8	69.5	70.8	68.1	70.6	72.3	66.6	68.5	65.3	-5	-3
Oblast	46.2	63.6	63.1	67.3	71.2	61.0	66.6	67.4	69.3	66.5	68.7	70.1	64.1	65.7	62.6	-7	-3

## RESUME

February 2023 marks one year since the start of the special military operation (February 24, 2022). The RF President noted that “one year ago, to protect the people in our historical lands, to ensure the security of our country and to eliminate the threat coming from the neo-Nazi regime that had taken hold in Ukraine after the 2014 coup, it was decided to begin the special military operation. Step by step, carefully and consistently we will deal with the tasks we have at hand”<sup>4</sup>.

Over the past 12 months, there have been multidirectional trends in the dynamics of public sentiment.

✓ **On the one hand, we can point out that in the conditions of increasing international political tension, economic sanctions against Russia imposed by NATO countries, and ongoing hostilities, society is consolidating around the President and, in general, around state power.**

Thus, from February 2022 to February 2023, the level of approval of the work of the President increased by 13 percentage points (from 48 to 61%); Chairman of the RF Government – by 11 percentage points (from 38 to 49%), Vologda Oblast Governor – by 13 percentage points (from 34 to 47%). In addition, support for the United Russia party in power also increased (by 8 percentage points, from 31 to 39%), as well as the assessment of the work of the RF President in key areas, primarily in strengthening Russia’s international positions (by 5 percentage points, from 42 to 47%), promoting Russia’s economic recovery and improving the welfare of citizens (by 8 percentage points, from 28 to 36%).

✓ **On the other hand, we should note that during the period from February 2022 to February 2023, the social mood of people deteriorated. The proportion of those who characterize their daily emotional state as “normal, fine” decreased by 6 percentage points (from 69 to 63%), and the proportion of those who mainly feel “tension, irritation, fear, sadness” increased by 5 percentage points (from 27 to 32%).**

This is partly a natural consequence of the difficult geopolitical and domestic situation that Russia is facing after the start of the SMO, and partly this is due to people’s concerns about the prospects for the development of the Russian economy and their personal financial situation (this is evidenced by a decrease in the Consumer Sentiment Index over the past 12 months by 4 points, from 86 to 82 p.).

Thus, the public opinion trends revealed during the survey indicate that the resource of popular trust in the authorities (like any other resource) has its limits. The society understands the complexity of the situation in which the country found itself after February 24, 2022, and is ready to continue to support the political course implemented by the President. However, the head of state rightly noted that “national defense is the top priority, but in resolving strategic tasks we need to create conditions for confident progress in our country”<sup>5</sup>.

In this regard, further dynamics of social sentiment will largely depend not only on the progress of its implementation, but also on the quality, timely and complete fulfillment of the instructions of the head of state, including those that Vladimir Putin set out during his Address to the Federal Assembly on February 21, 2023: to create a special targeted fund to help families of fallen military and veterans; to launch a program of preferential rental housing for defense industry employees; to carry out smooth transition to the traditional basic training of specialists with higher education; to increase the minimum wage, etc.

Materials were prepared by M.V. Morev, I.M. Bakhvalova

<sup>4</sup> Presidential Address to the Federal Assembly of the Russian Federation, February 21, 2023. Available at: <http://www.kremlin.ru/events/president/news/70565>

<sup>5</sup> Ibidem.

## AUTHOR GUIDELINES

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  3. Scanned copy of the author's commitment not to publish the article in other publications.
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## ERRATA

Erratum

[DOI: 10.15838/esc.2022.4.82.11](https://doi.org/10.15838/esc.2022.4.82.11)

Erratum: Dobrokhleb V.G., Kuchmaeva O.V., Bragin A.D., Afzali M. (2022). Demographic dividends: Formation and use in the CIS and the Baltic countries. *Economic and Social Changes: Facts, Trends, Forecast*, 15(4), 172–188. DOI: 10.15838/esc.2022.4.82.11

In the article “Demographic dividends: Formation and use in the CIS and the Baltic countries” by V.G. Dobrokhleb, O.V. Kuchmaeva, A.D. Bragin, and M. Afzali, which was published in issue 4, vol. 15, 2022 (pp. 172–188), a reference to the article “Impact of the demographic dividend on economic growth” by Z. Kazbekova which appeared in no. 2(4), 2018 of the journal “Population and Economics” (pp. 85–135) has been added to the following text:

**P. 175:** Researchers identify a number of conditions required for the use of the benefits derived from the demographic dividend. According to Z.G. Kazbekova, who supports the viewpoint of D. Bloom and D. Canning (Bloom, Canning, 2004), the most important condition is the ability of the economy to create jobs for an ever-increasing working-age population; this depends on the quality of state institutions, macroeconomic governmental policy, and education policy. If the government does not pursue a proper macroeconomic policy aimed at implementing the demographic dividend, then the growth of working-age population can lead to rising unemployment, political instability, crime, and a decline in social capital; all this aggravates the problem of demographic security (Kazbekova, 2018).

**P. 180:** As it was noted earlier, the most important condition for using the benefits of the demographic dividend is the ability of the economy to create jobs for an increasing number of the working-age population and for an aging population as well; this ability depends on the quality of state institutions, macroeconomic policy, and education policy. In the absence of a proper governmental macroeconomic policy aimed at implementing the demographic dividend, an increase in the working-age population can lead to an increase in unemployment, political instability, crime, and a decrease in social capital (Kazbekova, 2018).

**P. 180:** According to the researchers, the highest level of savings is observed among the population 40 to 65 years of age, which is due to two factors: people at this age, as a rule, have no need to invest in their children; people begin to save more before retirement in order to maintain a stable level of consumption over the next decades of their life (Kazbekova, 2018; Bloom et al., 2003).

A reference to Kazbekova Z. (2018). Impact of the demographic dividend on economic growth. *Population and Economics*, 2(4), 85–135. Available at: <https://doi.org/10.3897/popecon.2.e36061> has been added to the reference list.

This error does not affect the conclusions of the research. The article has been corrected online.

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