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ECONOMIC AND SOCIAL CHANGES: FACTS, TRENDS, FORECAST

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

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

Founder: Vologda Research Center of the Russian Academy of Sciences

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

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

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

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

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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VolRC 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:

2007 – Cooperation agreement is signed with the Institute of Sociology of the National Academy of Sciences of Belarus , Center for Sociological and Marketing Investigations at the "International Institute of Humanities and Economics" (Belarus, 2008).

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

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

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

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

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

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

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

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

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

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

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

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

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EDITORIAL

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From "Munich-2007" to "Valdai-2023": Sixteen Years That Changed Russia and the World

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Abstract. October 5, 2023, at the 20th anniversary session of the Valdai International Discussion Club Russian President Vladimir Putin delivered a speech that many experts believe to be a continuation of what he had said at the Munich Security Conference on February 10, 2007. Over the past 16 years, the key theses that the President voiced in Munich (that "the unipolar world did not take place" and that "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") have acquired real outlines and concrete forms. The future of Russia as a sovereign civilization-state, which is part of a multipolar world, has become obvious, natural and inevitable, as the President stated at the Valdai Forum in 2023. As an illustration of this thesis, the article examines in detail the results of the election campaigns that took place in Russia on September 10, 2023 and convincingly confirmed that the majority of voters support the current course of foreign and domestic policy implemented by the head

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of state. The article presents our calculations based on official data of the Central Election Commission of the Russian Federation; we carry out an in-depth comparative analysis of the results of the regional elections of 2018 and 2022, and analyze voting results in the context of regional centers; we also consider factors that influenced voter turnout. This makes it possible to identify new and more in-depth features of public sentiment, according to which a significant part of voters demands that the current elites (political, economic, cultural) be brought in line with the national socio-political agenda related to the goals of the special military operation and the positioning of Russia as a civilization-state. In general, the analysis has shown that both inside Russia and in the international political arena, there are still a lot of forces desperately clinging to the “old” world order and hindering the natural course of the changes taking place. This suggests that the process of transformation of Russia and the whole world, which in fact began 16 years ago, has not yet been completed and, apparently, this task is postponed for 2024–2032 – the period that may become the next presidential term for Vladimir Putin. At the same time, the successful achievement of all the goals of the special military operation was and remains the main prerequisite for the implementation of Russia’s transformation.

Key words: Valdai Forum, “Munich speech”, special military operation, threats to national security, elites, Single Voting Day, election.

October 5, 2023, Russian President Vladimir Putin delivered a speech at the 20th session of the Valdai International Discussion Club; the speech was characterized by many experts as a continuation of his Munich speech delivered February 10, 2007.

In his speech, Vladimir Putin noted: **“The world is too complicated and diverse to be subjected to one system, even if it is backed by the enormous power of the West accumulated over centuries of its colonial policy… Lasting peace will only be possible when**

Experts on Vladimir Putin’s speech at the Valdai Forum, October 5, 2023:

1. **“The scale and significance of Russian President Vladimir Putin’s speech at the 20th meeting of the Valdai Club can be compared only with those of the 2007 Munich speech ... In the 2000s, Russia was just returning to the arena of big politics, but 16 years later Moscow is setting global trends around the world.** In the mid-2000s our leader outlined the vector of Russia’s national interests and was the first among the leaders of the countries to speak out against the arbitrariness of the West; today Putin sets the guidelines for the future development of all humankind, the architecture of the global world order, which billions of people around the world want to see”[1].

2. “The speech of Russia’s President at the plenary session of the 20th session of the Valdai International Discussion Club was announced as very informative and very important, which raised expectations **comparable to the 2007 Munich speech and the 2014 Valdai speech. And such expectations were not unreasonable”**[2].

3. The concept of international relations presented by Vladimir Putin is **“seriously prepared, well-elaborated and deep-felt”**[3].

[1] Opinion of P. Kolchin, political scientist and analyst at the Center for Expert Support of Political Processes. Available at: https://www.gazeta.ru/social/news/2023/10/05/21438397.shtml.

[2] Maslov A. Valdai-2023: A reboot, Putin-style. Available at: https://zavtra.ru/blogs/valdaj-2023_perezagruzka_po-putinski

[3] Opinion of P. Danilin, director of the Center for Political Analysis and Social Research. Available at: https://ria.ru/20231005/putin-1900826706.html

4. **"The president remains true to himself; he always delivers very significant speeches.** This speech gives an idea of how Putin and the entire Russian leadership sees the world around them, how we will build our international relations in the near future, what is important for us, what positions are important in foreign policy... **a lot of attention was paid to the issue of civilizations: how they will interact with each other and coexist.** All this, of course, will be discussed over the next year by experts at the international level and in Russia"[4].

everyone feels safe and secure, understands that their opinions are respected, and that there is a balance in the world where no one can unilaterally force or compel others to live or behave as a hegemon pleases"[5].

In fact, the assessment of the world situation given by Vladimir Putin can be considered the quintessence of the geopolitical processes and events taking place before our eyes since the beginning of the special military operation (SMO).

The SMO has been going on for 18 months, and against this background, the contours of a multipolar world are becoming more dynamic and more clearly manifested:

✓ following the six countries that will become new BRICS members as of 2024, **more than 40 States** have expressed interest in joining the BRICS, of which 22 have already submitted official applications[6];

✓ **130 countries and 30 international organizations** took part in the 3rd Belt and Road International Forum held in Beijing on October 17–18, 2023. Moreover, the Russian President was the guest of honor at this event, and of all the countries of the so-called Collective West only Hungarian Prime Minister Viktor Orbán participated in the forum.

At the same time, the situation on the battlefield in the course of achieving the goals of the SMO – the main "trigger" of global changes and the

"This process is based on objective reality. The multipolar world is creating by itself, as a matter of fact. We can speed up this process or someone can try to slow it down and maybe even achieve some kind of reduction in the pace of building a multipolar world. **Anyway, its creation is inevitable. It is happening on its own because of the growing potential of many countries,** including, not least, the growing potential of the People's Republic of China. India is growing in Asia, Indonesia is also growing, many other nations in Latin America like Brazil, and Russia is getting back on its feet and gaining strength. Our countries do have their problems, and what countries don't? There are always problems of some kind. But it's not about that, ***it's about growing our potential,*** and this growth is evident, including in the economic sphere"[7].

"Major global events should be interpreted through the prism of the rise of multipolarity and the decline of unipolarity... Russia holds the front, and this is very important for a multipolar wave. Maybe more important than anything else. After all, it was Russia that was the first to enter into direct military conflict with the stubborn unipolar globalist system, which the Biden administration and the Neocons guiding it are desperately trying to save"[8].

[4] Opinion of political scientist N. Burlinova. Available at: https://vz.ru/news/2023/10/5/1233597.html.
[5] Vladimir Putin's speech at the meeting of the Valdai International Discussion Club on October 5, 2023. Available at: http://www.kremlin.ru/events/president/news/72444
[6] *Rossiyskaya gazeta*. September 22, 2023. Available at: https://rg.ru/2023/09/22/strategicheskij-prioritet.html
[7] Vladimir Putin's interview to China Media Group on October 16, 2023. Available at: http://www.kremlin.ru/events/president/news/72508
[8] Dugin A. Multipolar wave. Available at: https://izborsk-club.ru/24799

formation of a multipolar world – continues to remain under the control of the Armed Forces of the Russian Federation.

However, the real situation in the world indicates that the global hegemon and its satellites are still very far from recognizing the objectivity and inevitability of the onset of multipolarity. The outbreak of military conflicts in Nagorno-Karabakh[10] and the Gaza Strip[11], attempts to once again find a "Russian trace" in the explosion at the Finnish gas pipeline Balticconnector[12], transfer of long-range ATACMS missiles to the "Kiev regime" by the United States[13] – all this indicates that the Collective West continues to desperately regain the power it is losing; this ultimately leads to numerous human casualties and increasing destabilization of world security, not only in the Middle East, but also within the countries of the Collective West itself (against the background of the conflict in the Gaza Strip, "Europe was swept by a wave of protests in defense of Palestine"[14]).

> "The Ukrainian authorities had planned a spring offensive campaign, followed by a summer and now an autumn campaign, **but they have not achieved any notable success in any of them... Overall, the situation appears stable and secure.** The troops are acting professionally and displaying heroism on many fronts. **They are confident that they will not only hold their positions, but also continue to implement the plans we have outlined"**[9].

[9] Meeting on current issues, chaired by the RF President, October 16, 2023. Available at: http://www.kremlin.ru/events/president/news/72510

[10] September 19–20, 2023, hostilities took place in Nagorno-Karabakh between the armed forces of Azerbaijan and the unrecognized Nagorno-Karabakh Republic (NKR). They ended with the signing of a ceasefire agreement. September 28, 2023, head of the NKR S. Shahramanyan signed a decree on the termination of the existence of the Nagorno-Karabakh Republic as of January 1, 2024.

Analyzing the reasons for the aggravation of the Armenian-Azerbaijani conflict, experts note: "On the one hand, we are talking about an old conflict that has not been resolved in any way, although Russia has made significant efforts to prevent a military scenario. On the other hand, **the West and the United States are interested in the escalation of the situation along the perimeter of the Union State. And since the West is suffering defeat in Ukraine, it would like Russia to disperse its forces in other directions. I think this is one of the reasons for the aggravation of the situation**" (opinion of N. Sergeev, political expert, chair of the Belarusian nongovernmental association "Rus". Available at: https://ru.sputnik.kg/20230921/ssha-zapad-nato-armeniya-karabah-sobytiya-konflikt-prichiny-1078794752.html).

[11] October 7, 2023, Palestinian terrorist groups, the largest of which is Hamas, invaded Israel from the Gaza Strip, which resulted in mass killings of civilians, and a significant part of people were taken hostage. October 9, Israel imposed a complete blockade of the Gaza Strip; massive rocket attacks were launched, the victims of which were civilians in the Gaza Strip; a ground operation was being prepared.

October 10, the Office of the UN High Commissioner for Human Rights officially condemned Israel's decision to blockade the Gaza Strip as violating international law.

According to some experts, **"the US authorities are using the Palestinian-Israeli conflict that has flared up on a new scale to hide their failure in Ukraine… The attention of journalists is now focused on what is happening in Israel, and the United States benefits from this, since the Ukrainian conflict has become a major failure for the West"** (source: https://ura.news/news/1052696678). According to Russian Foreign Ministry Ambassador R. Miroshnik: **"The United States is absolutely satisfied with what is happening in the Gaza Strip… What is happening there today and the lack of an adequate international response, I mean at the UN level, is the fault of the United States itself"** (source: TASS. October 22, 2023. Available at: https://tass.ru/politika/19085745).

[12] October 8, 2023, the Estonian-Finnish underwater gas pipeline Balticconnector was shut down due to suspected leakage. October 11, M. Simola, spokesperson for the Central Criminal Police of Finland, said that investigators had found "external traces" on the seabed. On the same day, L. Tsingisser, an economist from Estonia, said that in the country the damage to the gas pipeline is presented as "an act of unfriendly influence of Russian origin". The investigation is currently underway (source: https://iz.ru/1592380/2023-10-19/politciia-finliandii-zavershila-osmotr-na-meste-povrezhdennogo-gazoprovoda?utm_source=yxnews&utm_medium=desktop)

[13] *Rossiyskaya gazeta*. October 18, 2023. Available at: https://rg.ru/2023/10/18/zhurnalist-repke-peredannye-vsu-atacms-ne-imeiut-gps-iz-za-rossijskih-sredstv-reb.html?utm_source=yxnews&utm_medium=desktop

[14] "Days of Anger": Europe was covered by a wave of protests in defense of Palestine. Available at: https://ren.tv/longread/1153504-dni-gneva-evropu-nakryla-volna-protestov-v-zashchitu-palestiny

According to Russian experts, **the United States "has created at least five points of tension, each of which can escalate into a global conflict: the Russia–NATO conflict in Ukraine, the conflict in the Middle East, the intervention of the American administration in relations between China and Taiwan, the conflict between Azerbaijan and Armenia, and finally, the situation around the Korean Peninsula"**[15]**.**

For Russia itself, the desperate attempts of the Collective West to prevent the objective process of the onset of multipolarity pose a special threat.

Partly because Russia continues to remain "in the epicenter of geopolitical turbulence".

Partly based on the historically established "philosophy", the "paradigm" of the Collective West to "crush" any country that shows at least some signs of strengthening sovereignty.

> "In February 2022, with the launch of Russia's special military operation (SMO) in Ukraine, a deglobalization of the global geopolitical space (GGPS) began. Since then, **Russia has been in the epicenter of geopolitical turbulence** and has become the main actor in the Non-West coalition"[16].

Experts note that in the course of the war with Russia the Collective West "can blow up the situation in the South Caucasus at any moment if it decides to open a second front... especially in light of the failure of the Ukrainian counteroffensive"[17].

Attempts to destabilize the global situation and the continuing threats to national security for our country indicate that the "lasting peace" that Vladimir Putin spoke about at the Valdai Forum will come very soon. And while Russia is still "in the epicenter of geopolitical turbulence" the situation inside the country continues to play a key role in its stability and external security; the willingness of the general population to support the course of foreign and domestic policy implemented by the RF President, despite economic sanctions from the Collective West or the ever-growing threats to military security.

> **"In the early 1990s Russia was willing to make almost any sacrifice in order to establish good relations with Western nations.** What did we get in return? They provided direct political, information, financial, and even military support to separatism and terrorism in the Caucasus. I served as the Director of the FSB back then, and I watched with bewilderment as these events unfolded, wondering **why they were doing this at a time when we were on the same side.** However, they pursued these actions without hesitation. **Frankly, I have no clear understanding of it to this day.**
>
> **I believe it may stem from a lack of education, perhaps a misunderstanding of global trends and a lack of comprehension of Russia's nature, as well as an unawareness of where such actions might lead. They may have sought to pressure us into submission using brutal force....**
>
> Furthermore, during times when I had candid conversations and good relations with some leaders, they would tell me "we need to pressure them into" doing a particular thing, I often responded by asking "Why?" but I never got an answer. **It is part of their philosophy or paradigm: issues should be resolved by applying force in order to get the desired outcome..."**[18].

[15] Isaev A. (RF State Duma deputy). *The program "60 minut"*. Broadcast from October 16, 2023. Available at: https://smotrim.ru/video/2698951

[16] Balatsky E.V. (2022). Russia in the epicenter of geopolitical turbulence: The hybrid war of civilizations. *Economic and Social Changes: Facts, Trends, Forecast*, 15(6), p. 53.

[17] Dugin A. On the geopolitics of Transcaucasia. Available at: https://zavtra.ru/blogs/k_geopolitike_zakavkaz_ya

[18] Vladimir Putin's speech at the meeting of the Valdai International Discussion Club on October 5, 2023 (answers to questions). Available at: http://www.kremlin.ru/events/president/news/72444

From the point of view of global processes and Russia's role in them, it is necessary to analyze the results of one of the most important internal political events – election, which is the most representative tool for measuring society's attitude toward power and which has a direct impact on the situation regarding political forces in the country.

The results of the federal elections over the past 20 years (presidential, parliamentary, as well as the results of the all-Russian referendum on amendments to the Constitution, which were initiated by the head of state in January 2020[19]) show that the majority of the country's population supports the course of domestic and foreign policy pursued by Vladimir Putin and United Russia, the current party of power which has a constitutional majority in the State Duma.

Thus, in the latest presidential election (March 18, 2018), the share of votes cast for Vladimir Putin was 77%; his initiative to amend the Constitution of the Russian Federation was supported by 79% of voters *(Tab. 1)*. The United Russia party received 50–54% of votes in the last three parliamentary elections (in 2011, 2016 and 2021) *(Tab. 2)*.

Between the key (federal) elections, Russia annually holds regional and municipal level elections, the importance of which is determined, on the one hand, by the fact that they represent an intermediate "slice" of society's assessment of the activities of authorities (formed taking into account the current political and economic situation in the country and in a particular region); on the other hand, by the fact that they affect the local level of public authority closest to people's specific problems, expectations and needs.

Table 1. Dynamics of Russian voters' support for the current course of domestic and foreign policy in federal elections (presidential elections)

	Presidential elections										All-Russian vote on amendments to the Constitution June 25 – July 1, 2020	
	March 26, 2000		March 14, 2004		March 2, 2008		March 4, 2012		March 18, 2018			
	people	%	people	%	people	%	people	%	people	%	people	%
Number and share of votes cast for Vladimir Putin *	39 740 434	52.94	49 565 238	71.31	52 530 712	70.28	45 602 075	63.60	56 430 712	76.69	57 747 288	78.45

* Including the number and share of votes cast for Dmitry Medvedev in the presidential election on March 2, 2008, as well as for amendments to the Constitution initiated by Vladimir Putin in 2020.
Source: Central Election Commission of the Russian Federation (http://www.vybory.izbirkom.ru).

Table 2. Dynamics of Russian voters' support for the current course of domestic and foreign policy in federal elections (parliamentary elections)

	Elections to the RF State Duma									
	December 7, 2003		December 2, 2007		December 4, 2011		September 18, 2016		September 17–19, 2021	
	people	%	people	%	people	%	people	%	people	%
Number and share of votes cast for United Russia*	22 776 294	37.56	44 714 241	64.30	32 371 737	49.31	28 527 828	54.20	28 064 200	49.82

* In 2003, party head was B. Gryzlov; in 2007, 2011 – V. Putin, in 2016, 2021 – D. Medvedev.
Source: Central Election Commission of the Russian Federation (http://www.vybory.izbirkom.ru).

[19] Address of the President of the Russian Federation to the Federal Assembly on January 15, 2020. Available at: http://www.kremlin.ru/events/president/news/62582

It is precisely because of these two features that the results of regional and municipal elections are of particular interest in terms of assessing the current state of society itself, in particular its psychological stability and readiness to continue to endure certain hardships against the background of external challenges and related internal restrictions that Russia has faced since the beginning of the SMO.

Every year elections are held under certain external and internal political, economic, social and psychological conditions that influence the opinion of voters and are ultimately reflected in the voting results. For example, on September 14, 2014, regional and municipal elections were held against the backdrop of the "Crimean spring" and the currency crisis caused, among other things, by Western economic sanctions against Russia. The regional and municipal elections of September 9, 2018[20] were held against the background of negative perception of the pension reform by the majority of Russian voters; the draft law on the reform was submitted to the State Duma by order of RF Prime Minister Dmitry Medvedev on June 16, 2018.

September 10, 2023, the Single Voting Day was held in Russia. According to experts, it became "the major one in several years and the last before the presidential campaign of 2024"[21].

Election campaigns and local referendums of various levels were held "in 85 out of 89 constituent entities of the Russian Federation"[22] in very specific conditions associated with an unprecedentedly higher level of threats to Russia's national security, including ongoing hostilities in the course of achieving the goals of the SMO, terrorist attacks and sabotage on the territory of Russian regions, sanctions, an attempted armed coup carried out by Evgeny Prigozhin, head of the Wagner Group, on June 24, 2023, etc.

This predetermined the general leitmotif of the vote: "One of the key features of this election campaign can be considered that it took place in the conditions of **unprecedented consolidation of society, unification around the president and the flag**"[23]. In addition, awareness of the scale of threats to national security influenced the final election results: "Turnout has become a record for ten years – since 2013 at this level of elections, without taking into account federal votes... All the current governors, as well as the acting ones, retained their posts. Of these, only two heads of regions were elected from the Communist Party, all the others were from United Russia"[24].

However, without downplaying the significance of the main results of the last vote it is necessary to pay attention to its individual nuances, which also reflect the attitude of society toward the authorities and which represent a kind of "signals" that must be taken into account in order to have an adequate and complete picture of the situation in the country.

First, the last elections demonstrated an increase in support not only for United Russia, but also for other (opposition) parties. Experts noted: "United Russia reported on gaining top positions", but, as it turned out, not only the party in power was successful. The Communist Party, the LDPR, "Just Russia – For the Truth" (SRZP) **and even "Yabloko" reported their relative achievements**"[25].

Second, a significant increase in turnout, compared with the previous elections, took place only in a small number of territories. Thus, in the elections of senior officials of RF constituent entities the share of people who took part in the vote significantly increased only in four out of 21 RF constituent entities *(Tab. 3; Inserts 1A–2A)*.

[20] We consider 2014 and 2018 because in these years regional and municipal elections were held in those regions that took part in the Single Voting Day in 2023.

[21] The regional 2023 campaign will be large-scale, but predictable. Available at: https://www.kommersant.ru/doc/5758775

[22] The history of the Single Voting Day in Russia. Available at: https://tass.ru/info/18683417

[23] Analysts at the Expert Institute for Social Research called the 2023 elections consolidating Russian society. Available at: https://lenta.ru/news/2023/09/12/analitiks/

[24] Pamfilova said that the turnout of 46% was record-breaking. Available at: https://www.rbc.ru/politics/13/09/2023/6501c3fe9a7947ea85beaf37

[25] Garmonenko D., Rodin I. All systemic parties were able to win the election. *Nezavisimaya gazeta*. September 11, 2023. Available at: https://www.ng.ru/politics/2023-09-11/1_8823_elections.html

A similar situation is typical for regions' centers: in the elections of senior officials of RF constituent entities, the turnout significantly increased in five municipalities and decreased in nine *(Insert 1B)*. At the legislative elections, a significant increase in turnout is noted only in three regional centers, a decrease is noted in ten *(Insert 2B)*. At the elections of deputies of representative bodies of municipalities, the turnout increased in four municipalities, decreased in seven *(Insert 3)*.

We should note that one of the important factors influencing the dynamics of people's participation in elections is the standard of living and quality of life. This is evidenced by official statistics. For example, in the regions that showed the largest increase in turnout for the elections of senior officials of RF constituent entities in 2023, the share of the population living below the poverty line is on average 8–9%; in regions where turnout has significantly decreased – 10–12% *(Tab. 4)*. The indicators of retail trade turnover in the territories that demonstrated an increase and decrease in turnout are, respectively, 173 and 142 thousand rubles per capita. The volume of provision of paid services to the population in regions with an increased turnout grew from 59 to 64 thousand rubles per capita; in regions that showed a decrease in voter turnout – decreased from 63 to 55 thousand rubles.

> "This season, special attention is paid to turnout indicators. Apparently, because in six months they will need to be given special importance in view of the March 2024 presidential election"[26].

Table 3. Dynamics of turnout for the elections of senior officials of RF constituent entities in regions with an increase in turnout by 10 percentage points or more, % of voters

Territory	Single Voting Day September 9, 2018	Single Voting Day September 10, 2023	Dynamics (+/-)
Moscow Oblast	38.59	60.53	+22
Nizhny Novgorod Oblast	40.51	56.01	+16
Kemerovo Oblast – Kuzbass	66.47	81.01	+15
Moscow	30.94	43.18	+12
TOTAL	**44.13**	**60.18**	**+16**

Source: calculated according to official data of the CEC of the Russian Federation (http://www.vybory.izbirkom.ru).

Table 4. Dynamics of indicators of standard of living and quality of life in the regions that demonstrated the maximum increase and decrease in turnout in the 2023 elections

Group of regions	Share of the population with per capita money income below the poverty line, % of the total population			Retail trade turnover per capita, thousand rubles			Volume of paid services provided to the population per capita, thousand rubles		
	2018	2022	(+/-)	2018	2022	(+/-)	2018	2022	(+/-)
Regions with the maximum increase in turnout in 2023 compared to 2018*	9.33	7.48	-1.85	183	173	-9	59	64	+5
Regions with the maximum decrease in turnout in 2023 compared to 2018**	12.33	10.38	-1.95	128	142	+14	63	55	-9

* Moscow Oblast, Nizhny Novgorod Oblast, Kemerovo Oblast – Kuzbass, Moscow.
** Magadan Oblast, Altai Krai, Chukotka Autonomous Okrug, Omsk Oblast (for more details see Insert 1).
Source: calculated according to official data of the CEC of the Russian Federation (http://www.vybory.izbirkom.ru).

[26] About 60 million votes for the president in March 2024. *Nezavisimaya gazeta*. February 13, 2023.

Insert 1

Dynamics of turnout for the elections of senior officials of RF constituent entities on September 10, 2023 compared to September 9, 2018 (ranked by the decrease in turnout in % of the number of voters in 2023 compared to 2018)

1A. In the context of RF constituent entities

RF constituent entity	SVD 2018		SVD 2023		Dynamics (+/-)	
	people	% of voters	people	% of voters	people	% of voters
Increase in turnout by 10 percentage points or more						
Moscow Oblast	2144961	38.59	3682447	60.53	+1537486	+22
Nizhny Novgorod Oblast	1046586	40.51	1401663	56.01	+355077	+16
Kemerovo Oblast – Kuzbass	1337419	66.47	1549241	81.01	+211822	+15
Moscow	2259080	30.94	3325120	43.18	+1066040	+12
TOTAL	**6788046**	**44.13**	**9958471**	**60.18**	**+3170425**	**+16**
Increase in turnout by 1–9 percentage points / no changes						
Krasnoyarsk Krai	593491	28.94	730876	35.55	+137385	+7
Amur Oblast	194752	31.25	233415	38.74	+38663	+7
Voronezh Oblast	831091	44.83	928805	51.08	+97714	+6
Samara Oblast	1143198	48	1296989	53.79	+153791	+6
Smolensk Oblast **	225607	29.67	250378	33.71	+24771	+4
Novosibirsk Oblast	628945	29.52	695492	31.86	+66547	+2
Tyumen Oblast	1241452	49.09	1359024	50.76	+117572	+2
Ivanovo Oblast	265768	32.9	261605	33.92	-4163	+1
Pskov Oblast	195407	36.91	194082	37.8	-1325	+1
TOTAL	**5319711**	**36.79**	**5950666**	**40.80**	**+630955**	**+4**
Decrease in turnout						
Primorsky Krai*	680098	46.35	655226	45.58	-24872	-1
Republic of Sakha (Yakutia)	321536	50.69	314926	48.41	-6610	-2
Republic of Khakassia	160090	41.88	155823	39.54	-4267	-2
Oryol Oblast	364850	57.77	337273	55.98	-27577	-2
Magadan Oblast	38737	39.58	33954	35.09	-4783	-4
Altai Krai	683339	37.28	547926	31.04	-135413	-6
Chukotka Autonomous Okrug	17987	60.19	15972	53.48	-2015	-7
Omsk Oblast	666627	43.6	510514	34.51	-156113	-9
TOTAL	**2933264**	**47.17**	**2571614**	**42.95**	**-361650**	**-4**

* Previous election was held on December 16, 2018.
** Previous election was held on September 13, 2020.

1B. In the context of administrative centers of RF constituent entities

Administrative center	SVD 2018		SVD 2023		Dynamics (+/-)	
	people	% of voters	people	% of voters	people	% of voters
Increase in turnout by 10 percentage points or more						
Nizhny Novgorod	225948	25.47	388680	41	+162732	+16
Samara	330136	36.6	460357	49.35	+130221	+13
Kemerovo	247257	62.08	298346	73.96	+51089	+12
Moscow	2259080	30.94	3325120	43.18	+1066040	+12
Blagoveshchensk	39269	23.43	56210	33.44	+16941	+10
TOTAL	**3101690**	**35.70**	**4528713**	**48.19**	**+1427023**	**+12**
Increase in turnout by 1–9 percentage points / no changes						
Krasnoyarsk	163103	22.42	203736	30.65	+40633	+8
Oryol	69560	34.62	94979	38.23	+25419	+4
Smolensk*	72288	27.72	76752	29.63	+4464	+2
Vladivostok**	168456	37.17	177683	38.51	+9227	+1
Abakan	47415	36.55	49682	36.97	+2267	0
Voronezh	171696	20.74	163687	20.37	-8009	0
TOTAL	**692518**	**29.87**	**766519**	**32.39**	**+74001**	**+3**
Decrease in turnout						
Yakutsk	92720	46.19	101088	45.35	+8368	-1
Ivanovo	78869	25.53	74232	24.75	-4637	-1
Novosibirsk	250581	21.22	233842	19.92	-16739	-1
Pskov	49092	29.84	41526	28.39	-7566	-1
Anadyr	3761	45.61	4169	42.62	+408	-3
Tyumen	168986	43.37	234231	38.85	+65245	-5
Magadan	24221	35.01	19462	28.93	-4759	-6
Omsk	310391	34.36	220917	24.84	-89474	-10
Barnaul	173914	32.96	82748	16.59	-91166	-16
TOTAL	**1152535**	**34.90**	**1012215**	**30.03**	**-140320**	**-5**

* Previous election was held on September 13, 2020.
** Previous election was held on December 16, 2018.

Source: calculated according to official data of the CEC of the Russian Federation (http://www.vybory.izbirkom.ru).

A significant (more than 10 percentage points) increase in turnout for the elections of senior officials of RF constituent entities is observed only in four regions (Moscow Oblast, Nizhny Novgorod Oblast, Kemerovo Oblast – Kuzbass, Moscow) and five regional centers (Nizhny Novgorod, Samara, Kemerovo, Moscow, Blagoveshchensk). For comparison, a decrease in turnout for these elections was noted in eight regions and nine regional centers.

Insert 2

Dynamics of turnout for the elections of deputies of legislative bodies of RF constituent entities on September 10, 2023 compared to September 9, 2018
(ranked by the decrease in turnout in % of the number of voters in 2023 compared to 2018)

2A. In the context of RF constituent entities

RF constituent entity	SVD 2018		SVD 2023		Dynamics (+/-)	
	people	% of voters	people	% of voters	people	% of voters
Increase in turnout by 10 percentage points or more						
Kemerovo Oblast – Kuzbass	1335562	66.39	1549102	81.01	+213540	+15
Smolensk Oblast	182057	23.67	250318	33.70	+68261	+10
TOTAL	**1517619**	**45.03**	**1799420**	**57.36**	**+281801**	**+13**
Increase in turnout by 1–9 percentage points / no changes						
Zabaikalsky Krai	176009	22.04	205177	26.62	+29168	+5
Republic of Bashkortostan	1498019	49.08	1545913	51.72	+47894	+3
Nenets Autonomous Okrug	12165	35.96	12865	37.69	+700	+2
Ivanovo Oblast	265797	32.91	261562	33.92	-4235	+1
TOTAL	**1951990**	**35.00**	**2025517**	**37.49**	**+73527**	**+2**
Decrease in turnout						
Arkhangelsk Oblast	276877	29.34	250524	28.08	-26353	-1
Republic of Khakassia	159969	41.85	155852	39.57	-4117	-2
Republic of Sakha (Yakutia)	321454	50.69	314582	48.36	-6872	-2
Irkutsk Oblast	491580	26.33	443843	24.22	-47737	-2
Yaroslavl Oblast	296694	29.27	271964	27.41	-24730	-2
Republic of Buryatia	270193	39.55	254757	36.3	-15436	-3
Rostov Oblast	1447331	45.43	1357364	42.83	-89967	-3
Ulyanovsk Oblast	404478	40.31	330841	34.68	-73637	-6
Vladimir Oblast	372645	32.92	268448	24.77	-104197	-8
Republic of Kalmykia	111802	54.03	84291	42.04	-27511	-12
TOTAL	**4153023**	**38.97**	**3732466**	**34.83**	**-420557**	**-4**

2B. In the context of administrative centers of RF constituent entities

Administrative center	SVD 2018		SVD 2023		Dynamics (+/-)	
	people	% of voters	people	% of voters	people	% of voters
Increase in turnout by 10 percentage points or more						
Ufa	12685	19.81	33574	32.11	+20889	+12
Kemerovo	247267	62.08	298346	73.96	+51079	+12
Smolensk	47078	18.02	76750	29.63	+29672	+12
TOTAL	**307030**	**33.30**	**408670**	**45.23**	**+101640**	**+12**
Increase in turnout by 1–9 percentage points / no changes						
Chita	243782	16.9	241139	18.69	-2643	+2
Naryan-Mar	5708	33.19	4562	34.81	-1146	+2
Yaroslavl	118389	23.4	106455	22.91	-11934	0
TOTAL	**367879**	**24.49667**	**352156**	**25.47**	**-15723**	**+1**
Decrease in turnout						
Yakutsk	92562	46.12	100918	45.28	+8356	-1
Abakan	52555	37.54	49252	36.64	-3303	-1
Ivanovo	78905	25.54	74235	24.75	-4670	-1
Ulan-Ude	87683	29.9	81784	27.43	-5899	-2
Irkutsk	101957	22.14	84638	18.58	-17319	-4
Arkhangelsk	14230	23.72	10026	18.57	-4204	-5
Elista	32302	37.74	24830	29.36	-7472	-8
Rostov-on-Don	377859	48.08	327949	39.97	-49910	-8
Vladimir	84866	30.93	58266	21.5	-26600	-9
Ulyanovsk	165525	32.57	92343	22.97	-73182	-10
TOTAL	**1088444**	**33.43**	**904241**	**28.51**	**-184203**	**-5**

Source: calculated according to official data of the CEC of the Russian Federation (http://www.vybory.izbirkom.ru).

At the elections of deputies of legislative bodies of RF constituent entities, the turnout significantly increased in two regions (Smolensk and Kemerovo oblasts) and three regional centers (Ufa, Kemerovo and Smolensk). In ten RF constituent entities and ten regional centers, voter turnout for these elections decreased.

Insert 3

Dynamics of turnout for the elections of deputies of representative bodies of municipalities of regional centers of RF constituent entities on September 10, 2023 in comparison with September 9, 2018
(ranked by the decrease in turnout in % of the number of voters in 2023 compared to 2018)

Municipal entity	SVD 2018		SVD 2023		Dynamics (+/-)	
	people	% of voters	people	% of voters	people	% of voters
Increase in turnout by 1–9 percentage points / no changes						
Maykop	28259	21.83	40377	31	+12118	+9
Krasnoyarsk	168451	23.35	223513	29.71	+55062	+6
Belgorod	59983	21.25	70993	25.63	+11010	+4
Volgograd	173861	24.1	186642	26.16	+12781	+2
Abakan	45636	35.56	47711	35.84	+2075	0
TOTAL	**476190**	**25.22**	**569236**	**29.67**	**+93046**	**+4**
Decrease in turnout						
Magas	2162	81.96	3917	81.18	+1755	-1
Ryazan	91350	21.87	84595	20.53	-6755	-1
Yakutsk	80528	43.11	84688	41.36	+4160	-2
Arkhangelsk	71858	26.91	63655	25.23	-8203	-2
Veliky Novgorod	42581	24.09	36121	20.9	-6460	-3
Tyumen	225671	43.02	234275	39.47	+8604	-4
Yekaterinburg	286644	26.66	230991	20.71	-55653	-6
TOTAL	**800794**	**38.23**	**738242**	**35.63**	**-62552**	**-3**

Source: calculated according to official data of the CEC of the Russian Federation (http://www.vybory.izbirkom.ru).

At the elections of deputies of representative bodies of municipalities, the maximum increase in turnout was noted in Maykop (by 9 percentage points, from 22 to 31%). In general, the turnout increased in four cities (Maykop, Krasnoyarsk, Belgorod, Volgograd); it decreased in seven cities.

Third, the 2023 elections were accompanied by a number of changes in the voting procedure itself, and these features also contributed to the final increase in turnout and support for United Russia in 2023 compared to 2018.

✓ For example, a multi-day voting format was introduced: in most RF constituent entities elections were held from September 8 to 10[27].

✓ In 25 RF constituent entities the format of remote electronic voting (REV) was used, and in 18 regions – for the first time[28]. According to RF Central Election Commission Chair E. Pamfilova, "more than 3 million voters took part in remote electronic voting"[29].

In the elections of senior officials of RF constituent entities, the average turnout for elections in electronic form (96 percentage points in % of the number of voters registered to participate in REV) significantly exceeded the average turnout in the region (45 percentage points in % of the number of voters; *Tab. 5*). However, the support for candidates from the United Russia party was slightly lower (77 p.p. according to the results of REV against 80 p.p. on average in the region).

✓ Finally, in 2023, new Russian regions took part in the elections for the first time – the DPR, the LPR, the Kherson and Zaporozhye oblasts, which showed a higher level of turnout and support for United Russia than the average for other constituent entities and municipalities of the Russian Federation *(Tab. 6)*.

Table 5. Results of the elections of senior officials of RF constituent entities on September 10, 2023 in the territories that used remote electronic voting

Territory	Turnout		Share of votes cast for the United Russia party	
	REV, % of the number of registered persons	For the region on the whole, % of voters	According to the REV results, % of turnout	For the region on the whole, % of turnout
Altai Krai	88.56	31.04	79.25	76.12
Voronezh Oblast	86.00	51.08	59.81	76.78
Moscow Oblast	88.22	60.53	79.23	83.60
Nizhny Novgorod Oblast	86.91	56.01	81.80	82.69
Novosibirsk Oblast	85.48	31.86	71.66	75.67
Pskov Oblast	90.55	37.8	87.76	86.17
Moscow	98.22	43.18	77.05	75.16
TOTAL	**95.62**	**44.5**	**76.65**	**79.46**

Source: calculated according to official data of the CEC of the Russian Federation (http://www.vybory.izbirkom.ru).

[27] Most of the regions chose a three-day vote from September 8 to 10, except for the Tyumen and Omsk oblasts (one and two days, respectively) in the gubernatorial elections; the republics of Bashkortostan and Buryatia (one day each) – in the elections to local parliaments; Ingushetia and the Tyumen Oblast (one day), as well as Khabarovsk Krai and the Sverdlovsk Oblast (two days) – at the elections in administrative centers.

[28] The Central Election Commission has published a list of 24 regions where remote electronic voting (REV) will work in the 2023 elections (September 10). Eighteen of them will be connected to the REV system for the first time. On the territory of the entire subject, REV will work in the gubernatorial elections in Chuvashia, Altai Krai, the Arkhangelsk, Vladimir, Voronezh, Moscow, Nizhny Novgorod, Novosibirsk, Pskov, Tomsk and Yaroslavl oblasts, as well as Nenets Autonomous Okrug. In separate elections to local parliaments, remote voting will be allowed in Karelia, Kamchatka and Perm krais, the Belgorod, Kaliningrad, Kursk, Orenburg, Sverdlovsk, Tula and Chelyabinsk oblasts. In the by-elections of State Duma deputies – in Crimea and the Lipetsk Oblast.

For the first time, REV was used in the State Duma election in September 2021. At that time, residents of the cities of Moscow and Sevastopol, and the Kursk, Murmansk, Nizhny Novgorod, Rostov and Yaroslavl oblasts had such an opportunity (source: https://daily.afisha.ru/news/76836-cik-utverdil-spisok-regionov-gde-na-vyborah-mozhno-budet-progolosovat-distancionno/)

[29] Vzglyad. September 10, 2023. Available at: https://vz.ru/news/2023/9/10/1229705.html

Table 6. Comparison of election results on September 10, 2023 in the context of new regions and other constituent entities of the Russian Federation

Election results	In the context of new RF constituent entities	In the context of other RF constituent entities	Dynamics (+/-) In the context of new RF constituent entities compared to other regions
Legislative elections			
Turnout, % of voters	71.14	38.31	+33
Share of votes cast for United Russia, % of turnout	77.52	56.52	+21
Elections to representative bodies of municipalities of regional centers of RF constituent entities			
Turnout, % of voters	63.54	33.14	+30
Share of votes cast for United Russia, % of turnout	77.46	50.68	+27
Source: calculated according to official data of the CEC of the Russian Federation (http://www.vybory.izbirkom.ru).			

Thus, the local successes of the opposition parties, which experts note, and the calculations that we conducted using official data of the RF Central Election Commission, and the innovations in the voting procedure that characterized the 2023 elections and that affected the increase in voter turnout, allow us to agree with the assessment of experts who argue that **the results of the last elections are "a much more complicated phenomenon"[30] than just a "consolidation effect" or "unity around the flag".**

In fact, the results of the Single Voting Day on September 10, 2023 prove that against the background of the general consolidation of the majority of the population (quite naturally caused by the urgency of external and internal threats that Russia faced after the start of the SMO), **a request to the authorities to bring the behavior and specific actions of the elites in line with the publicly declared rhetoric of the state continues to accumulate in society.**

> "Of course, in the electoral sentiment was greatly influenced by anxiety caused by the SMO; the demand for stability and predictability became more pronounced, even concerning the things that are closest and most understandable, the life "behind the fence" ...
>
> In a country where mobilization took place in just one year, major failures occurred at the front, a military mutiny failed, and in the rear the prices for essential goods and food were going up dramatically. Yet, there were a lot of positive things, **but it is these phenomena that most often put pressure on the voter and provoke a reassessment of the situation regarding the command and political link"**[31].

Russians support the general course pursued by the RF President and the party in power and aimed at protecting Russia's sovereignty and national interests; however, the people do not find an answer to the question of how some facts that characterize Russia's current public administration system relate to the image of the future that is actively declared by the authorities, namely, the image of a social state based on traditional cultural values and possessing full national sovereignty.

Insert 4 provides examples of the facts under consideration. We should note that science, culture, economics, and the system of public administration contain many such cases, for example the article by V. Garbuzov, director of the Institute for US and Canadian Studies, "On the lost illusions of the passing era", or a book by the writer D. Bykov* (recognized as foreign agent), the information about which is presented in the governmental newspaper Rossiyskaya gazeta.

[30] Skorobogaty P. Elections-2023: The effect of cohesion. Available at: http://vybor-naroda.org/stovyborah/248163-vybory-2023-jeffekt-splochenija.html

[31] Ibidem.

* Included in the register of foreign agents.

Insert 4

Some facts contradicting the publicly declared policy of the state in the conditions of the SMO

1. Excerpt from an open letter from the head of the "Just Russia – For the Truth" faction to the editorial office of *Rossiyskaya gazeta* newspaper "On reconciliation with Russophobia and Russophobes":

"Rossiyskaya gazeta published two materials in a row, united by one theme, one meaning: society should not reject creative people who, let's put it this way, do not accept the fateful changes in the life of the country. **One publication, or rather an interview with the philologist Galina Marchenko, is addressed to the past – to the life and work of the writer Ivan Shmelev, who lived in France during the occupation and collaborated with the Nazi press. In the second one, an RG contributor informs about Bykov's* new book *VZ* and invites us to read it.**

Suffice it to say that a few years ago Bykov*, talking about 'a free Russia liberated by the Nazis', expressed absolute confidence that if it were not for the extermination of Jews, Hitler would have achieved popularity in Russia. At another time, another emigrant, Ivan Shmelev, called Hitler's attack on the Soviet Union 'the great feat of a Knight who raised his sword against the Devil'. And today, on the pages of a government publication, in relation to Shmelev's life path, a conversation about reconciliation comes up...

In general, lawyers for creative personalities demand a lot from society. 'We should appreciate our Russian talents, even if we do not see eye to eye with them ideologically'... The same Bykov* spoke about 85% of the Russian population: 'Guys, I want to say this to your face: you are idiots'. Thank you for your frankness. Only why should we accept those who reject us and appreciate those who openly despise and hate us...

If we imagine that we will be defeated in today's fateful confrontation, I have no doubt: all these fine creative individuals, whom we are to appreciate and accept, will come to Russia after their Heroes and Knights. And not in order to appeal to mercy and tolerance, to reconciliation and understanding; rather, they will demand executions, burnings and hangings... Now is really the time of choice. And this choice is incompatible with attempts – including with the help of government mass media – to erase the lines between good and evil, to pass off unscrupulousness as humanism, betrayal as 'ideological differences' and to talk about the fate of a creative personality, protecting outspoken Russophobes and Russophobia"[32].

2. August 29, 2023, *Nezavisimaya nazeta* published an article by V. Garbuzov, Director of the Institute for US and Canadian Studies "On the lost illusions of the passing era".

As experts noted, "Garbuzov published the main theses of this article in the scientific journal of his institute back in May 2022, but in a veiled form... The author tries to 'sit on two chairs', describing the special military operation as an inevitability in the context of anti-Russian Ukrainian and Western politics and at the same time repeatedly expressing a negative attitude toward the SMO ... V. Garbuzov draws defiantly direct analogies between the Weimar Republic, the Third Reich and modern Russia; describes 'a geopolitical impasse' with phrases like 'the formation of a part of the Russian elite longing for lost greatness, which eventually resulted in an exaggerated post-imperial syndrome'"[33], talks about the 'atmosphere of pseudo-patriotic madness', the 'creeping restoration of Stalinism', the impossibility of Russia's 'competing with the USA and China', etc.

September 2, 2023, V. Garbuzov was removed from his post; however, some experts commented on this situation as follows: 'In response to Garbuzov's demarche the entire Institute for US and Canadian Studies can be dismissed. Maybe this was the intention of this demarche in order to permanently eradicate possible attempts at sober professional study of the United States, potentially deep and realistic American studies?"[34]

[32] * Included in the register of foreign agents.

On reconciliation with Russophobia and Russophobes. An open letter from the head of the "Just Russia – For the Truth" faction to the editorial office of Rossiyskaya gazeta newspaper. Available at: https://rg.ru/2023/10/09/otkrytoe-pismo-rukovoditelia-frakcii-spravedlivaia-rossiia-za-pravdu-v-redakciiu-rossijskoj-gazety.html

[33] Goncharov A. What the director of the Institute for US and Canadian Studies was actually dismissed for. Available at: https://zavtra.ru/blogs/za_chto_na_samom_dele_snyali_direktora_instituta_ssha_i_kanadi

[34] Ibidem.

End of Insert 4

3. Tax maneuver of 2023. "Contrary to a number of insinuations, the sharp rise in price and the subsequent shortage of fuel was caused not by the intensification of hostilities, but entirely by the administration system itself. **The current events were programmed in 2018**, when the liberals of the Medvedev government implemented a 'tax maneuver' – the refusal to impose an export duty on crude oil with the transfer of the fiscal burden on oil production and refining in Russia, stimulating the export of crude oil and suppressing its processing (and use in general) in the country. **This was a natural step in the liberal policy of consolidating Russia's position as an economic colony – a country exporting raw materials and importing (if allowed) products of its processing…**

In August 2023, in the conditions of a surplus of the federal budget, the Ministry of Finance, as far as can be judged, suddenly, 'without declaring war', in the classic Gaidar style … almost halved the subsidizing of refineries … **The imitation state, as usual, turned a blind eye to all these processes it itself had launched**… The abolition of the tax maneuver (spread by liberals to the ferrous metallurgy on the eve of the SMO – and with the same effect) is literally a condition for Russia's survival. That is why the liberals who still manage a key part of the economy in the interests of the Collective West, despite all the efforts of Prime Minister Mishustin, consider it as the **cornerstone of their policy and a tombstone on the grave they have already prepared for the country they hate"**[35].

4. October 11, Ivan Urgant appeared as a lecturer at the Moscow State Institute of International Relations, which is a subordinate educational institution of the Ministry of Foreign Affairs of the Russian Federation. V. Kalashnikova, spokesperson for the University, in a conversation with the media denied the fact of the appearance of the showman in the walls of the educational institution… However, on October 14, it turned out that Urgant, who had left Russia with his family immediately after the start of the SMO and distributed Ukronazi videos, was invited to give a lecture by **Yuri Kobaladze, MGIMO Professor, deputy dean of the Faculty of International Journalism and retired Major General of the Foreign Intelligence Service**.

Experts commented on this event as follows: 'It is curious that MGIMO students, knowing the socio-political position of Urgant, did not leave the hall, but listened with curiosity to the 'lecture' of the showman to the end. This speaks volumes. Perhaps someone came out, but judging by the video clip that got into the social media, the lecture hall was full. And these are the future diplomats of Russia?"[36]

5. In response to the request of Nikita Mikhalkov's TV program "Besogon" to the Presidential Administration regarding the continuation of the creative career of singer Ani Lorak in Russia, despite her statements against the SMO, as well as the transfer of funds to support the AFU, the following response was received: "After the start of the SMO, A. Lorak, being under the emotional informational influence of the beginning of active hostilities, posted several posts in support of Ukraine on her social media… Currently, A. Lorak takes an active part in charity fundraising for children who suffered during the SMO, and also provides financial assistance to Shakhtersky Boarding House for the Disabled in the DPR… **Deputy Head of the Presidential Administration of the Russian Federation - Presidential Press Secretary Dmitry Peskov vouched for A. Lorak's loyalty"**[37]**…**

In the next episode of "Besogon"[38], N. Mikhalkov provided data (a telephone interview with the director of Shakhtersky Boarding House for the Disabled), which **refute the information provided by the Presidential Administration** and indicate that A. Lorak does not participate in the life of the boarding house in any way. Hence, it is quite logical that doubts arise about the surety of the Deputy Head of the Presidential Administration of the Russian Federation – presidential press secretary D. Peskov, whose citations N. Mikhalkov provides in his program **for the sixth time**[39] (since the start of the SMO).

[35] Delyagin M. How to bankrupt the drug mafia. Tax maneuver – the cause of the fuel crisis. Available at: https://delyagin.ru/articles/191-materialy-mgd/110273-kak-obankrotit-narkomafiju-nalogovyy-manevr-prichina-toplivnogo-krizisa

[36] Ivanov A. The media found out who invited the "frightened patriot" Urgant to MGIMO. Available at: https://zavtra.ru/events/smi_uznali_kto_priglasil_ispugannogo_patriota_urganta_v_mgimo

[37] Besogon TV. Episode 225 of September 30, 2023 "Mille pardons under the blanket". Available at: https://besogontv.ru/videos/mille-pardons-pod-odeyalom/

[38] Besogon TV. Episode 226 of October 21, 2023 "If there is no God, then everything is allowed". Available at: https://besogontv.ru/videos/esli-boga-net-vsye-dozvoleno/

[39] 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. "Wives of the Marquis of Carabas" (February 10, 2023). 6. "Mille pardons under the blanket" (September 30, 2023).

These examples proceed directly from the fact that the Russian elites (not only political, but also cultural and economic) still preserve the "liberal fog" that enveloped Russia after the October 1993 coup d'etat and that has lingered for 30 years before the SMO. The fog has taken the form of "thug" capitalism, which today represents an actual threat to the achievement of SMO goals and a threat to the very existence of Russia as a country. Moreover, this is not only because the officials disregard the President's instructions, but also because such behavior contradicts the image of the future of Russia officially declared by the authorities and the RF President; consequently, society becomes unstable and vulnerable to external informational and ideological influences.

> "Three decades ago, the Congress of People's Deputies and the Supreme Soviet of Russia, the highest body of state power, were shot. The consequences of this event are still being felt – **it actually predetermined the trajectory of Russia's evolution for these thirty years. And it will continue to do so if we do not condemn this crime and do not draw the appropriate conclusions...**
>
> The main disadvantage of the authoritarian system of power is **the irresponsibility of officials who, in exchange for loyalty to their superior, allow themselves to abuse their official powers in favor of personal interests.** Such systems are characterized by **corruption and incompetence,** which are the natural result of recruiting personnel according **to the criterion of personal loyalty.** As a result, the so-called **"thug capitalism",** well-known from the experience of the third world countries, is formed; it is an authoritarian-oligarchic government regime devoid of incentives for development and headed by persons close to the supreme ruler... **Without correcting the malfunctions in the activities of various branches of government it is hardly possible to win over an enemy that is many times superior in its financial and economic power"**[40].

The feeling of helplessness, misunderstanding, or treacherous sentiments is noted in the assessments of representatives of elite circles (business, government, science) regarding the current course implemented by the head of state. This is indicated by the results of VCIOM opinion polls conducted among the participants of the Saint Petersburg International Economic Forum, which was held on June 14–17, 2023[41]:

- ✓ **49% of Russian entrepreneurs and officials find it difficult to answer the question "Do you think the current economic policy of the Russian Government corresponds to the concept of sovereign development of Russia?"** ***(Fig. 1)*****;**
- ✓ **30% believe that "the country's authorities should strive for the lifting of sanctions, even if this means making some concessions in foreign policy"** ***(Fig. 2)*****.**

[40] Glazyev S.Yu. Crime without the statute of limitations. Available at: https://glazev.ru/articles/10-vlast-i-obshhestvo/110325-prestuplenie-bez-sroka-davnosti

[41] Sovereignty as a path to prosperity. VCIOM analytical report. 2023. Pp. 11, 15. The report was prepared on the basis of a quantitative online survey of users of the Roscongress Foundation's Unified Personal Account who took part in the 2023 Saint Petersburg International Economic Forum, as well as expert interviews with representatives of the business environment, business associations, the scientific community, executive and legislative authorities of the Russian Federation.

Figure 1. **Do you think the current economic policy of the Russian Government corresponds to the concept of sovereign development of Russiat?**
(closed-ended question, one answer, % of respondents)

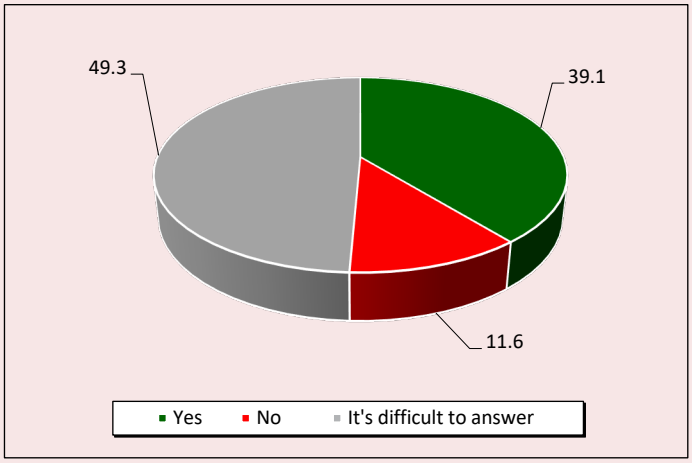
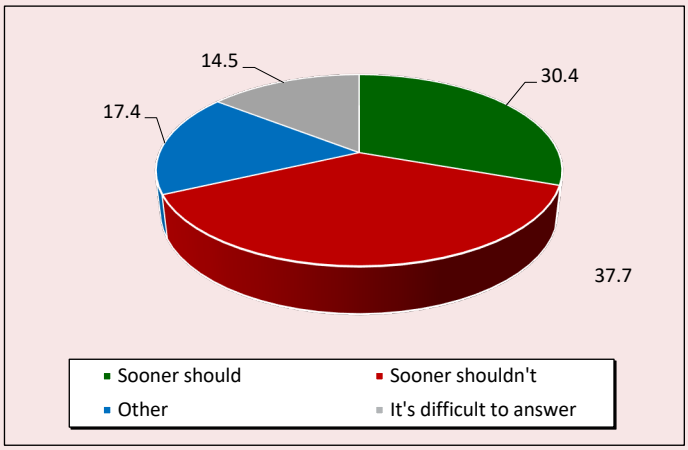


Figure 2. **Should the Russian authorities seek the lifting of sanctions, even if it means making some concessions in foreign policy?***
(closed-ended question, one answer, % of respondents)



* The exact wording of the question: “There is an opinion that Russia’s authorities do not need to pay attention to Western sanctions, but should stick to the current course in foreign policy. Another opinion is that Russia’s authorities should strive to lift sanctions, even if this means making some concessions in foreign policy. Which of the opinions do you most agree with: should Russia’s authorities rather seek the lifting of sanctions or should they rather not?”

Source: Sovereignty as a path to prosperity. VCIOM analytical report. 2023. Pp. 11, 15.

These facts indicate that there is still a split among the Russian elites in understanding the essence of the current situation and in the attitude toward it. Despite the fact that the head of state continues to make decisions aimed at supporting the participants of the SMO and strengthening the information and ideological agenda in the current and future generations of Russian society that corresponds to the spirit of the SMO *(Insert 5)*, many experts point out that **Russia has not yet formulated a holistic ideological project that could be translated to the key participants of today's geopolitical processes and that would be a unifying idea for all strata of Russian society.**

It seems that without such an ideological project aimed primarily at the domestic Russian audience (and especially its elites), it will be extremely difficult to implement more specific management decisions needed today to strengthen the Russian economy and increase its ability to develop effectively in the face of internal and external challenges *(Insert 6)*.

"We are conducting a frontal and massive counter-propaganda, but it is aimed almost exclusively at the domestic audience... **We have virtually no tools to translate any meanings and vectors to Ukraine.** What we are doing on this earth, we cannot clearly convey to the Ukrainians and, it seems, we are not going to, thus leaving a huge territory of psychological warfare to the enemy.

For some reason, we still justify ourselves to the West and complain about double standards... We continue – apparently by inertia – to squabble with those who do not see us, do not hear and do not want to know us...

We also encourage the collective Non-West to guess for themselves what we are doing, why and to what end. We have not sent any clear message to China, the Islamic world, India, Africa, or Latin America. The only exception is the fundamental idea of multipolarity, where, indeed, there are meanings, and they are extremely deep. **But having designated this most important vector, we do not cultivate it in any way, do not develop it, do not saturate it with contents, do not deploy relevant structures"**[42].

"The President of Russia has taken initial steps to correct the most obvious flaws of the political system that developed after the coup of 1993. The Constitution abolished the presumption of international obligations over national legislation, noted the importance of traditional family values, mentioned God. **This implies the need to restore an ideology based on traditional values.**

It is necessary to take the next step – to establish the principles of personal responsibility of officials and political responsibility of the executive power for the objective results of their activities...

In order to gain the Victory in the global hybrid war, we need to quickly get out of the destructive quagmire of irresponsibility, incompetence, corruption and immorality, in which we were stuck for a long time as a result of the coup d'etat in the fall of 1993"[43].

[42] Dugin A. The creation of the empire and the pace of war. Available at: https://izborsk-club.ru/24651

[43] Glazyev S.Yu. Crime without the statute of limitations. Available at: https://glazev.ru/articles/10-vlast-i-obshhestvo/110325-prestuplenie-bez-sroka-davnosti

Insert 5

Monitoring of regulatory legal acts (laws, decrees) signed by the President of the Russian Federation in the period from August 21 to October 22, 2023[44]

MEASURES TO SUPPORT SMO PARTICIPANTS AND THEIR FAMILY MEMBERS, TO DEVELOP THE MILITARY-INDUSTRIAL COMPLEX, MOBILIZATION, ORGANIZATION OF MARTIAL LAW, INCREASE OF ANTI-TERRORIST PROTECTION OF FACILITIES
September 4 – Decree "On amendments to the Regulation on the procedure for considering issues of citizenship of the Russian Federation, approved by Presidential Decree 1325, dated November 14, 2002, and Presidential Decree 83, dated March 2, 2022 "On measures to ensure the accelerated development of the information technology industry in the Russian Federation". The age limit for granting deferral from conscription for IT specialists has been raised to 30 years.
September 11 – Decree "On monthly compensation payments to certain categories of military personnel".
September 28 – Federal Law "On ratifying the Agreement on joint logistical and medical support of troops (Collective Forces) of the Collective Security Treaty Organization".
MEASURES TO PROTECT INFORMATION SECURITY, REGULATE THE ACTIVITIES OF FOREIGN AGENTS, PROMOTE EDUCATION AND UPBRINGING OF THE YOUNGER GENERATIONS
September 28 – Federal Law "On amendments to Article 11 of the Federal Law "On Days of Military Glory and memorable dates of Russia". A new memorable date for Russia is being set – September 30 – the Day of the Reunification of the Donetsk People's Republic, the Lugansk People's Republic, the Zaporozhye Oblast and the Kherson Oblast with the Russian Federation (2022).
October 19 – Federal Law "On Denunciation by the Russian Federation of the Framework Convention for the Protection of National Minorities". The Framework Convention for the Protection of National Minorities, signed on behalf of the Russian Federation in Strasbourg on February 28, 1996 and ratified by the Russian Federation on June 18, 1998, is denounced. The resolution of the Committee of Ministers of the Council of Europe of September 27, 2022 significantly limited the powers of the Russian expert in the Advisory Committee established to monitor the implementation by the States parties to the Framework Convention of their obligations in the field of protection of national minorities. In addition, the Russian Federation has lost, within the framework of this monitoring mechanism, the opportunity to participate in the development of decisions on issues of interest and to monitor at the international level cases of violations of the rights of national minorities, primarily the Russian-speaking population abroad.
October 20 – Decree "On signing the agreement on the establishment of an International Organization for the Russian Language". The agreement is based on the concept for creating an international organization for the support and promotion of the Russian language under the auspices of the Commonwealth of Independent States, approved by the Decision of the Council of Heads of State of the Commonwealth of Independent States of October 14, 2022. The purpose of the organization is to create conditions for strengthening comprehensive mutually beneficial cooperation on the maintenance and promotion of the Russian language as a language of interstate communication and a means of communication. According to experts, "such an initiative at the intergovernmental level looks like a crucially important action on our part in the global hybrid war that the Collective West is waging against our country. Perhaps it should have been done much earlier, but, as they say, better late than never"[45].

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

[45] Vinnikov V. To the open seas. Available at: https://zavtra.ru/blogs/v_otkritie_morya

Insert 6

Expert suggestions on improving the efficiency of the Russian economy[46]

"It is well known what measures should be taken in the management of economic development in order to put the Russian economy on a trajectory of advanced development in accordance with objective opportunities (up to 8% of GDP growth and 20% of investment growth per year). But in order to implement them, it is necessary to overcome these malfunctions. And for this, it is necessary to introduce a cross-cutting mechanism of institutional and personal responsibility at all levels of economic development management, including the following priority measures:

✓ ***To achieve practical implementation of the law "On strategic planning in the Russian Federation".*** *To create a special interdepartmental state committee for strategic planning under the President.*

✓ ***To reorient the activities of the state banking system to solve the problems of increasing investment activity in accordance with the established priorities of economic development.*** *To bring the activities of the state banking system in compliance with the law "On strategic planning". To evaluate the activities of the heads of commercial banks based on the growth rate of the volume of returned investment loans by manufacturing enterprises.*

✓ ***To bring the powers and policies of the Central Bank in accordance with its constitutional duties and economic development goals.*** *To strengthen state control over its activities by expanding the powers of the National Financial Council, turning it from a formal body overseeing the economic activities of the Bank of Russia into a monetary policy-making body, taking into account the goals and guidelines of presidential decrees. To bring monetary policy in line with the goals of economic development and the generally accepted practice in developed countries to ensure expanded reproduction of the economy.*

✓ ***To legislatively introduce procedures for the responsibility of the Government for achieving the goals of socio-economic development set by the President and improving the standard of living of the people.***

✓ ***To restore state control over bankruptcy procedures by centralizing it in one department while preserving the possibility of self-regulation in this area.*** *To decriminalize the institution of bankruptcy by introducing transparent automated auction procedures and a mechanism for the responsibility of arbitration managers for the effective management of property, excluding manipulation of the auction result. To allow corporate governance and labor collectives to enter the bankruptcy procedure. To protect bona fide entrepreneurs from "collateral raiding", extend the jurisdiction of the jury to "economic" articles implying proof of the intent of the accused. To exclude commercial cases related to conflicts of economic entities from the jurisdiction of law enforcement agencies".*

[46] Glazyev S.Yu. Crime without the statute of limitations. Available at: https://glazev.ru/articles/10-vlast-i-obshhestvo/110325-prestuplenie-bez-sroka-davnosti

Excerpt from the speech of Russian President Vladimir Putin at the meeting of the Valdai International Discussion Club on October 5, 2023[47]

6 points of the image of the future multipolar world:

"…We need to realize what we are striving for, what we want to achieve. ***In Russia, there is such an understanding:***

First. We want to live in an open, interconnected world, *where no one will ever try to put artificial barriers in the way of people's communication, their creative fulfilment and prosperity...*

Second. We want the world's diversity to be preserved and serve as the foundation for universal development. *It should be prohibited to impose on any country or people how they should live and how they should feel...*

Third, Russia stands for maximum representation*. No one has the right or ability to rule the world for others and on behalf of others...*

Fourth, Russia stands for universal security and lasting peace built on respect for the interests of everyone: *from large countries to small ones. The main thing is to free international relations from the bloc approach and the legacy of the colonial era and the Cold War...*

Fifth, we stand for justice for all. *The era of exploitation, as I said twice, is in the past. Everyone should be given access to the benefits of today's world, and attempts to limit it for any country or people should be considered an act of aggression.*

Sixth, we stand for equality, for the diverse potential of all countries. *This is a completely objective factor. But no less objective is the fact that no one is ready to take orders anymore or make their interests and needs dependent on anyone, above all on the rich and more powerful. This is not just the natural state of the international community, but the quintessence of all of humankind's historical experience".*

Russia as a civilization-state:

"In Russia's Foreign Policy Concept, our country is characterized as an original civilization-state. ***This wording clearly and concisely reflects how we understand not only our own development, but also the main principles of international order, which we hope will prevail… there are many civilizations, and none is superior or inferior to another.*** *They are equal since each civilization represents a unique expression of its own culture, traditions, and the aspirations of its people...* ***The essential characteristics of a civilization-state encompass diversity and self-sufficiency,*** *which, I believe, are two key components...* ***Relying on your civilization is a necessary condition for success in the modern world, unfortunately a disorderly and dangerous world that has lost its bearings.***

A truly effective and strong state system cannot be imposed from the outside. It grows naturally from the civilizational roots of countries and peoples, and in this regard, Russia is an example of how it really happens in life, in practice".

[47] Vladimir Putin's speech at the meeting of the Valdai International Discussion Club on October 5, 2023. Available at: http://www.kremlin.ru/events/president/news/72444

Perhaps the six points of the image of the future multipolar world, as well as a clear understanding of Russia as a state-civilization, which Vladimir Putin formulated in his speech at the Valdai Forum in 2023, can become exactly such an idea that unites all layers of Russian society. Some experts called this combination "the concept of civilizational synergy, clearly and completely contradicting the concept of Great Reset advocated by modern globalism"[48]. However, one cannot but agree that the **viability of this concept will largely be decided "on the ground", "on the battlefield".**

> "The 'main dish' was the concept of civilizational synergy, which clearly and completely contradicts the concept of Great Reset advocated by modern Western globalism. Which of them is more in line with the 'logic of the circumstances' of the modern world, will be decided 'on the ground', 'on the battlefield'; but now, very likely, an alternative has been announced to all humankind, backed up not only by the power of Russian weapons, but also by the power of the Russian idea"[49].

That is why it seems important not only to keep record of the consolidation processes taking place in Russian society against the background of the SMO, but also to pay attention to internal threats that can hinder their development, including those that became evident according to the results of the 2023 election campaign: the more conscious and "civilly mature"[50] our society (namely, this trend was shown by the increase in voter turnout), **the stronger will be its request to the authorities to replace the managerial elites** who are unwilling or unable to meet the country's national interests in the new conditions that have come with the beginning of the special military operation.

Today it is obvious that in the 16 years that have passed since Vladimir Putin's Munich speech, Russia's course to strengthen national sovereignty is not just inevitable, but is **the only possible one**, as well as the vector of transformation of the entire world architecture from the unipolar hegemony of the Collective West to the formation of multipolar relations of sovereign civilization states. **This can be called the result of the past period and the main result of the RF President's work.**

[48] Political scientist N. Burlinova. Available at: https://vz.ru/news/2023/10/5/1233597.html

[49] Maslov A. Valdai-2023: A reboot, Putin-style. Available at: https://zavtra.ru/blogs/valdaj-2023_perezagruzka_po-putinski

[50] Vladimir Putin's meeting with the elected heads of regions on September 28, 2023. Available at: http://www.kremlin.ru/events/president/news/72378

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Public Health Promotion as a Priority for Regional Governmental Policy

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Abstract. The article reveals aspects of public health management at the regional and municipal levels. This is an urgent task due to the high potential of the regulatory impact of these levels of government on people's well-being. The aim of the work is to substantiate our own approach to understanding public health management at the regional (and municipal) level and put forward a tool for assessing managerial influence. We review scientific literature on public health issues, as well as regional and municipal strategic and program documents in the field of preserving and strengthening public health. We also systematize the components of public health management in strategic planning and project management at the regional and municipal levels (on the example of the Vologda Oblast) and consider individual tools for promoting public health. In order to assess the effectiveness of development of municipal programs related to public health promotion, we work out a public health and well-being index and test it in two variations: to be used at the regional and municipal levels of government; this constitutes the scientific novelty of our study. We reveal key problems in assessing public health management and propose recommendations on their solution and improvement of methodological and informational tools.

Key words: public health, national projects, center for public health and prevention, project management, health and well-being index.

Introduction

Currently, public health preservation is being promoted to the level of national security. In the context of global political, economic, social and moral changes in the world, there emerges a new goal corresponding to modern challenges: to create a system for preserving and strengthening physical, mental and social health of Russians capable of defending the security, sovereignty and prosperity of the country at present and for tens and hundreds of years in the future. Strengthening public health is an intersectoral mission that cannot be fulfilled exclusively within the competence of health services; therefore, not only medical specialists, but also representatives of related industries are engaged in the creation of public health tools[1].

Twelve national projects aimed at implementing the tasks defined by Presidential Decree 204, dated May 7, 2018 "On national goals and strategic objectives of development of the Russian Federation for the period through to 2024" serve as the basis for intersectoral cooperation in the field of health management. Five of them are focused on the formation of public health, seven – on the creation of a comfortable, safe, health-forming municipal environment. A special place belongs to the national project "Demography" and its key component – the federal project "Public health promotion", because public health unites all factors affecting the people's physical, mental and social well-being related to their lifestyle and environment. At the same time, the municipal level is of great importance – it is a point where the interaction of executive authorities and local self-government is implemented in order to improve the quality and increase the life expectancy of people, preserve and strengthen their health, create a health-saving municipal environment with active involvement of citizens themselves in these processes.

The long-term experience of the Association "Healthy Cities, Districts and Towns" under the leadership of the Chairman, Vologda Oblast Governor, currently uniting 146 municipalities of the country, and the experience of developing

[1] National public health management programs. *Moskovskaya meditsina*, 2021, 6(46), 8–21.

health-saving and health-forming activities in the Vologda Oblast allowed formulating the author's approach to the concept of public health as a national security resource[2] that characterizes the quality of human potential. Public health protection activities are implemented on the basis of interaction between state, municipal, public and other sectors of society by educating an individual who is healthy, happy, free, work-oriented and devoted to their Fatherland; protecting and strengthening health; preventing diseases; forming a healthy lifestyle; forming one's personal responsibility for their own health; creating a health-saving, comfortable and safe environment for the life of citizens.

In the light of implementation of national goals and priorities, there is a need to develop public health monitoring tools, especially in the context of project and strategic management. At the same time, it is important that such tools should have a scientifically sound methodology and a relevant information base. Currently, it is of paramount importance to substantiate conceptual approaches to the creation of an integrated information base necessary for the development of optimal strategic solutions so as to ensure the most effective management of intersectoral activities aimed at increasing the potential of public health and well-being, assessing their role in achieving national development goals (Katkova, Rybalchenko, 2020). The aim of this work is to substantiate our own approach to understanding public health management at the regional (and municipal) level and put forward a tool for assessing managerial influence.

The paper analyzes regional and municipal strategic and program documents in the field of preserving and strengthening public health.

We use methods of systematization of components of public health management in the system of strategic planning and project management at the regional and municipal levels (on the example of the Vologda Oblast), as well as a visualization method using the construction of graphical schemes.

In order to assess the effectiveness of development of municipal programs to strengthen public health, a public health and well-being index was developed and calculated with the use of statistical and departmental data and the principal component method.

Public health and its formation management

Public health as the most important characteristic of socio-economic and demographic development was considered in the works of Russian medical scientists and hygienists (Bednyi, 1972; Lisitsyna, 1987; Medik, Yuryev, 2012; Yuryev, 1993), economists and demographers (Prokhorov, 2007; Health..., 2007; Nazarova, 2007; Shabunova, 2010), as well as sociologists (Zhuravleva, 2006; Lebedeva-Nesevrya, Gordeeva, 2011). However, the scientific literature has not yet formed both a single definition of public health and its universal "meter".

Public health is understood as a social policy concept aimed at improving health, prolonging life and improving the quality of life of the entire population as a whole – through health promotion, disease prevention and other types and forms of intervention[3]. This definition reflects the idea, which identifies well-known ways to prolong life and improve the quality of life, limited to health promotion and disease prevention.

Public health is also "a state of society that provides conditions for an active, productive lifestyle, not constrained by physical and mental illnesses, i.e. it is something without which society cannot create material and spiritual values – it is the wealth of society" (Lisitsyn, 2010), and "the property of the population of a certain territory that

[2] On the National Security Strategy of the Russian Federation: Presidential Decree 400, dated July 2, 2021. Available at: http://pravo.gov.ru; Collection of legislation of the Russian Federation. July 5, 2021. No. 27 (Part II). Article 5351.

[3] Glossary of terms used in the "Health for All" series. WHO: Geneva, 1998.

ensures demographic development, the maximum possible life expectancy and labor activity, formed under the complex influence of biological, socio-economic, socio-cultural and environmental factors" (Shabunova 2010; Shabunova, 2011).

In some cases, public health is closely linked to the health system. For example: "the activities of state, municipal, public and other structures carried out on the basis of intersectoral and interdepartmental interaction and aimed at implementing measures to protect and strengthen health, prevent diseases, form a healthy lifestyle and create a favorable environment for the life of citizens" (Starodubov et al., 2016).

This approach is optimal from the point of view of public health management, because, first, it defines the role of state structures in public health management and, second, determines its factors and relevant areas of work: health protection and promotion, formation of a healthy lifestyle and creation of an environment conducive to public health.

It is well known that the factors promoting public health are lifestyle, environment, and medical care (Lisitsyn, 2010). Researchers are identifying new facets and manifestations of the influence of these groups of factors on public health.

One of the most famous concepts explaining the dynamics of public health was developed by A. Omran. It was called the "epidemiologic transition" (Omran, 1971; Omran, 1977).

The role of the healthcare system in maintaining public health is also confirmed by estimates of excess mortality from the coronavirus infection, the pandemic of which has become a significant challenge to demographic development. For example, it has been proven that in Germany in 2020 there was practically no excess mortality, in Sweden it was 3% excluding an increase in life expectancy and 8% taking into account an increase in life expectancy, in Spain – 15% (Kowall et al., 2021). In some countries of Northern (Estonia, Latvia, Lithuania, Norway, Finland, Slovakia), Southern and Eastern Europe (Portugal, Hungary, Austria, Switzerland, Israel and Slovenia), no statistically significant excess mortality was recorded, which indicates that they coped well with the epidemic and show mortality that is close to what was expected or even below it (Vanella et al., 2021).

The COVID-19 pandemic highlighted the importance of development of digital technologies in healthcare and the role of effective epidemiological surveillance systems (Wong et al., 2022), as well as the urgency of competent healthcare management, including material support for the industry (Liang, Kiang, 2023), staffing (Yeager et al., 2023) and qualified managers (Bickley, Torgler, 2021; Schenck et al., 2023). In addition, the task of forming a health-saving lifestyle and responsible self-preservation behavior can be addressed through education and upbringing, which requires understanding the reasons for the choice of behavioral strategies (Hobbs et al., 2021).

Thus, public health includes parameters that measure its level and properties, as well as groups of factors that identify the parameters of the environment, lifestyle and medical care.

Vologda Oblast's experience in public health management

Strengthening public health is one of the conditions for the socio-economic development of territories and it is promoted to the level of national security. This task is a priority for the Vologda Oblast Government. In 2016, the region relied on people's preservation as a key direction of the socio-economic development strategy for the period through to 2030[4]. Since the approval of the national project "Demography", the priorities of the region have converged with the national priority. The integration of public health promotion as an independent direction in strategic planning documents began with the change of the oblast's

[4] On the strategy for socio-economic development of the Vologda Oblast for the period through to 2030: Resolution 920 of the Vologda Oblast Government, dated October 17, 2016. Available at: http://www.consultant.ru

main document – the Strategy for Socio-Economic Development of the Vologda Oblast for the Period through to 2030 (hereinafter – the Strategy). In order to consolidate the tasks of creating the necessary conditions in the field of public health, a section "In the field of strengthening public health" was allocated in the structure of the Strategy. In the Vologda Oblast, the Strategy is implemented through the application of a ***project-based approach*** that takes into account the interdepartmental and intersectoral nature of addressing the development tasks set in it. This made it possible to integrate the ***regional project "Public health promotion"*** into the Strategy in a short time as a tool for achieving the socio-economic development tasks assigned to the region.

The practice of the region has shown the need to use new tools in solving issues on this topic. It was important to find a tool that would allow the tasks of regional goal-setting to be decomposed at the municipal level and into subordinate strategic planning documents. To this end, the regional Government has carried out extensive work in the designated areas. In 2017, even before the appearance of national projects, a *Coordinating Council for Public Health Protection* was established in the Vologda Oblast; and since 2021, the Vologda Oblast Governor has become its chair. This body coordinates the activities and organizes interaction with territorial bodies of federal executive authorities in the constituent entity of the Russian Federation, executive bodies of state power of the constituent entity of the Russian Federation, local self-government bodies in the constituent entity of the Russian Federation. Interdepartmental coordination councils have also been established in all municipalities of the oblast.

One of the objectives of the project *"Public health promotion"* was the transformation of the centers of medical prevention into regional centers for public health and medical prevention (hereinafter – RCPHMPs), which was implemented in the Vologda Oblast. In accordance with Order 1177n of the Ministry of Health of the Russian Federation, dated October 29, 2020[5], the control of public health in the constituent entity is assigned specifically to regional RCPHMPs. In addition, they perform the most important function of technical coordinator for the organization of intersectoral cooperation in strengthening public health at the regional and municipal levels by preparing meetings and monitoring the implementation of decisions of the Coordinating Council for Public Health Protection. At the municipal level, such control is carried out by urban public health centers, adult and children's health centers and departments/offices of medical prevention clinics. ***Regional, municipal public health programs and corporate workplace health promotion programs*** have become the main control tools. In order to develop the above programs, the Ministry of Health of the Russian Federation has issued recommendations on their fullness and approval for RF constituent entities.

The federal project "Public health promotion" contains three tasks: forming a system of motivation of citizens to a healthy lifestyle, including healthy eating and giving up bad habits; motivating citizens to lead a healthy lifestyle through the implementation of an information and communication campaign, as well as involving citizens and nonprofit organizations in measures to strengthen public health; developing and implementing workplace health promotion programs (corporate health promotion programs).

In the Vologda Oblast, the task is currently set to form an integral system for strengthening public health, which will lay the principle of "unified health" not only at all levels of government, but also at intersectoral interactions of the executive authorities of the oblast at all levels, based on the Helsinki Statement: "synthesis of health – in all

[5] On approving the Procedure for organizing and implementing the prevention of noncommunicable diseases and carrying out measures to promote a healthy lifestyle in medical organizations: Order 1177n of the Ministry of Health of the Russian Federation, dated October 29, 2020. Available at: https://minjust.consultant.ru/documents/24840

strategies of socio-economic development". The essence of taking into account the principles of health in all activities of socio-economic development plans and national projects is that a developer of any level, any department, when preparing events, is obliged to answer the following question "How will my planning affect the health and quality of life of residents of my city (village)?".

The main document regulating the development of the public health system in the Vologda Oblast is the ***regional comprehensive program "Public health – in the spotlight"***[6], approved by the regional government in 2020. The main directions of the program are as follows: forming motivation of the population for a healthy lifestyle; creating a safe, healthy and comfortable environment for life. The key normative documents of the municipal level are the ***recommendations for the development and implementation of the municipal program "Public health promotion" and the library of best practices***[7]**.** It is also planned to develop ***local health-forming programs*** (*medical organizations* develop the following programs: strengthening reproductive health; pregnant women's health; a healthy start to life; *social protection services*: the "Healthy family" program; *organizations and enterprises*: a health-forming kindergarten; a health-forming school; a health-forming university; health promotion in the workplace; active longevity).

Another document regulating the development of public health at the municipal level was the ***model corporate program "Strengthening health in the workplace"***[8], sent to the municipalities of the region to be implemented in organizations and enterprises of various organizational and legal forms.

In accordance with the federal project, municipal programs for strengthening public health should be approved in all municipal districts of the oblast by 2024. In 2021, the Vologda Oblast Governor at a meeting of the Coordinating Council for Health Protection gave an instruction to approve the programs within a year, i.e. three years ahead of schedule. In the Vologda Oblast, by the end of 2021, such programs were approved in each municipal district.

Municipal programs have become one of the main components of the public health system in the region. The set of measures under the municipal public health programs becomes more productive if they are filled with ***health-preserving and health-forming technologies***. The development of the public health and medical prevention system in the Vologda Oblast, as well as the long-term experience of the ***Association "Healthy Cities, Districts and Towns"*** in RF constituent entities and the near abroad have allowed us to accumulate a whole arsenal of scientifically based breakthrough technologies for the formation of public health and the creation of a health-saving, comfortable and safe environment in municipalities[9]. Currently, the task is to introduce them into the practice of municipal entities through the implementation of public health promotion programs based on training events, seminars and conferences.

Municipal programs mostly address the issues of motivating the population of the territory to a healthy lifestyle, but it is worth noting that external factors, such as the public environment, also play an important role in strengthening public health. It was this aspect that became the main one when deciding on the development of the ***oblast's strategic project "Public health"***, into which the regional integrated

[6] On approving the regional comprehensive program for strengthening public health "Public health – in the spotlight" in the Vologda Oblast for 2020–2024: Resolution 1386 of the Vologda Oblast Government, dated November 30, 2020. Available at: https://vologda-oblast.ru/dokumenty/zakony_i_postanovleniya/3130640/

[7] Recommendations for the development and implementation of the municipal program "Public health promotion" and the library of best practices. Available at: https://volprof.volmed.org.ru/index.php?page=ozdorovje

[8] Model corporate program "Strengthening health in the workplace". Available at: https://volprof.volmed.org.ru/index.php?page=ozdorovje

[9] Healthy City – Healthy World (2022): Collection of the best municipal practices of participants of the III contest "Healthy Cities of Russia". Compiled by T.E. Shestakova, edited by V.A. Polessky. Cherepovets: Cherepovets.

program "Public health – in the spotlight" was reformatted in 2022. The project helped not only to attract the oblast's municipalities as co-executors to achieve results, but also to give local governments the opportunity to potentially finance the tasks set in the field of public health promotion. Thus, it has become an instrument of even closer interaction between regional authorities and municipalities.

Strengthening public health as a multilevel complex system requires an appropriate management mechanism. Currently, in order to integrate social development issues into the oblast's strategic planning documents and involve the oblast's municipalities in public health management, it is necessary to form a *single digital space* for monitoring the main processes and evaluating the effectiveness of public health activities.

Interaction with municipalities within the framework of the strategic project made it possible to work out and consolidate the tasks of public health in the project activities of the region. The execution of the strategic project activities is carried out using the ***information system "Managing investment and project activities of the Vologda Oblast" (hereinafter – VEGAS)***. It makes it possible to work with a large number of participants, reduce the cost of their interaction, constantly monitor the implementation of the project and make management decisions in a timely manner. But at the same time, there was a need not only to organize interaction processes, but also to analyze and monitor the achievement of goals. VEGAS capabilities in this regard were limited, so monitoring of the processes of strengthening public health in the oblast is carried out through another information system – ***GAS "Management" of the Vologda Oblast***. In it, a list of indicators characterizing the development of the public health management system in the oblast and its municipalities has been formed to assess public health. For this purpose, a ***matrix of health indicators*** was developed. It contains indicators arranged in blocks: *population, mortality, morbidity, spread of factors promoting non-communicable diseases, ecology, road safety, social security, welfare, implementation of health-preservation programs, infrastructure, cultural potential*. Filling of the matrix is carried out by data from statistical and departmental agencies. The use of digital solutions helps to automatically upload and generate a matrix of health indicators. Thus, each municipality can see gaps in the achievement of individual indicators, respond promptly and manage the risk of nonfulfillment. The use of the information system helped to determine the development goal for municipalities in this direction, coordinate it with all participants, verify the data in the system and bring them to the performers. In addition, the generalized presentation of data in the context of each municipal district makes it possible to identify leaders in the issue of strengthening public health, study their managerial experience and disseminate it among other municipalities, taking into account their socio-economic and territorial features.

To replicate successful experience, a ***"library of solutions"*** has been introduced into the public health promotion system; the "library of solutions" is a *set of best practices in the field of public health promotion, as well as a set of the best solutions to eliminate unachieved results.*

The formation of the matrix has become the basis on which another management tool – the "***health profile***" – has received wider application in the region; it is a source of information about the health status of the population and the state of its environment, and reflects changes in public health indicators and processes organized to strengthen public health.

The use of all the tools (projects, programs, matrix, "library of solutions", "health profile", etc.) constitutes a management system in the field of promoting public health in the region. *Figure 1* shows the place of strengthening public health in the system of strategic planning and project management in the region.

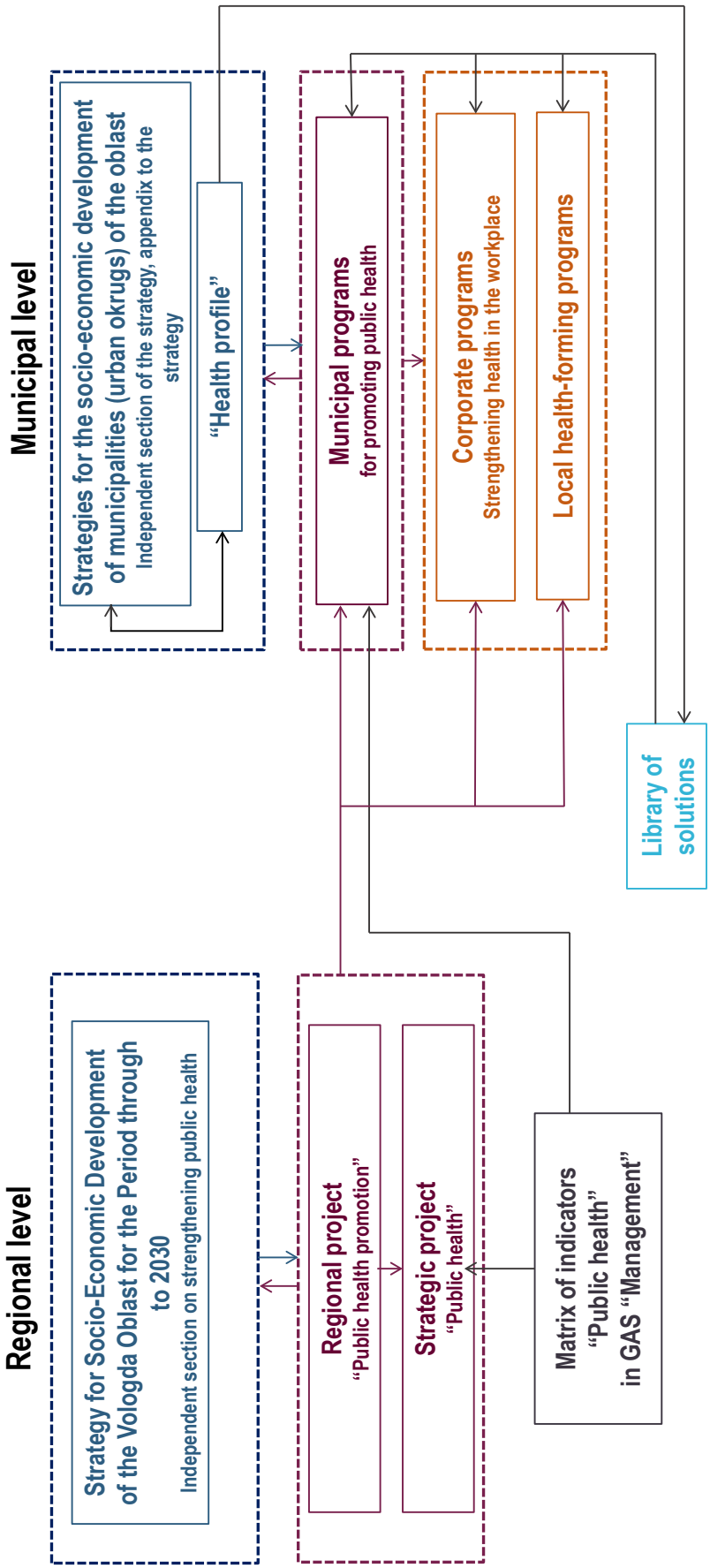

Figure 1. Strengthening public health at the regional and municipal levels on the example of the Vologda Oblast

Source: own compilation.

Methodology for calculating the health and well-being index

With all the scale and number of indicators, there emerged a task to compare the assessment of municipalities' effectiveness. To solve it and to evaluate the entire system of strengthening public health in the region, a special integral ***indicator was developed – health and well-being index*** – *in two variations: for use at the regional and municipal levels of government.*

The **first stage** is to determine the factors that most significantly affect public health; they will combine a set of baseline indicators. As noted earlier, public health is not limited only to medicine, in this case its multifactorial nature should be taken into account. Based on the classification of health factors proposed by Yu.P. Lisitsyn (Lisitsyn, 2010), three main ones are identified: *lifestyle, environment, medical care.*

Next, the initial set of indicators reflecting health and well-being was determined. Given the complex synthetic nature of the category under consideration (health and well-being), the initial set of indicators was determined by expert opinions, i.e. heuristically.

The selected indicators should comply with the following requirements put forward by Doc. Sci. (Physics and Mathematics) S.A. Ayvazyan (Ayvazyan, 2012).

1. Representativeness (relevance). It implies that the indicators cover all aspects of strengthening public health, in our case, meet the three selected factors.

2. Availability. The estimates of the selected indicators are publicly available and are regularly updated in accordance with the monitoring carried out within their framework.

3. Reliability. The indicators are taken from official sources of statistical information and can be verified.

In addition, as S.A. Ayvazyan notes, the set of indicators for measuring the same entity, but at different levels of its manifestation (for example, country, region, enterprise) should and can be different (Ayvazyan, 2012).

In this case, to calculate the index, 46 indicators for the municipal level and 34 indicators for the regional level were selected from 150 indicators that are relevant and available in statistics.

The **second stage** is to check the indicators for multicollinearity in order to exclude duplicate indicators.

For each indicator, the absolute sample linear Pearson pair correlation coefficient r was calculated. The meaning of the calculation is that all such estimates are added together for each indicator, and there is a certain sum $\sum_i |r_i^j|$ relative to which the rating of indicators is built.

In accordance with it, the indicators with the largest amount are excluded from further processing.

In the case of municipalities, the indicators were analyzed twice by means of correlation matrices, as a result of which 20 out of 46 indicators were left *(Fig. 2)*.

In the case of regions from the primary list containing 34 indicators, 21 were left *(Fig. 3)*.

At the **third stage**, significant evaluation criteria are combined, i.e. the remaining indicators are distributed according to the three earlier specified factors.

For municipalities, the ***lifestyle factor*** includes seven indicators, which to a greater extent characterizes the behavioral characteristics of the population. The ***"environment"*** factor includes eight indicators reflecting the capabilities and quality of the living environment of the population. The ***"medical provision"*** factor contains five indicators that determine the therapeutic and diagnostic activities of the healthcare system, which makes it possible to assess people's health.

The list of indicators used for calculations in the context of RF constituent entities is shown in Figure 3. The change in the list of indicators is due to the level of analysis, which determines a different set of indicators for the same health and well-being factors.

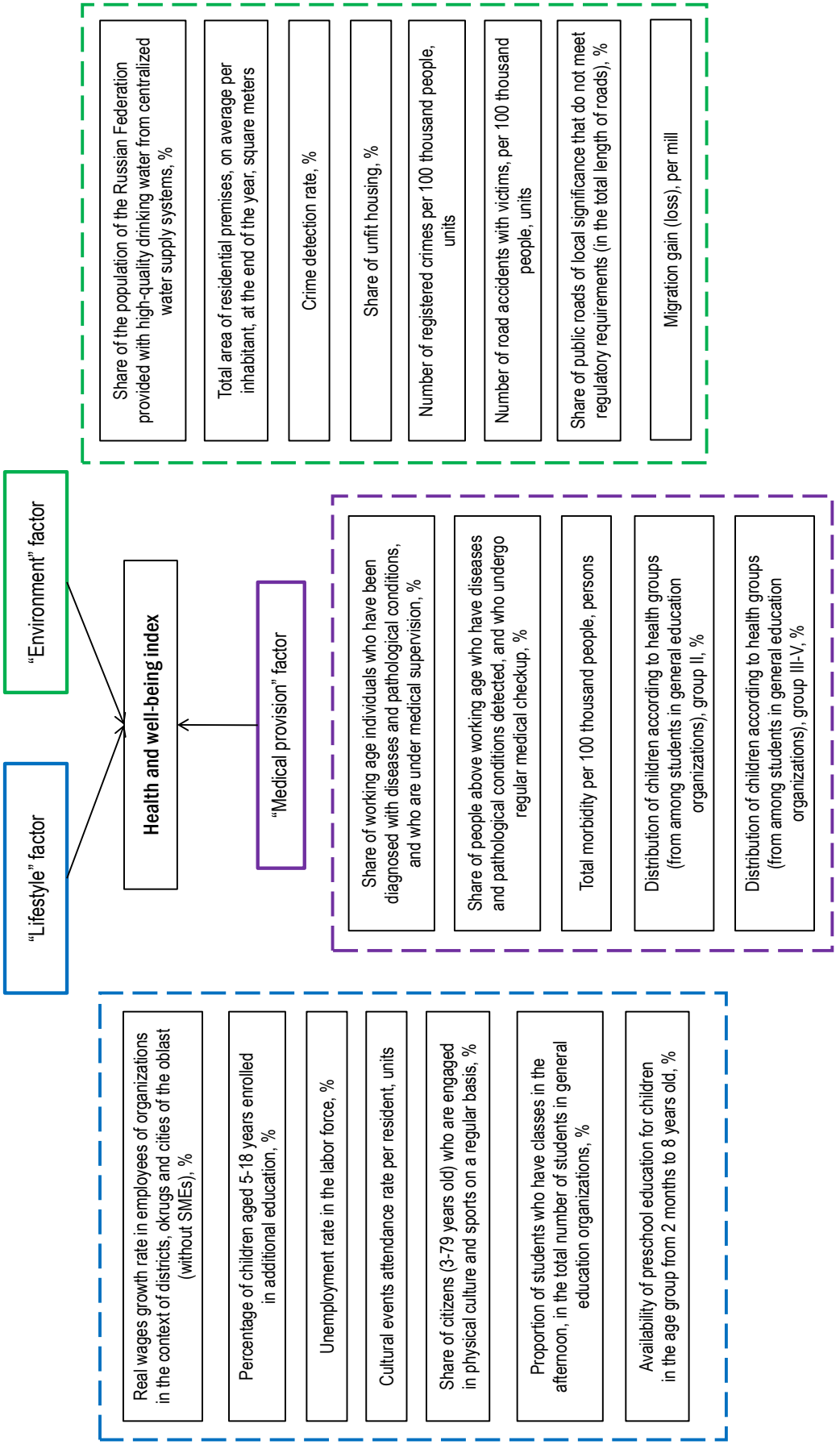

Figure 2. Decomposition of indicators for calculating the health and well-being index for municipal districts

Source: own compilation.

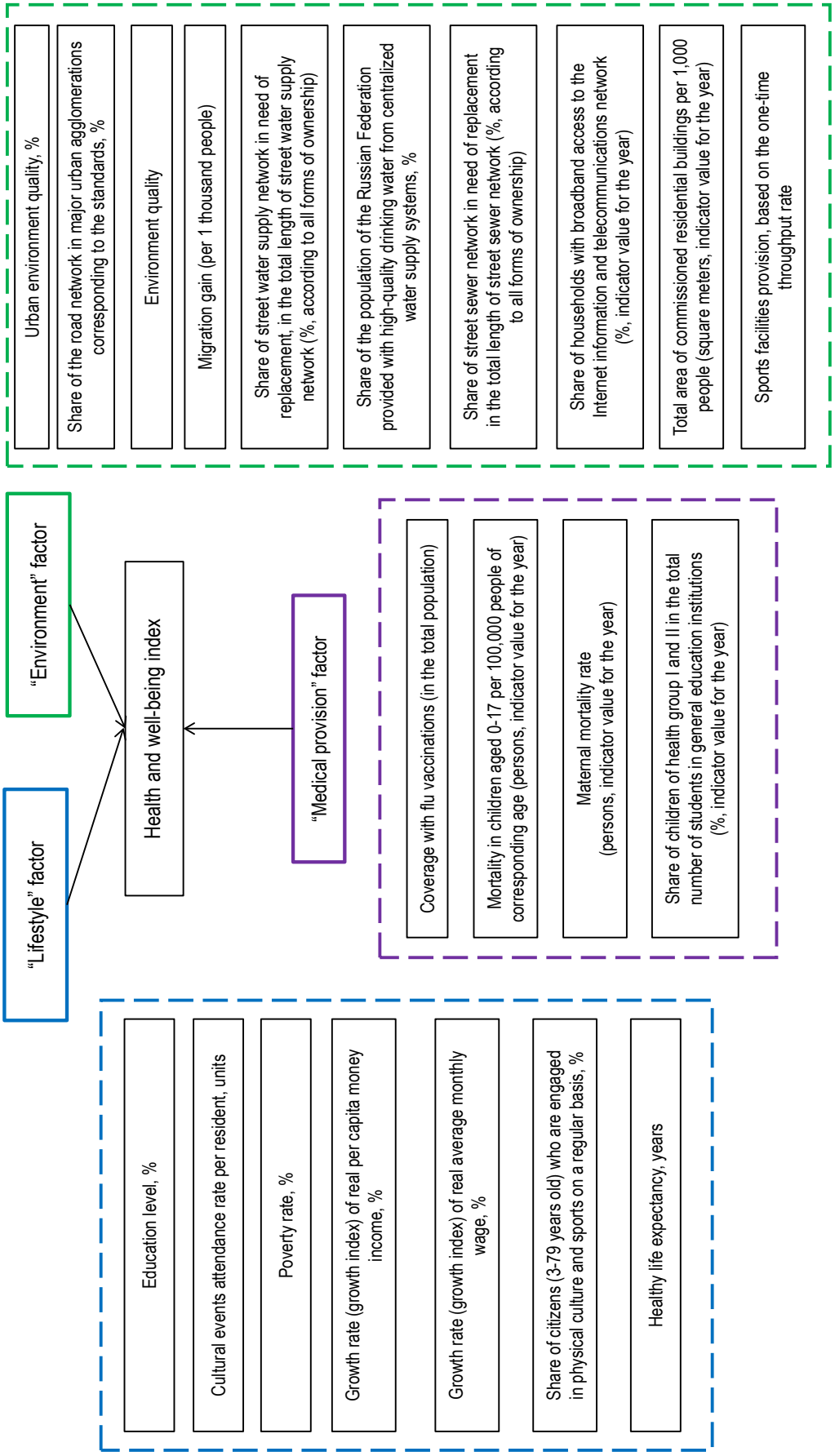

Figure 3. Decomposition of indicators for calculating the health and well-being index for RF constituent entities

Source: own compilation.

The **next step** is to form the values of subindices and the integral index.

The convolution of the remaining indicators into a single aggregated index is implemented on the basis of the *principal component method*. To do this, it is necessary to find the largest eigenvalue of the correlation matrix for the remaining indicators. Subject to preliminary standardization of the values of the indicators under consideration, the square of the estimates of the found eigenvector will characterize the weight of the corresponding indicator $\in [0,1]$. Currently, the statistical cross-section of the data is small and the weighting factors of the indicators require annual revision. With the accumulation of a sample over about 10 years, the weights may become more stable (they will not change much when new data are added). This method was also proposed by S.A. Ayvazyan (Ayvazyan, 2012).

The **final stage** is approbation of the developed tools and interpretation of the results obtained.

The results obtained according to the calculations for municipal okrugs and districts are presented in *Table 1*. The index helps to assess the variability of values and the "lagging" of municipalities from the "leader", and form a conditional rating of municipalities. In 2022, seven municipal districts of the Vologda Oblast were included in the group with

Table 1. Results of calculating the health and well-being index for municipal districts of the Vologda Oblast for 2022

Municipal district	Health and well-being index	Level
Kaduisky	0.625	Above average
Nyuksensky	0.613	
Mezhdurechensky	0.607	
Ust-Kubinsky	0.604	
Nikolsky	0.603	
Tarnogsky	0.592	
Vozhegodsky	0.561	
Totemsky	0.554	
Gryazovetsky	0.529	Average
Syamzhensky	0.522	
Vashkinsky	0.520	
Babushkinskiy	0.518	
Sokolsky	0.510	
Ustyuzhensky	0.493	
Sheksninsky	0.492	
Kichmengsko-Gorodetsky	0.474	
Babaevsky	0.474	
Vologodsky	0.462	
Chagodoshchensky	0.460	Below average
Verkhovazhsky	0.460	
Vytegorsky	0.453	
Kirillovsky	0.448	
Harovsky	0.435	
Cherepovetsky	0.431	
Belozersky	0.424	
Velikoustyugsky	0.384	
Source: own compilation.		

the level of values of the health and well-being index (HWBI) above the average (the value of the HWBI is in the range from 0.55 to 0.63). Eleven municipalities made up the "core" of the rating (HWBI – from 0.46 to 0.53), HWBI values were from 0.39 to 0.46 in seven municipal okrugs and districts.

Separate calculations were carried out for large cities of the oblast.

The logic of constructing the index is similar to the general one for municipalities, however, due to the high concentration of population and economy for these territories, the calculation of weighting coefficients was carried out separately. The HWBI values obtained for large cities in the region are higher than those for municipal okrugs and districts, which is explained by relatively better conditions and standard of living *(Tab. 2)*.

A similar calculation was carried out for the RF constituent entities that are part of the Northwestern Federal District *(Tab. 3)*. In comprison to the approach to calculating the index for municipalities the only difference is the list of indicators used to form each factor included in the calculation of the health and well-being index and their weight values.

The results of calculating the health and well-being index for the constituent entities of the Northwestern Federal District indicate the leadership of the Vologda Oblast and Saint Petersburg in the health and well-being index; the values are above the average in the Leningrad, Kaliningrad and Novgorod oblasts.

Discussion and conclusions

The advantage of the proposed index is the availability of analysis indicators, the main part of which is included (directly or by structural components) in the calculation of indicators for national projects. The calculation of the index made it possible to conduct a comparable ranking of municipalities and a comprehensive assessment of the effectiveness of the public health promotion system in the region.

Table 2. Results of calculation of the health and well-being index for large cities of the Vologda Oblast for 2022

City	Health and well-being index
Cherepovets	0.707
Vologda	0.644
Source: own compilation.	

Table 3. Results of calculating the health and well-being index for the constituent entities of the Northwestern Federal District of the Russian Federation for 2022

Constituent entity	Health and well-being index	Level
Saint Petersburg	0.628	Above average
Vologda Oblast	0.543	Average
Leningrad Oblast	0.523	
Pskov Oblast	0.464	
Kaliningrad Oblast	0.457	Below average
Republic of Komi	0.450	
Novgorod Oblast	0.449	
Arkhangelsk Oblast	0.443	
Republic of Karelia	0.427	
Nenets Autonomous Okrug	0.386	
Murmansk Oblast	0.373	
Source: own compilation.		

Despite the presence of many indices in the field of social well-being, the methodological niche of indicators in the field of public health seems to be insufficient. One of the most developed indices used to assess public health is the "***years of potential life lost***", reflecting demographic losses due to premature mortality and calculated as the sum of the products of the number of deaths in each age group by the number of years they did not live to a certain age limit (most often up to 70 years) (Korobitsyn et al., 2014). The advantage of the health and well-being index is its integrative nature. It provides a multidimensional analysis of mortality, increases the level of awareness, commensurability and comparability of estimates (Novgorodova, 2015). We should also point out the ***quality of life ranking*** calculated by the Agency for Strategic Initiatives[10]. It is comprehensive and evaluates the overall satisfaction with the social sphere and the place in which an individual lives (including medical care and environmental conditions); It will significantly complement the characteristics of the impact of morbidity and premature mortality on the viability of the population and the indicator of ***healthy life expectancy*** (Katkova, Rybalchenko, 2020).

The insufficiency of methodology when analyzing the process of strengthening public health is due to the presence of unsolved problems in Russia. *The first problem lies in the complexity of obtaining statistical data and their quality.* The number of indicators of official statistics (Rosstat), when we look at the municipal level, is significantly reduced, individual indicators are simply not monitored at the level of municipal districts and settlements. For example, the indicator "life expectancy at birth" that reflects the development of public health, is not calculated at the municipal level. *The second problem* is related to the period of publication of official indicators after the end of the reporting period. A significant time lag between the end of the reporting period and the formation of official statistical data limits the possibilities of risk management and impedes the formation of an adequate management response. *The third problem* is that certain areas of the public health sphere either do not have official statistics (Rosstat), or are collected only at the departmental level (regional medical information analytical centers (MIAC), and are not collected subsequently at the federal and/or regional level, which means there is an analytical gap in relation to the public health sphere and it is impossible to provide a comparable assessment between RF regions/constituent entities. Thus, the following *areas* currently need to be worked out at the level of the concerned authority together with Rosstat:

– expanding the list of indicators in the field of public health (including by introducing the indicators of departmental statistics of the Ministry of Health, Ministry of Construction, Ministry of Sports, etc., sectoral authorities);

– reducing the period of publication of indicator values after the reporting period;

– decomposing the indicators at the municipal level.

To analyze the comparability of processes in the field of public health at the regional and interregional levels, the collection and publication of indicators in the field of public health should be assigned to Rosstat and its territorial offices in the regions. At the same time, in our opinion, it is not entirely correct to be guided only by statistical data, since the analytical value of indicators from sectoral departments and Rosstat decreases if there are no data on public opinion. Representatives of the World Health Organization note the need to study the factors that affect people's health, the so-called *social determinants of health* that an individual creates around themselves on their

[10] Quality of life ranking. Agency for Strategic Initiatives. Available at: https://asi.ru/government_officials/quality-of-life-ranking/

own. The determinants are investigated with the help of sociological studies. One of the popular methods used in conducting sociological research is a *sociological survey*. Despite the fact that it is a resource-intensive procedure (scale of coverage of the sample of respondents, involvement of single-discipline specialists), its results help to obtain information unique in its content – feedback from the population. The result of the sociological survey should be the formation of a *sociological index of satisfaction with the health-preserving environment and the healthcare system*.

Taking into account the above, we propose to include the health and well-being index in the federal/regional project "Formation of a system of citizens' motivation for a healthy lifestyle, including healthy nutrition and rejection of bad habits" within the framework of the national project "Demography"; as well as the issue concerning the development and launch of a sociological survey within the framework of this federal project.

The calculation of indicators and the execution of an annual sociological survey should be financed at the expense of the federal budget.

In 2023, the Vologda Oblast Government conducted a sociological study to identify behavioral factors promoting a healthy lifestyle and ensuring satisfaction with public spaces to preserve health. This survey, along with the health and well-being index, is planned to be used as a tool for assessing the existing system of public health promotion in the regions. The long-term tasks for the Vologda Oblast include continuing and enhancing regional and municipal work to strengthen public health and increasing the responsibility of citizens for their health.

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Modeling Economic Security Risks for Russian Regions in the Context of Sanctions Pressure

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Abstract. The article investigates the problem of ensuring Russia's economic security in the conditions of increasing sanctions pressure. In order to assess and analyze emerging risks, we propose a multifactorial model that considers the economic security of Russian regions as a complex multidimensional system influenced by various interrelated risk factors. We use a list of indicators for monitoring and assessing Russia's economic security, approved by Presidential Decree 208, dated May 13, 2017. For the purpose of risk modeling, we establish two-level threshold values ("soft" and "hard") of indicators based on expert assessment. The information base of the study includes data of the Federal State Statistics Service for Russia, as well as data in the context of constituent entities of the Ural Federal District by month for the period from January 2016 to March 2023. According to the calculation results, the aggravation of sanctions imposed by unfriendly countries has negatively affected the economic security of Russia as a whole and that of constituent entities of the Ural Federal District. Within the analyzed period, the risks created are significantly lower in comparison with the consequences of the COVID-19 pandemic, and they tend to decrease. Regional analysis shows that the most significant risk factor is the condition of agriculture, which has been significantly affected by the quarantine and sanctions restrictions imposed. Modeling economic security risks for Russian regions on the basis of the proposed approach in dynamics will help to promptly assess the current situation and put forward management recommendations in a timely manner, when economic security is compromised.

Key words: economic security, risk analysis, probability of an unfavorable outcome, crisis, country, region, sanctions, pandemic.

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Introduction

Since 2014, the sanctions pressure (financial, trade, economic and other restrictions) on the Russian economy by unfriendly countries has been increasing. According to the Economic Security Strategy of the Russian Federation for the period up to 2030, the use of such discriminatory measures is one of the main challenges and threats; therefore, it is especially important, in the context of aggravation of geopolitical contradictions with Western countries, to develop a set of measures to neutralize emerging risks. For this reason, it is necessary to study the risks of economic security in a regional context, given the significant heterogeneity of RF constituent entities and the specifics of the implications of sanctions restrictions for them.

Despite the rather long duration of the sanctions, as E.T. Gurvich and I.V. Prilepskiy point out (Gurvich, Prilepskiy, 2016), there is no consensus on the scale of their impact on the Russian economy not only on a quantitative, but also on a qualitative level. Moreover, the results of surveys and various calculations of effects demonstrate a wide range of assessments and are often contradictory. For example, in a World Bank report[1] published in April 2023, Russia's GDP is estimated to decline by only 0.2% at the end of

[1] Izvorski I., Lokshin M., Norfleet J.R.R. et al. (2023). Europe and Central Asia Economic Update, Spring 2023: Weak Growth, High Inflation, and a Cost-of-Living Crisis. The World Bank. DOI 10.1596/978-1-4648-1982-7

the year, although in January the forecast for the fall was 3.3%. Such changes in the assessment of the impact of sanctions pressure are explained by the rapidly changing international situation, which adds its own adjustments. Obviously, at present the study of this problem is limited by too many unknown "variables"; therefore, within the framework of this article, the goal is to model the risks of economic security of Russian regions in the context of sanctions pressure.

The aim of the work is to describe a model of multifactorial risk in relation to the tasks of the monitoring on the example of assessing the economic security of Ural Federal District (UFD) regions under the conditions of sanctions pressure.

Literature review

To consider economic security risks for the territory, scientific works use qualitative and quantitative assessment methods; both have their advantages and limitations. On the one hand, mathematical methods used for uncertainty analysis require a significant amount of data, which researchers do not always have (Soshnikova et al., 1999; Aven, 2019). On the other hand, the methods of qualitative analysis (method of expert assessments, SWOT analysis, ABC analysis, etc.) for the study of socio-economic systems admit a certain subjectivism (Vasiliev et al., 2015; Ilyenkova, 2016; Karanina, Maksimova, 2022; Benzaghta et al., 2021; Ginevicius et al., 2022). It is also worth noting the expert-statistical Bayesian approach used for scenario forecasting of territorial development (Bryant, Zhang, 2016; Graziani, 2020).

In this regard, we agree with (Mityakov, 2019; Lobkova, 2022) who point out that the most common approach to assessing economic security risks is to measure deviations of individual indicators from their established thresholds. Depending on the degree of the deviation, different levels (zones) of risk are determined. For example, V.K. Senchagov and S.N. Mityakov (Senchagov, Mityakov, 2011) use zone theory to rank normalized indicators by five risk zones (catastrophic, critical, significant, moderate risk, and stability). To assess the risks of economic security in the context of the digital transformation of the regional economy, E.V. Lobkova (Lobkova, 2022) applied the theory of fuzzy sets, according to which the selected indicators should be considered as corresponding or not corresponding to a certain level of economic security and risk with the use of quantitative boundaries. Within the framework of this approach, the assessment of economic security risks is reduced to the quantification of individual dangerous outcomes without taking into account the contribution of each factor in a multidimensional system; i.e. it is assumed that they are mutually independent, and the probability of their simultaneous occurrence is neglected. Adaptive filtering methods and time series models are commonly used in risk forecasting tasks (Lukashin, 2003; Devianto, Fadhilla, 2015; Liu, Yu, 2022).

Logical-probabilistic risk models also do not take into account the mutual dependence of risk factors (Solozhentsev, 2006; Cox, 2009). In recent years, copulas have been successfully used to model dependencies in enterprise risk management, finance, and insurance (Cherubini et al., 2004; Joe, 2014). However, finding a suitable copula structure is not a trivial task and requires large samples (Behrensdorf et al., 2019), which is difficult to implement in regional risk analysis tasks due to limited data.

We should note that risk factors are generally mutually dependent and can appear simultaneously, which leads to an increase in the impact of their occurrence. Therefore, the analysis of the economic security of such complex multidimensional stochastic systems as the economic security of Russia's regions in conditions of limited data and the relationship of risk factors, becomes an urgent scientific problem, and its solution has theoretical and practical significance.

Multivariate risk analysis model

To analyze the socio-economic stability of a complex multidimensional system, we use the multidimensional risk model (Tyrsin, Surina, 2017). We define a group of the most informative risk factors $X_1, X_2, \dots, X_m$, that describe the disturbances of the system, associated with external and internal factors. Thus, we obtain a representation of the system in the form of a random vector $\mathbf{X} = (X_1, X_2, \dots, X_m)$ with a certain probability density $p_{\mathrm{X}}(\mathbf{x})$, the components of which are risk factors.

Based on a priori information, we identify geometric areas of unfavorable outcomes, the boundaries of which are based on the threshold values of indicators obtained through expert assessment and the best values θ_j, $j = 1,2, \dots, m$ in terms of safety. In the absence of a priori information about θ_j we consider them equal to mathematical expectations $\mu_j = M[X_j]$ of the corresponding indicators X_j, i.e. $\theta_j = \mu_j$, $j = 1,2, \dots, m$. In this case dangerous situations will be the cases of large and unlikely deviations of sample values x_{ij} of any component X_j relative to θ_j and the probability of an unfavorable outcome of each of the components X_j will be defined as follows:

$$P(D_j) = P(X_j \in D_j) = P(X_j \notin \overline{D}_j),$$
$$\overline{D}_j = \{x: d_j^- < x < d_j^+\},$$

where d_j^-, d_j^+ – left and right boundaries of acceptable values, determined on the basis of expert assessments and limiting the area of favorable outcomes. In this case, $d_j^- < d_j^+$.

Let us introduce the lower b_j^- and upper b_j^+ threshold levels of permissible deviations relative to values θ_j as $b_j^- = \theta_j - d_j^-$ and $b_j^+ = d_j^+ - \theta_j$, while the corresponding areas of favorable outcomes $\overline{D}_j$ for each component X_j will be described by the range $(\theta_j - b_j^- < x < b_j^+ + \theta_j)$.

If there is only the right boundary of acceptable values d_j^+, then we consider $d_j^- = -\infty$ and $\overline{D}_j = \{x: x < d_j^+\} = \{x: x < b_j^+ + \theta_j\}$, otherwise, when determining only the left boundary d_j^- we obtain $d_j^+ = +\infty$ and $\overline{D}_j = \{x: x > d_j^-\} = \{x: x > \theta_j - b_j^-\}$. The expression $d_j^- = -\infty$ or $d_j^+ = +\infty$ means that the values of risk factor X_j less than or more than θ_j are as safe as $X_j(\theta_j)$.

Next, it is necessary to generalize the definitions described above to take into account the mutual influence of the components on the occurrence of adverse outcomes by presenting them as a multidimensional area of dangerous situations (risk zone) D. $D = \mathbf{R}^m \backslash \overline{D}$, where $\overline{D}$ – area of favorable outcomes. Thus, from a geometric point of view, the optimal representation of the range of acceptable values $\overline{D}$ will be an m-axis ellipsoid of the following form:

$$\overline{D} = \left\{ \mathbf{x} = (x_1, x_2, \dots, x_m): \sum_{j=1}^{m} \frac{(x_j - \theta_j')^2}{b_j^2} < 1 \right\}$$

with the center at the point $\boldsymbol{\theta}' = (\theta_1', \theta_2', \dots, \theta_m')$, and $\forall j = 1,2, \dots, m$.

$$\theta_j' = \begin{cases} \theta_j, & d_j^- = -\infty \vee d_j^+ = +\infty, \\ (d_j^- + d_j^+)/2, & d_j^- > -\infty \wedge d_j^+ < +\infty, \end{cases}$$

$$b_j = \begin{cases} (b_j^- + b_j^+)/2, & d_j^- > -\infty \wedge d_j^+ < +\infty, \\ b_j^-, & d_j^+ = +\infty, \\ b_j^+, & d_j^- = -\infty. \end{cases}$$

Then, for a random vector $\mathbf{X}$ the probability of an unfavorable outcome will be as follows:

$$P(D) = P(\mathbf{X} \in D),$$
$$D = \left\{ \mathbf{x} = (x_1, x_2, \dots, x_m): \sum_{j=1}^{m} \frac{(x_j - \theta_j')^2}{b_j^2} \geq 1 \right\}.$$

Therefore, risk zone D will be the outer region of an m-axis ellipsoid, the semi-axes for each of the coordinates of which will correspond to one-dimensional case D_j and be equal to b_j, respectively. Obviously, when the outcome does not lie on one of the axes, then event $(\mathbf{X} \in D)$ can be realized in the absence of risk deviations in all the components (situations $\mathbf{X} \in D$ and $\forall j\ X_j \notin D_j$ are possible).

To estimate the single contribution of an indicator or a group of indicators to probability $P(D)$, we introduce

$$P(D^-) = P(D/D_k),$$
$$D^- = \left\{\mathbf{x}^- = (x_1, \dots, x_{k-1}, x_{k+1}, \dots, x_m : \sum_{j=1}^{m} \frac{(x_j - \theta'_j)^2}{b_j^2} \geq 1\right\},$$

where D^- – area of adverse outcomes after excluding one-dimensional region D_k corresponding to risk factor X_k.

Then the absolute and relative change in the probability of an unfavorable outcome of a multidimensional system due to the addition of factor X_k is as follows:

$$\begin{aligned} \Delta P(D_k) &= P(D) - P(D^-), \\ \delta P(D_k) &= \Delta P(D_k)/P(D^-). \end{aligned} \quad (1)$$

The probability estimate $P(D)$ is based on the use of the Monte Carlo statistical test method[2]. Let us explain the essence of this procedure. We assume that we have some sample of data represented by matrix $\mathbf{X}_{n\times m}$, which we conditionally call the general population. We denote its probability density $p_{\mathrm{X}}(\mathbf{x})$. We must repeatedly generate new observations $\mathbf{z}_i = (z_{i1}, \dots, z_{im})$ with distribution law $p_{\mathrm{X}}(\mathbf{x})$. Then the probability estimate $P(D)$ will be equal to the frequency

$$P(D) = \frac{M}{N},$$

where N – total number of generated observations $\mathbf{z}_i$ ($i = 1, \dots, N$), M – number of outcomes when generated observation $\mathbf{z}_k \in D$.

To reproduce sample $\mathbf{X}_{n\times m}$, it is necessary to know the distribution law of a multidimensional population. We will consider it Gaussian. First, the use of the normal distribution law relies on the central limit theorem[3].

Second, such idealization is not so critical, and if there is any reason to believe that the probability densities of the components of a random vector $\mathbf{X}$ have more elongated tails, then this will practically not affect the number of outcomes M (for us, only the condition $\mathbf{X} \in D$ is important).

Third, the general population in this case will relate to small samples, which makes it impossible even to approximate the distribution law of a random vector $\boldsymbol{X}$.

Therefore, we will consider distribution law $p_{\mathrm{X}}(\mathbf{x})$ Gaussian. Then, to find its parameters, we estimate sample covariance matrix $\boldsymbol{\Sigma}_{\mathbf{x}} = (\sigma_{ij})_{m\times m}$ and vector of average values $(\bar{X}_1, \dots, \bar{X}_m)$ and consider them equal to the theoretical covariance matrix and the vector of mathematical expectations, respectively. The generation of a random vector $\mathbf{Z} = (Z_1, \dots, Z_m)$ is performed as follows:

$$z_{ik} = \sum_{j=1}^{k} a_{kj} U_j + \bar{X}_k,\ k = 1, \dots, m,\ i = 1, \dots, N,$$

where $U_1, \dots, U_m$ – mutually independent, normally distributed random variables with zero mathematical expectations and unit variances. Equating $\mathrm{cov}(Z_k, Z_l) = \mathrm{cov}(X_k, X_l) = \sigma_{kl}$ and solving the corresponding system of m nonlinear equations, we obtain the following formulas for calculating coefficients a_{kj}:

$$a_{kl} = \frac{\sigma_{kl} - \sum_{j=1}^{l-1} a_{lj} a_{kj}}{a_{ll}},\ l < k,\ k = 1, \dots, m,$$
$$a_{kk} = \sqrt{\sigma_{kk} - \sum_{j=1}^{k-1} a_{kj}^2}.$$

[2] Mikhailov G.A., Voitishek A.V. (2006). *Chislennoe statisticheskoe modelirovanie. Metody Monte-Karlo: uchebnoe posobie dlya studentov vuzov, obuchayushchikhsya po napravleniyu podgotovki "Prikladnaya matematika"* [Numerical statistical modeling. Monte Carlo methods: A textbook for university students studying in the field of Applied Mathematics]. Moscow: Akademiya.

[3] Gnedenko B.V. (2005). *Kurs teorii veroyatnostei: ucheb. dlya studentov mat. spetsial'nostei un-tov* [A course in probability theory: Textbook for students of mat. specialties of higher education institutions]. Eighth edition, revised and supplemented. Moscow: Izd-vo URSS.

Obviously, the distributions of random vectors **X** and **Z** coincide, i.e. $p_X(\mathbf{x}) = p_Z(\mathbf{x})$. Therefore, we have convergence in the probability of sample distribution $p_{\hat{Z}}(\mathbf{x})$ of the generated model data to distribution $p_X(\mathbf{x})$, and the required sample size for a given reliability can be determined using standard statistical criteria.

The use of covariance matrix Σ_x for risk factors allows us to take into account the relationship between them, which distinguishes this mathematical model from the well-known risk analysis models.

Researchers at the Institute of Economics of the Ural Branch of the Russian Academy of Sciences (Kuklin et al., 2018) analyzed the risks to welfare in regions of the Ural Federal District, based on annual data for 2001–2016. However, a static version of risk analysis was considered here. It is of interest to transfer this approach to a dynamic option, which will help to conduct an ongoing risk monitoring based on monthly or quarterly values of socio-economic indicators, to assess the current situation in an operational mode and to form management recommendations in a timely manner, if there is a decrease in economic security in the regions.

Assessment data

The information base for the study of economic security risks includes the statistical data of the Federal State Statistics Service in the context of RF constituent entities by month from January 2016 to March 2023. The choice of the time interval is due to the presence of several crisis periods, and it will allow us to see a capacious picture of the instability of the systems under consideration. *Table 1* presents a list of indicators used for risk modeling, compiled on the basis of indicators for monitoring and assessing Russia's economic security, approved by the Presidential Decree 208, dated May 13, 2017. To ensure stability of the estimation of the covariance matrix, we chose eight factors, the impact of which on economic security turned out to be the most significant. We should note that in

Table 1. Indicators of economic security of the region and their threshold values

Symbol	Indicator, measurement unit	Threshold value	
		"Soft"	"Hard"
X_1	Industrial production index, % compared to the corresponding month of the previous year	not less than 89	not less than 85
X_2	Work performed by the type of activity "Construction", % to the corresponding month of the previous year	not less than 86	not less than 80
X_3	Retail trade turnover, in comparable prices, % to the corresponding month of the previous year	not less than 90	not less than 85
X_4	Average monthly nominal accrued wages of employees of organizations, % to the corresponding month, adjusted for inflation*	not less than 96	not less than 95
X_5	Registered unemployment rate, %	not more than 4.6	not more than 6.0
X_6	Agricultural production index, % to the corresponding period of the previous year**	not less than 93	not less than 90
X_7	Investments in fixed assets at the expense of all sources of financing, for the full range of economic entities, at comparable prices, % to the corresponding period of the previous year**	not less than 86	not less than 85
X_8	Production index by the type of economic activity "Mining", % to the corresponding month of the previous year	not less than 85	not less than 80

* Recalculated taking into account the consumer price index.
** Interpolated from quarterly data.
Source: own compilation.

the scientific literature (Serebrennikov et al., 2018; Pavlov, 2019; Anisimov, 2022) the composition of the approved indicators is criticized; proposals for its clarification are substantiated. For example, individual indicators are more likely to characterize welfare and progressive development, rather than risks. Nevertheless, for the purposes of our study, the use of its reduced version (eight out of 40 indicators) is substantiated by two reasons:

- presence of a fairly close correlation between many socio-economic indicators; therefore, risk analysis on the selected part of the indicators as a whole allows for an adequate assessment of economic security;
- at the regional level, some indicators from the list are not available, and some are not published promptly.

The sanctions pressure had a significant impact on such areas as construction, investment and mining; but when analyzing the risks of economic security in the regional context, the indicators characterizing the situation in these areas (X_2, X_7 and X_8), were not considered, which is due to several reasons. First, their monthly dynamics are not representative; a more accurate picture is provided by the annual values of the indicators, since the implementation of various projects in Russian regions is carried out on demand rather than on a regular basis. In this regard, a fairly stable picture is observed if we look at the average Russian values. Second, for certain regions, low values and dynamics in terms of construction, investment and mining may be conditionally acceptable. "Failures" in these areas below the threshold value for the region may not always mean the onset of risks; at the same time, from the standpoint of ensuring economic security at the national level, most likely, this is an indicator of deterioration. Third, the regions are part of the country as a system, and taking into account the division of labor, different climatic, geographical, natural and other conditions for each region, part of the indicators for monitoring economic security turns out to be insignificant.

The proposed model of multifactorial risk allows us to vary the risk factors used; therefore, depending on the objectives of the study, the list of indicators presented in Table 1 can be changed.

A separate methodological task of our study is to determine the threshold values of economic security indicators. There are two approaches to the content of the term "threshold". The first approach is to interpret threshold as an acceptable target value, examples of its use are the 1996 Economic Security Strategy of the Russian Federation[4] and the 2020 Food Security Doctrine of the Russian Federation[5]; the second approach considers threshold as a limit value of an indicator widely used in the theory of economic security. Our study is based on the second approach, the threshold value is understood as a quantitatively determined value of the indicator, the excess of which signals the transition of the economic security of the territory to a qualitatively new state.

To establish the threshold value of economic security indicators, various methods are used: comparative analysis (comparison with the world or average Russian level) and expert assessments (Lobkova, 2022). In the scientific literature (Krivorotov et al., 2019; Lokosov, 2021), expert assessments are the most common way to determine threshold values. Thus, S.Yu. Glazyev and V.V. Lokosov set the threshold critical values based on the results of special studies, expert assessments and mathematical modeling (Glazyev, Lokosov, 2012). This method is also incorporated into the methodology for determining threshold values of the main (priority) risk factors and threats to the

[4] On the Economic Security State Strategy of the Russian Federation (Basic Provisions): Presidential Decree 608, dated April 29, 1996.

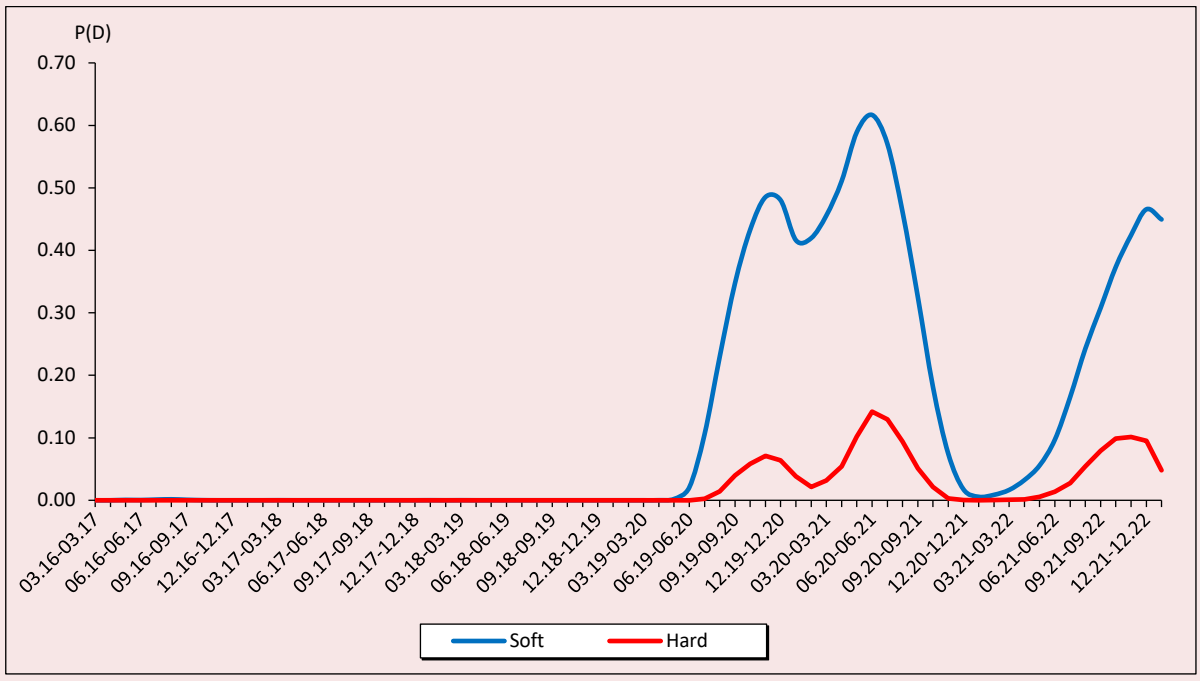
[5] On the approval of the Food Security Doctrine of the Russian Federation: Presidential Decree 120, dated January 30, 2010.

economic security of economic entities, developed by V.I. Avdiysky and V.K. Senchagov (Avdiysky, Senchagov, 2014). S.N. Mityakov, E.S. Mityakov and T.A. Fedoseeva (Mityakov et al., 2020) used expert assessments and international comparisons when choosing threshold values. A.B. Vissarionov and R.R. Gumerov (2017) consider that expert evaluation method has the following disadvantage: each indicator and its limit values are considered in isolation from other indicators and without taking into account historical analogies. Therefore, within the framework of our study, threshold values were selected by expert assessment based on the most striking crisis phenomena in Russia in 1998 and 2009. In addition, for a more accurate assessment of economic security risks, the methodology proposed by A.I. Tatarkin and A.A. Kuklin is considered (Tatarkin et al., 1997), which allows quantifying the presence, nature and level of risk manifestation and its dynamics, using a system of threshold values: from "soft" to "harder" ones. Initially selected "soft" threshold values based on crisis values, poorly reflect the unfavorable situations of those regions in which the behavior of risk factors is more unpredictable and chaotic, and if the region goes beyond the threshold values in the same way, than on the national level this will not determine unambiguously the crisis phenomenon for the region. In this regard, the "hard" threshold values that were set depending on the degree of fluctuation of the risk factors under consideration were tightened and defined.

Risk assessment

To study general trends in ensuring economic security, we tested the risk analysis model using data for Russia; and to identify the regional specifics of the impact of sanctions pressure we used data on RF constituent entities. The model is implemented using C++ programming language in Microsoft Visual Studio 2019. *Figure 1* shows an assessment of the probability of Russia's economic security indicators falling into the risk zone.

Figure 1. Assessing the probability of Russia's economic security indicators falling into the risk zone



Source: own compilation.

Due to the fact that the study is based on monthly data, we clearly see random deviations and seasonal fluctuations, which can lead to a bias in the risk assessment. To exclude the influence of such outliers while maintaining the nature of the dynamics of indicators, the analysis used averaged values for six-month periods. Also, taking into account the principle of generating statistical tests of the Monte Carlo method using a covariance matrix, the study considered a period of 12 months in increments of 1 month, the choice of which is due to the number of indicators in the model.

Thus, the increase in the probability of falling into the risk zone in Figure 1 at the point 06.19–06.20 (in the period from June 2019 to June 2020) can be interpreted as the inclusion in the analysis of the crisis month or the first manifestation of the deterioration of economic security in June 2020.

According to the dynamics of the assessment obtained, two periods of increasing risks to Russia's economic security are clearly distinguished. The first period is associated with two waves of the COVID-19 pandemic and the introduction of restrictive measures, the second with increased sanctions pressure. Within the analyzed time period, the risks of the first period are more significant for ensuring the economic security of the country. Due to the fact that the "soft" threshold values are based on the crisis phenomena of the annual indicators of the Russian Federation, the peaks of the probability of falling into the risk zone in Figure 1 are much more pronounced for the "soft" values than for the "hard" ones.

The calculations show that the main factors enhancing the risks to Russia's economic security during the pandemic were a decline in retail trade (X_3), an increase in unemployment (X_5) and a decline in mining (X_8). The coronavirus pandemic and the measures taken to limit its spread have led to a significant reduction in retail trade in Russia. Thus, at the end of 2020, the index of physical volume of retail trade turnover amounted to 96.8%, with the most serious decline noted in April 2020 (78.0% compared to the same period in 2019). In the "pandemic" period, HSE researchers (Simachev et al., 2021) identified several stages of the retail crisis associated with the introduction of lockdowns, short-term hyped consumer demand, unpreparedness to increase online trading, and a decrease in effective demand.

By the end of 2020, the unemployment rate in Russia, calculated according to the ILO methodology, was 5.8%, which is an acceptable value and demonstrates the successful neutralization of the threats of a pandemic in the field of employment. At the same time, there was an unprecedented increase in registered unemployment, caused by the expansion of financial support to the unemployed through the employment service and the simplification of procedures for registering citizens with employment centers. Before the pandemic, no more than a quarter of the total number of unemployed were registered with the employment service, while in the second quarter of 2020, almost two-thirds received state support, and in the third quarter – almost three-quarters of the unemployed (Soboleva, Sobolev, 2021).

The restrictive measures introduced in Russia have led to a decline in demand for energy resources and, as a result, a reduction in the production of hydrocarbons. For example, in April 2020, gasoline production decreased by 20.1% compared to April 2019, and its sales at gas stations – by 40–50%[6]. In addition, the volume of mineral production fell

[6] Gimadi V., Kurdin A., Kutuzova A., Zvyagintseva A. et al. (2020). Electric power industry: The impact of the COVID-19 pandemic. *Energeticheskii byulleten'*, 84. Available at: https://ac.gov.ru/uploads/2-Publications/Energo84_may2020.pdf (accessed: June 28, 2023; in Russian).

sharply in May 2020 after the conclusion of a deal within OPEC+ to reduce oil production[7].

In the second "sanctions" period, the following factors that led to increasing probability of deterioration of economic security were identified: a reduction in retail turnover (X_3) and a decrease in wages (X_4). In order to protect the domestic food market and stabilize prices the Government of the Russian Federation imposed restrictions on the export of a number of goods from Russia, in 2022; nevertheless, retail turnover in Russia decreased by 6.5% on average due to problems with logistics and changes in consumer behavior. The crisis phenomena had a noticeable impact on the labor market, but during the pandemic they were reflected in the growth of unemployment, while in the "sanctions" period they were manifested in the fall in wages, which is more typical for the Russian labor market. According to V.E. Gimpelson and R.I. Kapelyushnikov, such a nonstandard mode of adaptation of the labor market to shocks of different nature is called "Russian model", when price adaptation dominates over quantitative (Gimpelson, Kapelyushnikov, 2015).

Obviously, depending on the specialization and socio-economic characteristics the impact of sanctions pressure for ensuring economic security varies significantly across Russia's regions. According to different classifiers of regions, the Ural Federal District includes RF constituent entities that belong to different types. Yu.G. Lavrikova points out that the Ural Federal District is a median macroregion (occupies a median position in Russia) and has a unique territory, its composition has all types of regions (Lavrikova, 2017). Thus, the Kurgan and Tyumen oblasts8 represent the agrarian-industrial type, the Sverdlovsk Oblast – industrial and commercial type, Khanty-Mansi and Yamalo-Nenets autonomous okrugs – energy and resource type, the Chelyabinsk Oblast – industrial type.

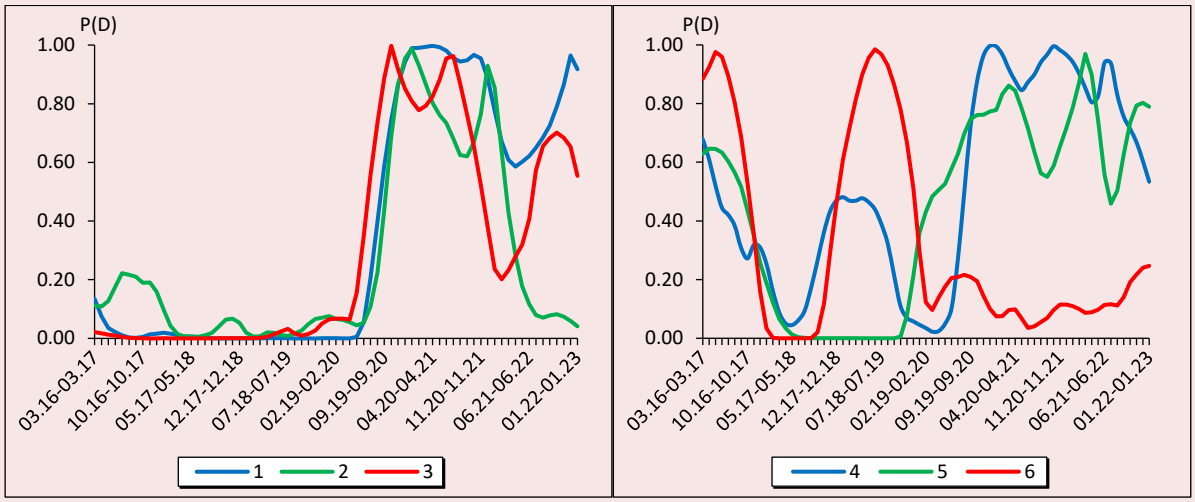
Figures 2 and 3 reflect calculations of the probability of the economic security indicators of Ural Federal District regions falling into the risk zone. Since the "soft" thresholds were set based on the annual national indicators, the calculations obtained on their basis reflect to a lesser extent the state of economic security of the regions, and, accordingly, describe the probability of an unfavorable outcome not so effectively (see Fig. 2). The results of the assessment using "hard" thresholds (see Fig. 3) exclude individual bursts of economic security risk, which may be a reaction of the region's economy to insignificant disturbances. Since in the course of the study we consider monthly data (rather than annual data), such bursts have a sufficiently strong impact on risk assessment; in this case it is advisable to consider first of all an assessment with "hard" thresholds.

As a result of the analysis, it can be seen that in general the dynamics of economic security indicators and risk factors for individual regions of the district coincide. *Tables 2 and 3* show grouped factors that have made the greatest contribution to the increase in the risk of economic security of the district's regions.

[7] Akindinova N.V., Baranov E.F., Bessonov V.A. et al. (2021). *Makroekonomicheskie effekty pandemii COVID-19 i perspektivy vosstanovleniya ekonomiki: dokl. k XXII Apr. mezhdunar. nauch. konf. po problemam razvitiya ekonomiki i obshchestva, Moskva, 13–30 apr. 2021 g.* [Macroeconomic effects of the COVID-19 pandemic and prospects for economic recovery: Report to the 22nd April international scientific conference on problems of economic and social development, Moscow, April 13–30, 2021]. Moscow: Izd. dom Vysshei shkoly ekonomiki. Available at: https://conf.hse.ru/mirror/pubs/share/460914594.pdf (accessed: June 28, 2023; in Russian).

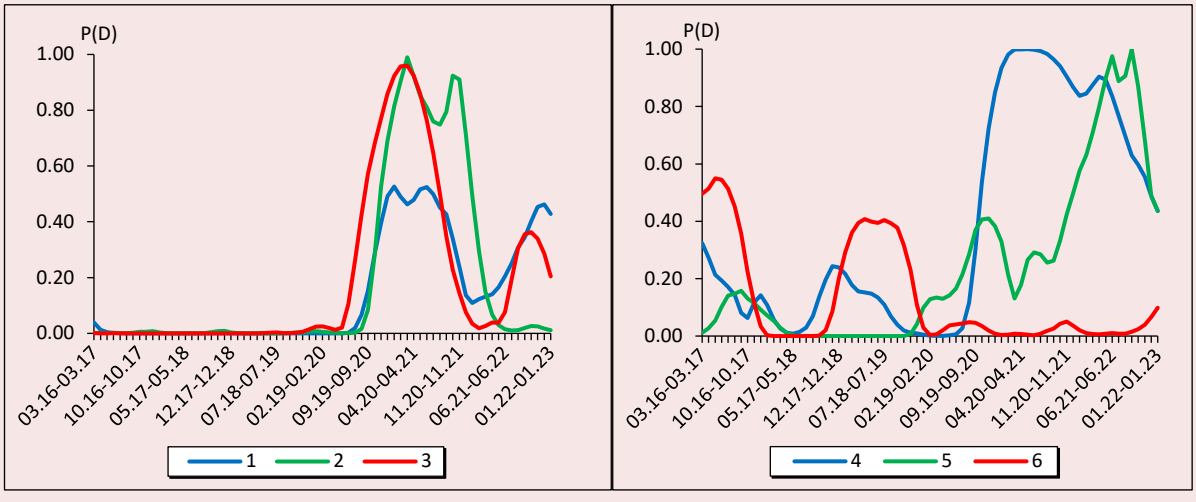
[8] Here and elsewhere: the Tyumen Oblast excluding autonomous okrugs.

Figure 2. Assessing the probability of economic security indicators
of Ural Federal District regions falling into the risk zone for "soft" thresholds:
1 – Sverdlovsk Oblast, 2 – Chelyabinsk Oblast, 3 – Tyumen Oblast, 4 – Kurgan Oblast,
5 – Khanty-Mansi Autonomous Okrug, 6 – Yamalo-Nenets Autonomous Okrug



Source: own compilation.

Figure 3. Assessing the probability of economic security indicators
of Ural Federal District regions falling into the risk zone for "hard" thresholds:
1 – Sverdlovsk Oblast, 2 – Chelyabinsk Oblast, 3 – Tyumen Oblast, 4 – Kurgan Oblast,
5 – Khanty-Mansi Autonomous Okrug, 6 – Yamalo-Nenets Autonomous Okrug



Source: own compilation.

Table 2. Factors that have made the greatest contribution to increasing the risk to economic security in the Sverdlovsk, Chelyabinsk and Tyumen oblasts

Constituent entity of the UFD	Crisis period	
	2020–2021	2022
Sverdlovsk Oblast	(0.23) (0.26) (0.14)	(0.38) (0.19)
Chelyabinsk Oblast	(0.12) (0.1) (0.84)	–
Tyumen Oblast	(0.42) (0.2)	(0.19)
Note (here and in Table 3): the absolute single (isolated, private) contribution calculated by formula (1) is given in parentheses. Source: own compilation.		

Table 3. Factors that have made the greatest contribution to increasing the risk to economic security in the Kurgan Oblast, Khanty-Mansi and Yamalo-Nenets autonomous okrugs

Constituent entity of the UFD	Crisis period		
	2016–2018	2018–2020	2020–2023
Kurgan Oblast	(0.1)	(0.1) (0.23) (0.28)	(0.12) (0.65)
Khanty-Mansi Autonomous Okrug	(0.15) (0.16)	(0.3) (0.27)	(0.97)
Yamalo-Nenets Autonomous Okrug		(0.37)	–
Source: own compilation.			

According to the calculations obtained on the basis of "hard" thresholds, two clear peaks of increased economic security risks associated with the impact of the consequences of the pandemic and the tightening of sanctions pressure were identified in the Sverdlovsk and Tyumen oblasts. In these two periods, a significant factor was the reduction in agricultural production in both oblasts (X_6), and in the Sverdlovsk Oblast there is also a decline in retail turnover (X_3). In addition, during the pandemic, the greatest contribution to the deterioration of the economic security of the Sverdlovsk and Tyumen oblasts was made by the increase in registered unemployment (X_5). The deterioration in the dynamics of retail turnover and unemployment is typical of crisis periods in the Russian economy as a whole, while the reduction in agricultural production is caused by regional peculiarities. In the Sverdlovsk Oblast, agricultural production volumes decreased from the third quarter of 2020 to the second quarter of 2022. At first, crop production decreased as a result of natural and climatic conditions, which led to a decrease in the yield of grain, potatoes and vegetables (*Tab. 4*), and then, due to quarantine and sanctions restrictions, there was a decline in the volume of livestock production (*Tab. 5*), depending on the import of equipment, breeding cattle, and seed material (Kabanova, 2023). In the second half of 2022, the agriculture of the oblast adapted; at the end of the year in the Sverdlovsk Oblast there was an increase in agricultural production by 8.9% (crop production – by 20.6%, animal husbandry – by 1.7%) as a result of the implementation of "protective" government measures, record harvest of grain crops, as well as due to the "low" comparison bases. In other regions

Table 4. Yield of grain and leguminous crops, centners per 1 ha of harvested area

Territory	2016	2017	2018	2019	2020	2021	2022
Russian Federation	**26.2**	**29.2**	**25.4**	**26.7**	**28.6**	**26.7**	**33.6**
Ural Federal District	**16.2**	**19.2**	**16.1**	**16.9**	**13.8**	**12.1**	**21.4**
Kurgan Oblast	16.3	18.6	16.2	16.9	13.5	11.1	21.9
Sverdlovsk Oblast	17.7	22.5	19.4	22.3	20.9	16.7	27.5
Tyumen Oblast	18.8	23.3	20	22.4	19.9	16.3	26.7
Chelyabinsk Oblast	14.5	16.8	13.4	13	8.6	9.2	16.5
Source: Rosstat.							

Table 5. Livestock production index, %

Territory	2016	2017	2018	2019	2020	2021	2022
Russian Federation	**101.6**	**102.6**	**101.1**	**101.9**	**101.9**	**100.0**	**102.4**
Ural Federal District	**101.3**	**101.1**	**101.7**	**100.5**	**97.5**	**97.0**	**99.2**
Kurgan Oblast	98.3	97.4	99.5	98.5	100.7	90.1	92.4
Sverdlovsk Oblast	99.9	104.0	100.7	102.5	102.1	96.6	101.7
Khanty-Mansi Autonomous Okrug	101.3	101.7	96.1	98.8	96.7	91.8	86.9
Yamalo-Nenets Autonomous Okrug	99.3	105.5	96.2	99.0	105.5	120.3	109.1
Tyumen Oblast	98.7	102.4	104.2	104.0	99.6	101.9	99.8
Chelyabinsk Oblast	104.1	99.4	102.0	98.1	92.5	95.3	98.6
Source: Rosstat.							

of the district a similar situation was observed in agriculture during the analyzed period.

According to the estimates obtained, the Chelyabinsk Oblast clearly shows an increase in economic security risks only during the pandemic; moreover, two waves can be traced in this regard. The factors influencing such growth were as follows: decrease in wages adjusted for inflation (X_4), decline in agricultural production (X_6), and increase in the registration of citizens with employment centers (X_5). The labor market has adapted to socio-economic instability by dismissing employees and using part-time, shortened working week. During the period of aggravating anti-Russian sanctions, the probability of deterioration of the economic security in the Chelyabinsk Oblast was not revealed.

The results of assessing the probability of the Kurgan Oblast's indicators reaching "hard" thresholds indicate that from the point of view of ensuring economic security among the regions of the Ural Federal District, the Kurgan Oblast is largely exposed to various risks. Three peaks of increased economic security risks have been identified. The first peak in the Kurgan Oblast was observed in 2016 (when an external shock in 2014–2016 caused a recession in Russia (Golyashev et al., 2017). In 2016, the most significant factor was the continuing decline in wage level (X_4). In 2018, during the period of stagnation of the Russian economy (Tsukhlo, 2019), the second peak is recorded, associated with an increase in registered unemployment (X_5), reduction in industrial production (X_1), namely in the production of food products and finished metal products, as well as in agriculture (X_6). During the pandemic (the third peak), the main factors promoting the growth of economic security risks were the decline in industrial (X_1) and agricultural (X_6) production. Within the time period under consideration, the negative impact of the tightening of sanctions of unfriendly countries on ensuring economic security in the Kurgan Oblast has not been established.

Several periods of increasing economic security risks have been identified in Khanty-Mansi Autonomous Okrug. The peak of the first period is recorded in 2016, when the devaluation of the ruble in 2014–2015 and the introduction of the food embargo led to an economic downturn, an increase in consumer prices and, accordingly, a decrease in household incomes and consumer demand, which resulted in a reduction in retail trade turnover (X_3) and wages (X_4) in the Autonomous Okrug. The second period began in 2019, had a negative influence on the dynamics of industrial (X_1) and agricultural (X_6) production, and intensified in 2021 (almost the sole contribution of X_6). Since the main share in the processing production of Khanty-Mansi Autonomous Okrug is occupied by the production of oil, gas and gas condensate, the decline in economic activity during periods of instability is reflected in the reduction of its volumes. There is no such reduction in Yamalo-Nenets Autonomous Okrug, which is similar in specialization, since during the period under review there was an increase in production as a result of the development of new oil and gas condensate fields – Novoportovsky and Vostochno-Messoyakhsky, and also due to the fact that the largest oil and gas plant Yamal LNG has reached its planned capacity (Kolpakov, Safina, 2020). In general, the highest risk probability indicators for Yamalo-Nenets Autonomous Okrug were revealed in 2016 with the greatest impact of a reduction in retail trade turnover (X_3) and in 2018 as a result of a decrease in livestock production (X_6). There was no significant deterioration in the economic security of the autonomous okrugs of the Tyumen Oblast during the period of strengthening anti-Russian sanctions.

Conclusion

Regions' economic security is affected by a variety of risk factors, which often turn out to be interrelated. In order to evaluate and analyze them, we put forward a multifactorial model within the framework of this study. Modeling the economic security risks for Russian regions was carried out on the example of constituent entities of the Ural Federal District. The results obtained indicate that it is possible to use the considered multifactorial risk model to study the dynamics of economic security of Russian regions.

We have found that the situation at the national level is fairly stable, because economic security indicators try to remain within their thresholds, while the situation at the regional level varies. Among the constituent entities of the Ural Federal District, the Kurgan Oblast, characterized by low socio-economic potential, and the autonomous okrugs of the Tyumen Oblast, whose economy significantly depends on foreign economic conditions, are the most exposed to risks.

The increase in sanctions pressure on the part of unfriendly countries has had a negative impact on ensuring the economic security of Russia as a whole and that of individual regions of the Ural Federal District. However, within the analyzed period, the risks created are significantly lower in comparison with the impact of the COVID-19 pandemic, and they tend to decrease. According to the results of the regional analysis, the most significant factor is the state of agriculture. In 2022, this very factor made the greatest contribution to the increase in risk in the constituent entities of the Ural Federal District (except for the Chelyabinsk Oblast and Yamalo-Nenets Autonomous Okrug, where the deterioration of the situation was not detected). But its influence subsided by the end of the year due to significant anti-sanctions measures aimed at supporting businesses and citizens, as well as due to record crop yield.

It is important to note that the results we obtained with the help of modeling economic security risks for Russian regions may be a short-term consequence of the anti-sanctions policy, and they do not allow us to draw unambiguous conclusions about the achievement of peak values and the desire of the system to stabilize. Obviously, the impact of sanctions pressure on ensuring the regions' economic security is of a long-term nature and will require further research.

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Assessing the Level of Social Development in Russia's Regions: Methodological and Applied Aspects

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Abstract. Modern research works contain a large number of different approaches to assessing the level of socio-economic development of territories; as for the techniques that assess economic development of territories, they are not so numerous; and the techniques for assessing social development of territories are encountered even less often. We put forward our own approach to assessing the level of social development in Russia's regions and consider population (consumer of social services) and the social sphere (subsystem of services provision) as the object of managing social development of the territory. The article proposes a technique for assessing the level of development of the territorial socio-economic system using Amartya Sen's modified social welfare function, taking into account adjustments for the characteristics of management object components: quality of life, social infrastructure and social services. We determine adjustment factors and carry out the testing on the data for 2014–2021 in the context of

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Russia's constituent entities; we form a rating of regions according to the level and specifics of social development and identify four groups of regions: "social development leaders", "socially developing", "socially slowing down" and "socially undeveloped" regions.

Key words: social development, social welfare, standard of living, quality of life, population income, gross regional product, social services, social infrastructure, social sphere.

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Introduction

Article 7 of the Constitution the Russian Federation states: "The Russian Federation is a social State whose policy is aimed at creating conditions for a worthy life and free development of man"[1]. At the same time, there is no official definition of the terms "social state", "social development", "social sphere", "social infrastructure" in the Russian legislation.

The basic ideas about the formation of the social state as a result of historical progress emerged in the 18th–19th centuries (I. Kant, O. Comte, H. Spencer, etc.). The process, as a result of which the mind of man subdued the forces of nature and improved society on the way to justice and freedom, was characterized as social development. It was believed that the progress of individuals conditioned social progress, and the level of public (social) development depended on the realization of human potential (Spencer, 2013).

In K. Marx's works, social development was determined by the constant contradiction between productive forces and production relations (Arkhangel'skii, 1985), and the social development result was determined primarily by economic factors.

Later works trace humanistic motives of social development. In the works of V.O. Klyuchevskii, P.N. Milyukov, N.A. Rozhkov, etc. (Andreeva, 1995; Belous, 2010; Mitina, 1997; Shcherban, 1996) it is not so much the process of society development itself due to economic and political reasons that is important, but its orientation toward achieving harmony of man with nature and society as a certain development ideal.

With the beginning of industrial revolutions, globalization, development of consumer society, technocratic concepts of social development appear. On the one hand, the growth of material production, facilitation of labor lead to objective improvement of the quality of life, on the other hand, new factors affecting it emerge: social security, the need for dialogue, protection of minorities, search for compromises, etc. (Parsons, 2004).

Currently, the concept of sustainable development, as articulated in the report Our Common Future[2], is now a globally accepted concept. It noted that "certain aspects of social development (population issues, human rights, their relationship to poverty, environmental quality, health and economic development) proved to be the most difficult of those encountered in the preparation of the report, due to differences in approaches and cultural, religious and regional barriers".

[1] Constitution on the Russian Federation (adopted by popular vote on December 12, 1993 with amendments approved during the nationwide vote on July 1, 2020.). Available at: https://www.consultant.ru/document/cons_doc_LAW_28399/6e9322b9a111e965ab5650f7f01bf0039d6a29c6/

[2] Our Common Future. New York: UN, 1987.

Social development is narrowly defined in the Human Development Report 2010: "It is the process of expanding people's freedom to live long, healthy and creative lives, the freedom to pursue other goals that they believe have value; to participate actively in achieving justice and sustainable development on our common planet3. Development is seen as a process, not of increasing well-being, but of "expanding freedom" to pursue goals of individual value for each person. From this position, it is more common to speak about the level of social well-being – a complex and multifaceted phenomenon associated with a whole range of related categories: standard of living, quality of life, social well-being, values, social capital, social policy, public safety and others. The content of the concept "may vary depending on the disciplinary field and the theoretical approach preferred by specific researchers" (Maksimov et al., 2020).

In the considered definitions and approaches it is difficult to identify the structural components of social development in relation to territorial socio-economic systems (country, regions, municipalities) for its further assessment and adoption of appropriate management decisions. Therefore, we propose to consider the concept of social development from the position of management theory.

Management approach to assessing the level of social development of territorial socio-economic system

Social development management, based on the classical concept of "management", is the impact of subjects (public authorities of different levels, economic entities, organizations, institutions providing services to the population, other public organizations and institutions) on the management object with a certain purpose. From the point of view of the structural component, the objects of management of social development of the territory are the population itself as a consumer of social services and the subsystem of social service providers, i.e. the social sphere (*Fig. 1*).

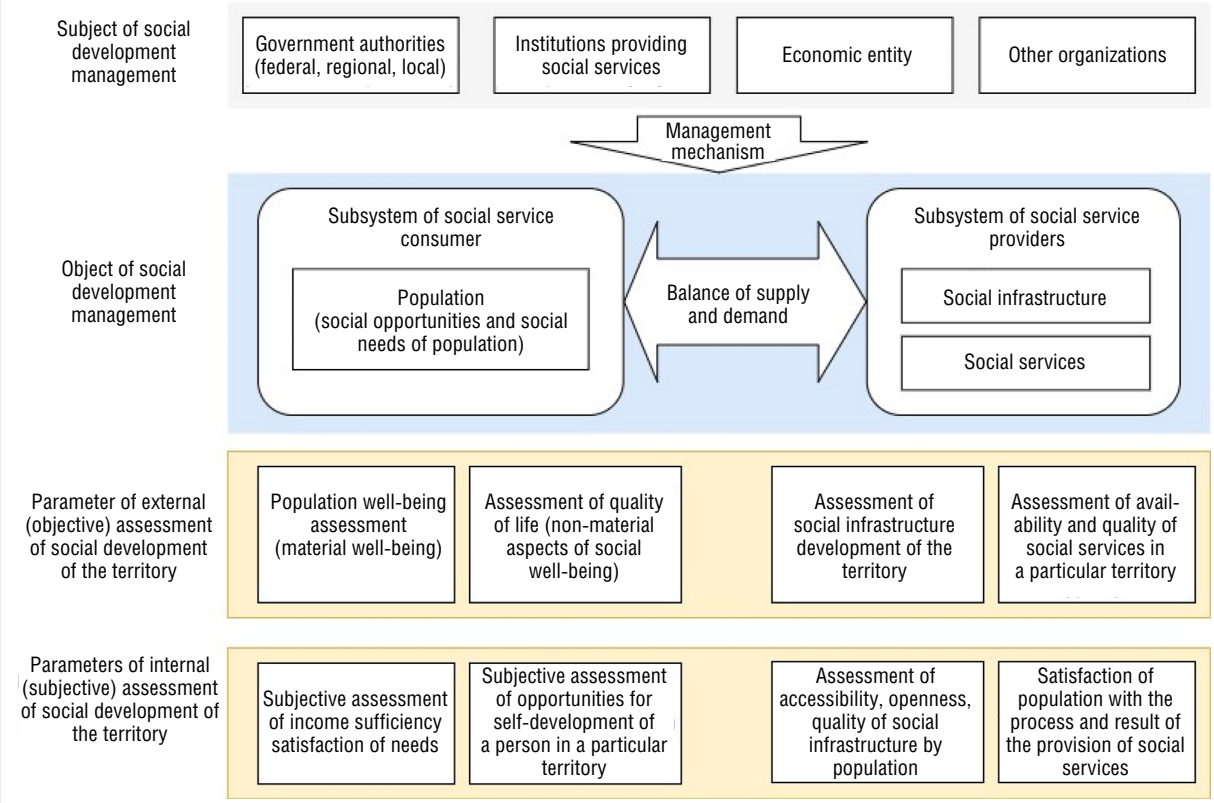
At the same time, the population is not just a total mass of service recipients, but a set of individual consumers who differ both in the nature of their needs (depending on their place of residence, sex, age, category, etc.) and in the opportunities to meet them (the ability to pay for social services based on their financial capacity, territorial or other access to services, etc.).

In addition to the population, the object of management of social development of the territory is the social sphere. In our understanding, the social sphere includes a set of social services (actions to provide assistance to a citizen in order to improve his/her living conditions) and the infrastructure that ensures their provision. The services themselves can be divided into services that provide socio-cultural (health care, education, culture, culture, sports, leisure, social protection, ritual support) and socio-economic (housing and communal services, consumer services, passenger transport, communications, retail trade, catering, etc.) needs.

The main goal of social sphere management is to ensure the population's access to social services in accordance with individual needs and demands in a particular territory. The goals of subsystems can be distinguished separately. For the population, the goal, in addition to meeting the need for social services, is the growth of social opportunities (income growth, unemployment reduction, increasing the availability of social services, etc.). The goals of the social sphere subsystem (they can be conditionally called also the goals of social policy) are to improve the quality and expand the variety of social services provided in the territory; to support the necessary level and quality of life, reproduction of the labor force; to create conditions for the self-realization of citizens, including the economic opportunity to realize their skills and

[3] Human Development Report 2010. The real wealth of nations: Pathways to human development. Moscow: Ves' Mir, 2010. P. 22.

Figure 1. Object, subject and assessment indicators of social development of territorial socio-economic system



Source: own compilation.

abilities; to use the potential of the social sector for the development of the economy.

In accordance with this approach, the assessment of the social development rate of the territorial socio-economic system consists of four components: material well-being / population income; quality of life; social infrastructure; availability and quality of social services. All these parameters can be assessed both from an objective point of view (on the basis of formalized quantitative indicators, for example, regional statistics) and with the help of subjective assessment of specific individuals living in the territory. In this study, we will consider the external (objective) assessment of the level of social development of territorial socio-economic systems on the example of Russian regions.

Methodological aspects of assessing the level of social development in a region

In general, when assessing the level of social development / well-being, the income approach prevails (Graham, 2016), since it is material well-being that is the key factor in the development of the social sphere and positive social well-being

In addition to the obvious indicators of poverty level, average per capita population income, subsistence minimum, other indicators of social vulnerability of the population are used as indicators of material well-being, welfare, such as the amount of income sufficient to feed the household (Christakopoulou et al., 2001), financing unexpected expenses due to illness, death, natural disasters (Terraneo, 2016) or even buying a second

home (Popova, Pishniak, 2017), the number of children dependent on unemployment benefits (Leskosek, 2012), wearing holey shoes (Salmond et al., 2006) and others.

A. Sen (Sen, 1976) was one of the first to estimate population welfare of a certain territory taking into account the purchasing power in the form of a multiplicative function, where the amount of income per capita was adjusted by the Gini coefficient (income inequality coefficient). In the work of C.I. Jones, P.J. Klenow this function takes into account consumption, inequality, free time and life expectancy (Jones, 2015). In Russian studies, this model was adapted by M.Yu. Malkina for regional economies (formula 1) (Malkina, 2017).

$$S_i = \frac{Y_i}{N_i} \times \frac{D_i}{Y_i} \times \frac{\overline{CI}}{C_i} \times (1 - G_i), \qquad (1)$$

where $\frac{Y_i}{N_i}$ – GRP per capita in the i-th region; $\frac{D_i}{Y_i}$ – share of personal income in GRP in the i-th region; $\frac{\overline{CI}}{C_i}$ – index that takes into account the price level in the i-th region (ratio of the cost of a fixed set of consumer goods and services in the country to the cost of a similar set in the region); $(1 - G_i)$ – indicator that takes into account the level of income differentiation in the i-th region (G_i – intra-regional Gini coefficient).

In a number of works, this multiplicative function was adjusted by a composite environmental index (Zabelina, 2022) and a coefficient to take into account the level of income of legally working citizens calculated by personal income tax (Glazyrina et al., 2020). Some elements of the function were replaced by other indicators, such as the Gini coefficient by the Atkinson index, which takes into account the diminishing marginal utility of income (Atkinson, 1970).

Within the framework of the study, we will use the model of A. Sen, adapted by M.Yu. Malkina for regional economies (Malkina, 2017). However, from our point of view, the social development of the region cannot be assessed only by the level of material income of the population. According to VCIOM surveys, a good material condition is only in sixth place in the rating of what determines human happiness (after having a family; health and life of one's own and close ones; general life satisfaction; a good job; having children)[4].

In this regard, to assess the level of social development of the region, we propose to adjust the modified welfare function of A. Sen taking into account other components of the object of social management: quality of life, social infrastructure and social services (formula 2).

$$SD_i = S_i \times I_{QL} \times I_{SI} \times I_{SS}, \qquad (2)$$

where SD_i – level of social development of a region; S_i – indicator of material well-being of a region according to the modified function A. Sen; I_{QL} – adjustment coefficient that takes into account the difference in the quality of life of regions; I_{SI} – coefficient taking into account the level of social infrastructure development; I_{SS} – adjustment coefficient that takes into account the difference in accessibility of social services.

Adjustment coefficient for differences in the quality of life of regions

The topic of assessing the quality of life is a separate independent layer of research both from the position of internal content and its impact on the social and economic development of territories (Woodhouse, 2006), the level of poverty, etc. (Mubangizi, 2003).

It is obvious that the indicators determining the quality of life include, first of all, indicators related to the results of the development of certain social spheres: health care, education, housing and utilities, etc. For example, health care is the

[4] Happiness Index: Monitoring. March 20, 2023. Available at: https://www.wciom.ru/analytical-reviews/analiticheskii-obzor/indeks-schastja-monitoring (accessed: June 30, 2023).

following: life expectancy (Murgăs, Klobŭcnĭk, 2016; Nissi, Sarra, 2018), life expectancy (Mata, Clara Costa, 2020), mortality rate (Deas et al, 2003), etc.; education: enrollment – average number of students per class (Lee, Huang, 2007), illiteracy (Sirgy, 2011), duration of education (Marchante et al., 2006), quality of schools (Christakopoulou et al., 2001), etc. In poor countries, access to quality health and education can also be income-dependent (Capmourteres et al., 2019).

The same category includes indicators of basic livelihoods: access to clean, hot and safe water, toilet and sanitation facilities, improved sewerage and waste management systems, availability of electricity, etc. (Mulenga et al., 2018). (Mulenga et al., 2018), as well as indicators reflecting the degree of security of life activities: crime rate, environmental security, etc. From the point of view of assessing the quality of life in Russian regions, some of the above indicators are not suitable. For example, the assessment of the educational potential of the population of the regions using literacy indicators at the current stage of development is quite controversial.

In our study we selected five indicators, taking into account the availability in official statistics that allow reflecting to a certain extent the quality of life of regions:

1) life expectancy, years (an indicator whose value is influenced by natural increase, morbidity, and access to health care and other social services);

2) migration growth rate per 10,000 people, which takes into account the attractiveness of the territory for able-bodied population forming its future human capital (indirectly reflects a set of characteristics of social attractiveness of the region);

3) crime rate – number of crimes registered in the reporting period, units per 1,000 people (an indicator that determines the safety of life of the population);

4) share of the Russian population provided with quality drinking water from centralized water supply systems, %;

5) number of students enrolled in bachelor's, specialist and master's degree programs per 10,000 people. The indicator characterizes the formation of future labor potential in the region, accumulated both inside and outside the region.

Coefficient that takes into account the level of social infrastructure development

Traditional publicly available indicators of socio-economic development individually do not reflect the qualitative characteristics of social infrastructure development. For example, in a region with a high level of provision of children with places in preschool educational institutions, there may be a situation when the buildings themselves are in a state of disrepair, or there is a lack of personnel with appropriate qualifications, or there is a strong differentiation in the availability of kindergartens by municipalities. Indicators of provision of the population with retail space of modern formats, doctors of all specialties may be limited by the factors of territorial accessibility. Therefore, the "non-social" indicator density of public roads with hard surface was included among the indicators of social infrastructure development, which indirectly reflects the infrastructure component of territorial accessibility. It is necessary to take into account in the aggregate several indicators that characterize social infrastructure from different sides. Composition of indicators:

1) number of doctors of all specialties per 10,000 people (characterizes in general the level of infrastructure development and accessibility of health care services);

2) provision of preschool children with places in organizations engaged in educational activities under preschool education programs, supervision and care of children, places per 1,000 children;

3) provision of the population with trade areas of modern formats per 1,000 people (an indicator characterizing the development of the sphere of trade and services of the population);

4) density of public roads with hard surface, km of tracks per 1,000 km^2 of territory (an indicator not directly related to social infrastructure, but indirectly characterizing the infrastructure affecting the availability of social services and the quality of life);

5) the share of the housing stock area provided with all types of improvement in the total area of the housing stock of the constitute entities of the Russian Federation (as one of the factors of development of the housing and communal services system in the region, affecting the quality of life)[5].

Coefficient that takes into account the difference in accessibility of social services

A number of foreign studies prove the existence of the influence of the availability of social services on the social development of the territory. The results show that residents of suburban and rural areas are more affected by social services, especially the elderly and people with low incomes (Tang et al., 2023).

In terms of selection of indicators, there are problems with the availability of statistical base. Indicators for assessing the quality and satisfaction with the provision of services are not assessed every year, information on the availability of services in electronic form is available only for the last three years. Therefore, the availability of social services was indirectly assessed using the following indicators:

1) share of population aged 15–72 who interacted with state and local government bodies, as a percentage of the total population of that age in the corresponding constituent entity of the Russian Federation (an indicator characterizing the level of development of interaction with the state to receive services, including social services);

2) level of satisfaction of the population aged 15–72 with the quality of provided state and municipal services in electronic form by constituent entities of the Russian Federation, as a percentage of the total population aged 15–72 who used the Internet to receive state and municipal services – options "fully satisfied" and "satisfied";

3) share of households with access to the Internet as a percentage of the total number of households in the region (as a factor of accessibility of receiving services electronically).

Since the selected indicators on the basis of which they are calculated I_{QL}, I_{SI}, I_{SS} are multidimensional, they have been normalized separately for "positively directed" (life expectancy, etc.) and "negatively directed" (crime rate):

$$P_i = \frac{X_i - X_{min}}{X_{max} - X_{min}}, \quad P_i = \frac{X_{max} - X_i}{X_{max} - X_{min}}, \quad (3)$$

where X_i, X_{max}, X_{min} – actual, maximum and minimum values by regions for a certain period.

I_{QL}, I_{SI}, I_{SS} were determined as the arithmetic mean between the individual indicators. This fact made it possible to level zero values for a number of regions, which inevitably arise during normalization.

Source data for calculations for indicators of the first and second groups are obtained from reports of the Federal State Statistics Service[6]. Indicators of the third group are based on the data of the sample federal statistical observation on the use of information technologies and information and telecommunication networks by the population[7]. The time period of the analysis is from 2014 to 2021 – the period of availability of the data of selective federal statistical observation on the use of information technologies and information and telecommunication networks by the population.

[5] Housing conditions: statistical information. Available at: https://rosstat.gov.ru/statistics/zhilishhnye_usloviya (accessed: June 15, 2023).

[6] Socio-economic situation of the constituent entities of the Russian Federation. Available at: https://rosstat.gov.ru/regional_statistics (accessed: June 15, 2023).

[7] Selective federal statistical observation on the use of information technologies and information and telecommunication networks by the population. Available at: https://gks.ru/free_doc/new_site/business/it/ikt22/index.html (accessed: June 15, 2023).

We excluded the Republic of Crimea and Sevastopol from the calculations due to the lack of comparable information for a number of regions. The Arkhangelsk and Tyumen oblasts were considered without autonomous okrugs.

Research results

A. Sen's modified multiplicative welfare function is based on the average per capita gross regional product adjusted for the standard of living *(Tab. 1)*.

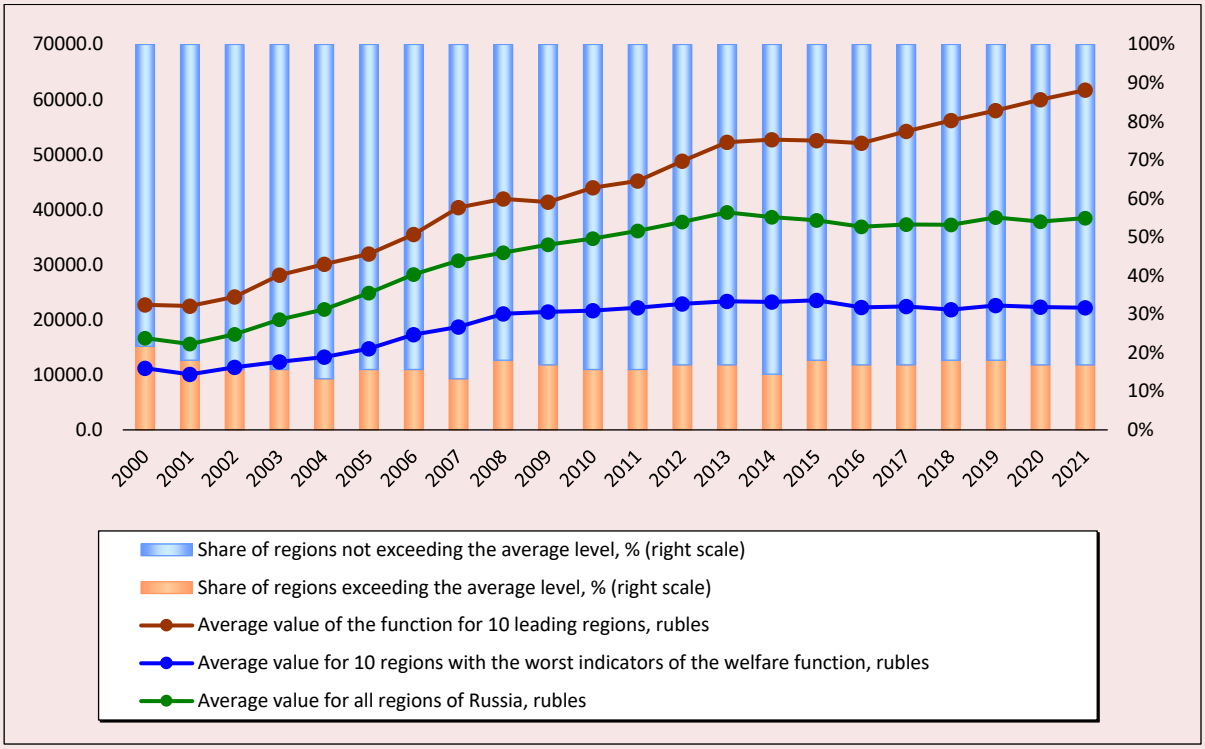
The leaders in the multiplicative welfare function (the first 10) are the Arctic regions: Yamalo-Nenets, Nenets, Chukotka autonomous okrugs, the Republic of Sakha (Yakutia), the Tyumen Oblast was added to them; as well as the Sakhalin Oblast, the federal cities of Moscow and Saint Petersburg. The Moscow Oblast and the Republic of Tatarstan were also included in the list.

However, the results of calculations do not fully reflect the welfare of the population of these regions. In the Northern and Far Eastern regions, wages are strongly influenced by regional coefficients and northern allowances. At the same time, high values of average per capita income and wages are not an automatic "insurance against poverty". For instance, in the regions of the Russian Arctic that were on the list of leaders (the Republic of Sakha, Nenets and Chukotka Autonomous Okrugs), the poverty rate exceeds the maximum critical value (9.9, 9.7, 8.8%, respectively, in 2018, with the range of the maximum critical value of the indicator from 2 to 7%) (Korchak, 2020). Only in Yamalo-Nenets Autonomous Okrug the poverty rate is at the upper limit of the acceptable range (6.2%). The share of poor households in these regions is more than 45.0% (in Nenets Autonomous Okrug – 63.3%). Provision

Table 1. Values of the components of the A. Sen's modified function by groups of regions in 2021

	Yi / Ni	Di / Yi	CI / CIi	1-Gi	Si
GROUP 1. 10 leading regions					
Yamalo-Nenets AO	1050.8	0.31	0.83	0.56	153.5
Nenets AO	1242.2	0.17	0.83	0.58	100.0
Moscow	287.5	0.60	0.72	0.58	72.1
Saint Petersburg	135.5	0.71	0.94	0.59	53.7
Republic of Sakha (Yakutia)	162.2	0.60	0.83	0.64	51.7
Chukotka AO	206.1	0.68	0.62	0.59	51.5
Republic of Tatarstan	118.6	0.60	1.16	0.61	50.6
Sakhalin Oblast	161.6	0.57	0.87	0.60	47.7
Tyumen Oblast without AO	136.9	0.51	1.09	0.62	46.8
Moscow Oblast	82.8	1.09	0.93	0.62	51.4
Average in group 1	**358.4**	**0.58**	**0.88**	**0.60**	**67.9**
GROUP 2. 10 regions with the worst welfare function indicators					
Kirov Oblast	35.3	0.94	1.11	0.67	24.5
Smolensk Oblast	49.9	0.73	1.09	0.62	24.3
Republic of Mordovia	52.2	0.59	1.20	0.64	23.6
Ivanovo Oblast	21.4	1.54	1.09	0.65	23.1
Altai Krai	37.4	0.90	1.08	0.63	23.0
Chechen Republic	17.6	1.78	1.09	0.63	21.3
Ulyanovsk Oblast	38.6	0.76	1.11	0.65	21.1
Jewish Autonomous Oblast	40.8	0.81	0.90	0.67	20.0
Kurgan Oblast	28.3	0.91	1.11	0.65	18.6
Republic of Kalmykia	31.4	0.83	1.06	0.66	18.5
Average in group 2	**35.3**	**0.98**	**1.08**	**0.65**	**21.8**
Source: own compilation.					

Figure 2. Change in the average value of A. Sen's modified function by groups of Russian regions in 2000–2021



Source: own compilation.

of the population with good-quality drinking water (meeting mandatory safety requirements) in the Arctic regions did not exceed 68% as of 2018 (in Chukotka Autonomous Okrug – 49.8%) (Korchak, 2020).

The list of lagging regions includes the Ivanovo, Smolensk, Kirov, Ulyanovsk, Kurgan oblasts, Chechnya, Kalmykia and Mordovia, Altai Krai and the Jewish Autonomous Oblast.

The interregional gap between the indicators draws attention. Over the 20-year period, more than 80% of regions have a level of welfare according to the multiplicative function of A. Sen below average. The leading regions are developing faster than the lagging regions *(Fig. 2)*.

In addition, for the Russian Federation as a whole, the growth of the level of material well-being has actually stopped since 2013, in 2021 this indicator is 3.5% below the level of 2013. In the Kurgan Oblast, the level of social well-being decreased by 20.3%, in Altai Krai – by 13.7%, in the Ulyanovsk Oblast – by 9.8%.

In general, the welfare function does not reflect the social development of the region, as it does not take into account other components of the population's quality of life (life expectancy, health, education, etc.), the state of the region's social infrastructure and the population's access to it; to a greater extent, it shows only the average population income due to economic development, partially adjusted for purchasing power and the degree of social stratification.

Adjustment for the quality of life

Table 2 presents the values of normalized structural components of the corrective indicator of the quality of life.

Table 2. Adjustment for selected indicators of the quality of life, 2021

Federal District	Si	LE	MG	CR	WA	NS	I_{QL}	Si_{QL}
Central	105.4	0.28	0.39	0.61	0.87	0.43	**0.52**	**54.5**
Northwestern	126.4	0.28	0.40	0.46	0.75	0.29	**0.44**	**55.0**
South	93.3	0.36	0.33	0.59	0.69	0.45	**0.48**	**45.1**
North Caucasian	78.0	0.62	0.28	0.79	0.79	0.34	**0.56**	**44.0**
Volga	92.7	0.30	0.31	0.59	0.91	0.45	**0.51**	**47.2**
Ural	199.1	0.33	0.36	0.50	0.80	0.31	**0.46**	**92.0**
Siberian	101.8	0.22	0.30	0.38	0.81	0.43	**0.43**	**43.7**
Far Eastern	104.5	0.17	0.32	0.32	0.72	0.29	**0.37**	**38.3**
Position of the region among 83 constituent entities of the Russian Federation by individual components								
Yamalo-Nenets AO	1	10	24	30	41	82	53	2
Moscow	2	3	34	17	1	1	1	1
Nenets AO	3	36	23	74	78	83	78	9
Tyumen Oblast	4	21	8	52	60	14	25	3
Khanty-Mansi MAO	5	9	10	25	39	75	30	5
…	…	…	…	…	…	…	…	…
Republic of Dagestan	79	2	62	3	71	65	9	58
Pskov Oblast	80	73	31	41	54	56	57	75
Republic of Mari El	81	35	37	18	3	30	20	68
Ivanovo Oblast	82	33	26	26	31	32	38	71
Republic of Kalmykia	83	12	79	14	83	10	75	80

Designations: LE – life expectancy, years; MG – migration growth rate per 10,000 inhabitants; CR – number of crimes registered in the reporting period, units per 1,000 people of the population; WA – share of population provided with quality drinking water from centralized water supply systems, %; NS – number of students enrolled in bachelor's, specialist, and master's degree programs per 10,000 inhabitants; I_{QL} adjusting coefficient of the quality of life (arithmetic mean of LE, MG, CR, WA, NS), Si_{QL} – indicator of material well-being of the population of the region according to the modified function of A. Sen, adjusted for the quality of life coefficient.
Source: own compilation.

The results of a number of studies on Russian regions, including time lag, indicate an extremely strong positive impact of the population's monetary income on the life expectancy indicator, as well as a negative impact of unemployment and living standards (Fedotov, 2021). In our case, the situation is not so unambiguous: the normalized life expectancy indicator in the regions of the North Caucasian Federal District is more than 2.2 times higher than in the Central and Northwestern federal districts. Perhaps, the situation is partly distorted by the fact that Table 2 shows data for 2021 – the year of coronavirus infection spread and sharp increase in morbidity, which affected the value of the life expectancy indicator. However, in the Republic of Dagestan the average life expectancy value remains at 74.5 years during 2000–2021, which is higher than in Moscow. In general, in the regions of the Russian Arctic leading in terms of average per capita cash income, life expectancy is below the Russian average.

The subjects of the North Caucasian Federal District are also characterized by low crime rates, especially the Chechen Republic. Since 2010, the region has recorded the lowest value of this indicator – on average for 2010–2021 it is 5.7 times lower than in Russia, and the crime rate has decreased by 42.8% since 2010. The highest crime rate is observed in the regions of the Far Eastern Federal District, especially in Zabaikalsky Krai (more than 2.0 times higher than the average for

Russia, with the crime rate increasing by 8.1% since 2010). In the financially prosperous regions of the Russian Arctic, the crime rate is also higher than the Russian average, especially in Nenets Autonomous Okrug.

Comparison of the indicators of migration growth and the level of average per capita income of the population also reflects the lack of a clear correlation. In 2021, Moscow was in 34th place, while the Ivanovo Oblast (the penultimate place according to A. Sen's welfare function) was in 26th place. Perhaps, the situation is distorted by the year of assessment. Nevertheless, the analysis of the average value of the migration growth rate in 2000–2021 clearly reflects the influence of "center-periphery" relations on migration indicators. The highest migration growth is observed in the Moscow (1st place) and Leningrad (2nd place) oblasts. Migration attractiveness of these regions is associated with territorial proximity to economic, educational and cultural centers of Russia, relatively low cost of housing, developed road and transport infrastructure.

The assessment methodology included an indicator of the share of the population provided with quality drinking water from centralized water supply systems, reflecting the basic living needs of the population. According to Rosstat data, only 56.3% of residents of Nenets Autonomous Okrug have access to centralized water supply, while Yamalo-Nenets, Khanty-Mansi autonomous okrugs and the Tyumen Oblast occupy positions below 39th place (although they are considered "socially developed").

To assess the development rate of the education system in the Russian regions, which forms the future labor potential, the indicator of the number of students enrolled in bachelor's, specialist and master's degree programs per 10,000 people was included in the group of corrective indicators. Obviously, the leaders in this indicator are the educational centers of Russia: Moscow, Saint Petersburg and the Tomsk Oblast. "Rich" regions, as a rule, act as recipients of labor resources: in Yamalo-Nenets, Nenets and Khanty-Mansi autonomous okrugs there are practically no institutions of higher education, they occupy 82, 83 and 75 places among Russian regions, respectively.

After adjusting the initial indicator of the welfare level by the multiplicative function of A. Sen to the indicators of the quality of life, the ranking of regions changed insignificantly. The high base of average per capita income of the subjects of the Russian Arctic allowed them to remain in the top ten. However, there are exceptions: Nenets Autonomous Okrug, which ranks 3rd according to A. Sen's multiplicative function of well-being, ranked 78th according to the quality of life indicator. The Republic of Dagestan, on the contrary, entered the top 10 regions in terms of quality of life.

Adjustment for the state of social infrastructure

The values of normalized structural components of the corrective indicator of the level of social infrastructure development are presented in *Table 3*.

In general, by the highlighted indicators, the situation differs from the previous adjustment for the quality of life. There are individual deviations caused by objective factors. For example, the low rating of Moscow in the provision of preschool children with places in kindergartens is determined by the population of the city of one million people. Low density of public roads with hard surface in the Arctic regions is associated with natural and climatic conditions, terrain and low density of settlement of residents. Nenets Autonomous Okrug is characterized by low values of indicators of provision of the population with retail space of modern formats and a low share of the housing stock provided with all types of amenities. According to the aggregate of all five indicators, Nenets Autonomous Okrug ranks 66th among 83 Russian regions under consideration.

Table 3. Adjustment for certain indicators of social infrastructure development, 2021

Federal District	Si	ND	PC	PRS	DPR	HS	I_{Si}	Si_{SI}
Central	105.4	0.29	0.61	0.46	0.20	0.60	**0.43**	**45.4**
Northwestern	126.4	0.34	0.74	0.43	0.14	0.53	**0.44**	**55.4**
South	93.3	0.28	0.49	0.29	0.10	0.55	**0.34**	**32.0**
North Caucasian	78.0	0.28	0.27	0.16	0.22	0.70	**0.32**	**25.3**
Volga	92.7	0.30	0.62	0.52	0.10	0.58	**0.43**	**39.5**
Ural	199.1	0.32	0.62	0.55	0.04	0.64	**0.44**	**86.7**
Siberian	101.8	0.32	0.52	0.47	0.03	0.39	**0.35**	**35.2**
Far Eastern	104.5	0.43	0.63	0.25	0.01	0.42	**0.35**	**36.2**
Position of the region among 83 constitute entities of the Russian Federation by individual components								
Yamalo-Nenets AO	1	7	18	49	81–83*	4	11	2
Moscow	2	3	78	16	1	6	2	1
Nenets AO	3	23	11	76	81-83	60	66	6
Tyumen Oblast	4	12	62	7	59	39	9	5
Khanty-Mansi AO	5	11	34	4	77	10	3	4
…	…	…	…	…	…	…	…	…	…
Republic of Dagestan	79	71	83	83	15	75	83	83
Pskov Oblast	80	81	29	15	28	79	60	72
Republic of Mary El	81	78	17	73	41	40	68	77
Ivanovo Oblast	82	56	9	39	24	43	25	68
Republic of Kalmykia	83	38	33	77	62	72	78	81

* Last position together with Nenets and Chukotka AOs

Designations: ND – number of doctors of all specialties per 10,000 people in the population; PC – provision of preschool children with places in organizations engaged in educational activities under preschool education programs, supervision and care of children, places per 1,000 children; PRS – provision with retail space of modern formats (ratio of retail space of modern formats to the average annual population multiplied by 1,000 people); DPR – density of public roads with hard surface, km of tracks per 1,000 square kilometers of territory; HS – share of the area of the housing stock provided with all types of improvement in the total area of the housing stock of the constituent entity of the Russian Federation, %; Si_{SI} – indicator of material well-being of the population of the region according to the modified function of A. Sen.

Source: own compilation.

Of the regions in the last five according to A. Sen's multiplicative welfare function, only the Ivanovo Oblast has a sufficiently high level of social infrastructure development (25th place in 2021). All other regions are in positions no higher than 60th place.

However, given the difference in the initial base of average per capita cash income and purchasing power of population, the final result of adjusting the value of the welfare function does not change significantly.

Adjustment for availability and quality of social services

Table 4 presents the values of the normalized structural components of the corrective indicator of availability and quality of social services.

The choice of publicly available indicators characterizing the quality and accessibility of social services was even more complicated. One of the parameters chosen was the very presence of interaction between population and authorities, indirectly reflecting the readiness and effectiveness of relations, including in the format of receiving state and municipal services. In the Central Federal District 88.0% of the population aged 15–72 years interact with state and local authorities, including 100% in Moscow. Whereas in the Far Eastern Federal District this indicator is 68.7%, including only 28.2% in the Magadan Oblast.

Approximate proportions are maintained by federal districts and by the indicator of satisfaction with the quality of services. However, there are

Table 4. Adjustment for certain indicators of availability and quality of social services, 2021

Federal District	Si	I	S	Int	I_{ss}	Si_{ss}
Central	105.4	0.70	0.80	0.33	**0.61**	**64.5**
Northwestern	126.4	0.65	0.77	0.37	**0.60**	**75.4**
South	93.3	0.75	0.83	0.61	**0.73**	**67.8**
North Caucasian	78.0	0.57	0.65	0.59	**0.61**	**47.3**
Volga	92.7	0.73	0.79	0.29	**0.60**	**56.1**
Ural	199.1	0.85	0.66	0.51	**0.67**	**134.2**
Siberian	101.8	0.69	0.75	0.39	**0.61**	**62.1**
Far Eastern	104.5	0.51	0.67	0.59	**0.59**	**61.4**
Position of the region among 83 constituent entities of the Russian Federation by individual components						
Yamalo-Nenets AO	1	3	5	1	1	1
Moscow	2	1	35	4	2	2
Nenets AO	3	34	79	35	61	4
Tyumen Oblast	4	30	72	72	69	7
Khanty-Mansi AO	5	8	54	5	4	3
…	…	…	…	…	…	…
Republic of Dagestan	79	52	58-59	25	36	69
Pskov Oblast	80	21	57	43	37	70
Republic of Mari El	81	71	83	83	83	83
Ivanovo Oblast	82	10	58-59	70	40	74
Republic of Kalmykia	83	42	27	9	11	59

Designation: I – share of population aged 15–72 who interacted with state and local authorities, %; S – level of satisfaction of the population aged 15–72 with the quality of state and municipal services provided in electronic form by constituent entities of the Russian Federation, %; Int – Internet access, % of total number of households in the region; Si_{ss} – indicator of material well-being of the population of the region according to the modified function of A. Sen, adjusted for the quality of life coefficient of the population.
Source: own compilation.

exceptions. If in the Tyumen Oblast, Khanty-Mansi and Nenets Autonomous Okrugs low values of satisfaction can be explained by really low quality of service provision, then in Moscow the low rating is most likely due to higher requirements of local residents and more stringent reporting system for this indicator.

Nenets Autonomous Okrug and the Tyumen Oblast also rank low in the rating in terms of the share of households with Internet access. This indicator indirectly reflects one of the formats of service accessibility – the ability of the population to receive state and municipal services in electronic form.

In general, the selected indicators do not relate directly to social services, only indirectly reflecting their availability and quality. Adjustment of the value of the basic multiplicative function of A. Sen does not significantly affect the final dispersion of regions by the level of social development.

Thus, having adjusted the initial indicator of material well-being of the region's population according to the multiplicative function of A. Sen by the integral indicators of the quality of life, social infrastructure, quality and accessibility of services, we obtain the final indicator of the level of social development of Russian regions *(Tab. 5)*.

Inter-territorial differences in the final indicator of social development are decreasing: if when assessing the level of material well-being of the population according to the modified function of A. Sen, the share of regions with a value below the average was 80%, while with the adjustments this value decreased to 70%.

Table 5. Final adjustment for quality of life, social infrastructure and social services, 2021

Federal District	Si	I_{QL}	I_{SI}	I_{SS}	SDi
Central	105.4	0.52	0.43	0.61	14.38
Northwestern	126.4	0.44	0.44	0.60	14.68
South	93.3	0.48	0.34	0.73	11.12
North Caucasian	78.0	0.56	0.32	0.61	8.53
Volga	92.7	0.51	0.43	0.60	12.20
Ural	199.1	0.46	0.44	0.67	27.00
Siberian	101.8	0.43	0.35	0.61	9.35
Far Eastern	104.5	0.37	0.35	0.59	7.98
Yamalo-Nenets AO	1	53	11	1	2
Moscow	2	1	2	2	1
Nenets AO	3	78	66	61	21
Tyumen Oblast	4	25	9	69	6
Khanty-Mansi AO	5	30	3	4	4
…	…	…	…	…	…
Republic of Dagestan	79	9	83	36	79
Pskov Oblast	80	57	60	37	66
Republic of Mari El	81	20	68	83	82
Ivanovo Oblast	82	38	25	40	60
Republic of Kalmykia	83	75	78	11	77

Designation: SDi – final indicator of the level of social development of the region, based on the assessment of the material well-being of the population of the region, taking into account the quality of life, the development of social infrastructure and social services.
Source: own compilation.

Final results

The disadvantage of the normalization procedure is that the indicators, after bringing them into a comparable form, do not reflect the dynamics of change over the years. We can only see the annual change in the rating of the territory in the general list of regions. This characterizes only the annual statics of the level of social development.

In order to see the dynamics, we can compare the average annual values of the indicator of the level of social development for each of Russia's regions for the analyzed period and the change in this indicator in 2021 compared to 2014. Based on the results of the comparison, we can distinguish four groups of regions.

1. Leading regions of social development, which have an average annual value of the final indicator of the level of social development (taking into account the quality of life, social infrastructure, quality and accessibility of social services) in 2014–2021 of more than 20 thousand rubles/person and the growth of the indicator for the period under review from 150.1% and above. This group includes Moscow, Saint Petersburg, the Moscow Oblast, Yamalo-Nenets and Khanty-Mansi autonomous okrugs, the Tyumen Oblast, and the Republic of Tatarstan. Their leading positions are ensured primarily by their resource potential and level of economic development.

2. Socially developing regions include a group of subjects with rather low average annual values of the final level of social development (below 10 thousand rubles/person), but high growth rates (from 150.1% and above): the Vologda, Novgorod oblasts, the republics of Kalmykia, Dagestan, Chechnya, Tyva, Altai Krai, the Amur, Bryansk, Ivanovo, Kaluga oblasts, the Republic of Adygea, Krasnodar Krai, the republics of Kabardino-Balkaria, Karachay-Cherkessia, the Orenburg, Saratov oblasts, and Chukotka Autonomous Okrug.

3. Krasnoyarsk Krai, the Kemerovo and Lipetsk oblasts, which have quite high levels of social well-being, but a low level of its growth compared to 2014–2021, can be attributed to the socially slowing regions (average annual values of the final level of social development are higher than 10 thousand rubles/person, but the growth of the indicator for 2014–2021 is below 20%).

4. The group of socially underdeveloped regions with a low level and dynamics of social development includes the Republic of Mari El, Zabaikalsky Krai, the Magadan, Kostroma, Kurgan oblasts, and the Jewish Autonomous Oblast.

Conclusions

In modern Russian research there is a large number of different ratings, methodologies, approaches to the assessment of socio-economic development of territories. To choose a certain set of indicators, to normalize and converge them into an integral indicator, and to obtain a certain rating as an output is a simple, clear, and, as a consequence, speculative way of assessing the spatial development of Russian regions. It is much more difficult to separate these two areas of assessment, select indicators and separately assess the level of social and economic development of territorial systems.

As the research results show, the level of social development of the territory is mostly determined through economic indicators of development (gross regional product per capita), adjusted for interregional differences in purchasing power. An example is the welfare function of population of A. Sen, which in one or another variation is widely used to analyze the social development of territories. Based on the calculations for 83 constitute entities of the Russian Federation for 2000–2021, we found that the function does not reflect other important factors of social development of regions. For example, in the Arctic territories with a high level of well-being, many social problems remain unresolved: poverty, unemployment, social stratification, difficult access to quality social services and basic resources to ensure the necessities of life (drinking water, etc.). All this creates significant risks both for distorting the overall picture of "socially developed" and "rich" territories, and for making strategic decisions to ensure long-term socio-economic stability of the country as a whole.

In this regard, it is necessary to take a more thorough approach to the formation of methodology, selection of indicators and methods for assessing the level of social development of territories. The authors proposed to adjust the modified welfare function of A. Sen taking into account other components of the object of social management: quality of life, social infrastructure, quality and availability of social services. The final calculations with adjustments for 83 regions of Russia more adequately reflect the actual inter-territorial differences in the level of social development. For example, Nenets Autonomous Okrug, which ranks 3rd according to A. Sen's welfare function, after adjustments went down to 21st place, as it occupies low positions in the rating of the RF constitute entities according to the integral indicators for assessing the quality of life, social infrastructure, quality and accessibility of social services.

This approach allows assessing the development level of the territory not only from the point of view of the population's income, but also from the point of view of other objectives of social policy: improving the quality and expanding the diversity of social services; increasing the quality of life; developing social infrastructure; using the potential of the social sector for economic development, etc.

Further analysis of the obtained results and their interpretation will help to formulate recommendations to take into account the features of each of the selected groups of regions when building a model of the social component of the integrated development of the regional system and measures for its development.

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Knowledge Transfer to High-Tech Sector Organizations: Factors, Problems and Prospects

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Abstract. The article investigates the features and drivers of development of knowledge transfer to organizations of the high-tech sector from the academic sector. We systematize methods for obtaining and transferring knowledge by the organization, and the types of knowledge transfer. We highlight knowledge transfer factors from the perspective of process-based, network and system approaches. In order to confirm the theoretical conclusions obtained, we analyze knowledge transfer factors on the example of a large high-tech enterprise. The empirical basis of the study includes the results of a survey of employees (Rostov-on-Don, Russia) carried out in April – May 2023. According to the results of the questionnaire survey, we carry out correlation and regression analysis to establish actual relationship between the factors characterizing the parameters of knowledge transfer from the academic environment. It is shown that all groups of factors have a direct positive impact on the results of knowledge transfer. At

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the same time, it is emphasized that the factors such as the recipient of knowledge, knowledge providers and mutual trust of the transfer participants, that is, the factors characterizing the internal motivation of the participants, have a stronger impact on the result of the knowledge transfer as compared to the factors like the organization of interaction, which reflect external motivation. According to the conclusions obtained, we put forward some recommendations aimed at improving the effectiveness of factors affecting the transfer of knowledge to an enterprise. There are five main directions for the development of knowledge transfer: improving the efficiency of organizing the interaction between the supplier and the recipient of knowledge; strengthening the level of trust between them; expanding the circle of knowledge providers; increasing their ability to transfer knowledge and the ability to perceive new knowledge by the recipient, increasing the effectiveness of the application of acquired knowledge. We emphasize the importance of the professional and educational ecosystem as an open non-hierarchical stable relationship of the enterprise with educational, scientific, and nongovernmental organizations in the development of knowledge transfer.

Key words: knowledge transfer, interaction, trust, knowledge providers, knowledge recipients, absorbing capacity of the organization, high-tech sector, academic sector.

Introduction

Rapid development and introduction of new technologies, their continuous complication and updating reinforce the need for real economy entities, especially high-tech ones, to acquire new knowledge. Innovative solutions are based on knowledge to ensure the growth of the company's income (Andreevskii et al., 2019). Without obtaining advanced knowledge, it is impossible to develop new technologies that ensure the competitiveness of modern high-tech organizations. Thus, enterprises are interested in expanding the channels through which new progressive knowledge can flow.

A number of studies have shown that knowledge transferred from universities is not always used by enterprises (Abreu et al., 2008), however, the value of interaction between the real sector and universities in this area is emphasized (Gitel'man et al., 2020; De Silva et al., 2023). The development of such interaction is the object of increased attention from both researchers and practitioners who manage human capital and knowledge at the enterprise as its component part. The interest of managers is due to the understanding of the importance of knowledge in increasing the competitiveness and profitability of the organization (Orlova, 2021), the need for continuous development of human capital in the conditions of turbulence of the socio-economic environment and the complexity of the scientific and technical sphere.

The scientific literature is increasingly discussing ways and factors to strengthen the interaction of enterprises with universities. It is emphasized that the amount of funds for financing R&D at universities, their territorial proximity, state stimulation of the development of various channels of interconnection, etc. have a great influence (Brunel et al., 2015; Azagra-Caro et al., 2017). At the same time, the possibilities of enterprises themselves to expand and strengthen cooperation with universities in order to obtain new knowledge require more in-depth research. Studying drivers and opportunities of enterprises for the development of cooperation and strengthening of interaction with the academic sector will allow working out a strategy that promotes the development of human capital and knowledge, increasing the efficiency of their use.

The purpose of the research is to identify priority factors affecting the acquisition of new knowledge by an enterprise through their transfer from the academic sector.

Research methods

This study is based on the provisions of the resource approach (Kat'kalo, 2006), in which knowledge is a source of formation of the organization's competitive advantage (Barney, 1991; Zavyalova et al., 2017). According to the knowledge-based approach (Kogut, Zander, 1992), obtaining knowledge from the outside and using it contributes to increased labor productivity and lower transaction costs (De Silva, Rossi, 2018).

Knowledge transfer between organizations is a complex phenomenon characterized by many factors. In this regard, we consider the knowledge transfer from the positions of several approaches. In particular, we used the provisions of the project approach (Thiel, 2002), emphasizing the focus of knowledge transfer on results; the process approach (Meng et al., 2019; Szulanski, 2000), representing knowledge transfer as a process, and the provisions of the network approach (Hansen, 2002; Sun et al., 2019), characterizing the factors affecting the interrelationships of knowledge transfer participants.

We preceded the empirical study by literature analysis, as a result of which we identified the key factors influencing knowledge transfer. The empirical basis was the survey results of employees of a large machine-building enterprise (Rostov-on-Don). The survey conducted in April – May 2023 made it possible to assess the impact of various factors on knowledge transfer from the academic sector. As respondents, we involved two categories of employees: highly qualified specialists (engineers) and managers (heads of departments, workshops, bureaus) – 53 and 47%, respectively. The choice of groups is due to the fact that the activities of these employees are more associated with obtaining new knowledge in the process of solving professional tasks.

Based on the survey results, we carried out a correlation and regression analysis, which allows establishing the actual relationship between the factors characterizing the key parameters of knowledge transfer from the academic environment.

The results obtained make it possible to form an idea of the specifics of the knowledge transfer, received by the enterprise from the academic environment, and to identify reserves for improving its efficiency.

We carried out the systematization of the survey data and their visualization in Microsoft Office Excel spreadsheets.

Literature review

Knowledge transfer is a complex multi-dimensional phenomenon. It is believed that D. Teece is at the origin of the knowledge transfer concept (Teece, 1977), but more intensively research and practical interest in knowledge transfer and management began increasing since the 1990s. However, there is still no unified understanding of knowledge transfer in the literature. A number of researchers define it as "the process by which one department (for example, a group, a department) is influenced by the experience of another" (Argote et al., 2000). Other authors (Nonaka, Takeuchi, 1995) note that knowledge transfer is a process of assimilation, acceptance, modification, transformation and dissemination of knowledge. These definitions, in fact, consider different types of knowledge transfer. The first definition focuses on the knowledge transfer carried out within the organization, and the second – on the external transfer, understood as the transfer of knowledge from the outside.

In addition, there is a direct and reverse transfer of knowledge, i.e. knowledge can be transferred not only from the academic sector to enterprises, but also in the opposite direction (Ankrah, Al-Tabbaa, 2015). At the same time, enterprises, as a rule, transfer knowledge about the specifics of the industry and the market, new opportunities for the use of technologies (Meng et al., 2019). The object of direct transfer (from the academic environment) is fundamental

Table 1. Types of knowledge transfer

Recipients / *Suppliers*	Enterprise	Academic sector
Enterprise	Internal transfer	Inverse external transfer
Academic sector	Direct external transfer	Internal transfer

Source: own compilation.

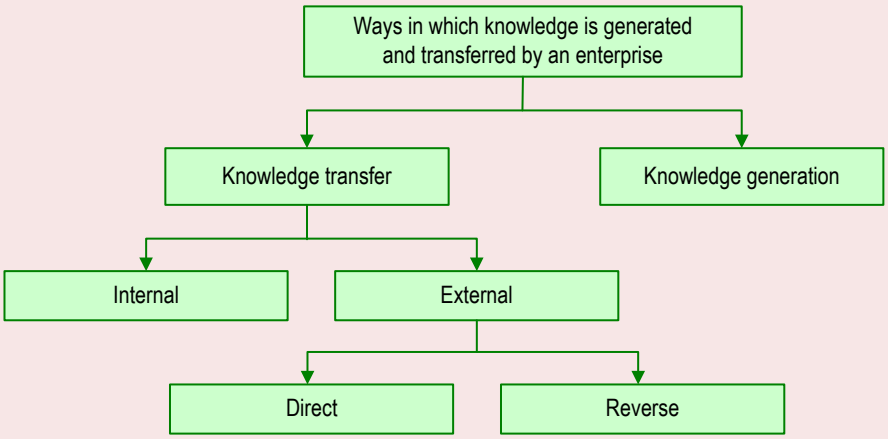
knowledge, and the object of reverse transfer is applied knowledge. In general, *Table 1* presents the various processes of knowledge transfer, depending on the role of their participants.

Nevertheless, knowledge transfer is not the only way for organizations to obtain it. An enterprise can acquire new knowledge by jointly creating (generating) them with scientific organizations or universities, in order to jointly solve specific tasks (De Silva, Rossi, 2018). Knowledge generation is also a kind of transfer in the context of the practice of communicative interaction between different scientific communities (Avdonin et al., 2020). P. Galison (1999) called such a transfer of knowledge "mutually interested". Joint knowledge generation occurs, as a rule, as a result of implementing joint projects aimed at obtaining a new product.

In the case of knowledge transfer, an enterprise and a university (or a scientific organization) play clearly defined roles as a supplier and recipient of knowledge, since knowledge is transferred unidirectionally from one to the other. In the case of knowledge creation, the roles of supplier and recipient are blurred (De Silva et al., 2023). In general, the analysis of the literature allowed identifying the following key ways of obtaining (and transferring) knowledge by the enterprise *(Fig. 1)*.

Since the knowledge transfer has more specific goals with a less vague result than the joint creation of knowledge, it seems more appropriate to assess the factors influencing this method of obtaining, and therefore the focus of this study is precisely the transfer of knowledge. At the same time, we should pay special attention to the mechanism of enterprises' interaction with the academic sector, that is, external transfer. It is more complex than the intra-organizational mechanism of knowledge transfer. At the same time, direct external transfer is the most important source of obtaining new knowledge by an enterprise.

Figure 1. Ways of obtaining and transferring knowledge by an enterprise



Source: own compilation.

The research interest consists in analyzing the factors influencing the direct external knowledge transfer (hereinafter referred to as knowledge transfer), which in this study is understood as the knowledge transfer to an enterprise from the academic sector that is subject to direct application.

Research results

Factors affecting knowledge transfer

Knowledge transfer is understood as a success factor in the development of a new product (Albers et al., 2019). To ensure successful knowledge transfer, it is necessary to understand what factors influence it (Klippert et al., 2022). In this regard, it is necessary to analyze the interrelationships of factors affecting knowledge transfer, which will facilitate the adoption of managerial decisions that prevent a shortage of knowledge in an enterprise.

In the course of the analysis of modern literature, we have identified about 250 factors affecting knowledge transfer (Klippert et al., 2022). Such diversity is due to the existence of different approaches to its understanding. There are three main approaches: process, network and project.

From the point of view of the process approach, knowledge transfer is characterized as a change of certain stages. For instance, G. Szulanski (Szulanski, 2000) distinguished four stages of knowledge transfer: the initial one, associated with awareness of the lack of knowledge; the implementation stage, characterized by the choice of a suitable means for transfer; the expansion stage, due to the verification of the applicability of the acquired knowledge; the integration stage, implying their inclusion in the organization's own knowledge. Within the framework of this approach, researchers agree that the most important factors influencing knowledge transfer are the ability of the knowledge provider to transfer them, the ability of knowledge recipient to perceive them, factors characterizing interactions between participants, as well as the nature of knowledge (Szulanski, 1996).

The factors characterizing the supplier's ability to transfer knowledge and the recipient's ability of knowledge to perceive them are understood as the degree of involvement in the process of individual representatives (carriers) of knowledge (Wu et al., 2007) and the presence of their internal motivation (Kalabina, Belyak, 2021). The factors characterizing the interaction between the recipient and the supplier of knowledge mean the possibility of cooperation through the exchange of knowledge (Edmondson, Harvey, 2018), coordination of actions, external incentives to cross existing barriers between employees of organizations – suppliers and recipients of knowledge.

From the point of view of the network approach (Hansen, 2002), knowledge transfer is viewed through the prism of connections and relationships between its participants. According to adherents of this approach, the most important factor contributing to the knowledge transfer development is the presence of mutual trust between participants (Rohrbeck et al., 2015). Trust is generally understood as "the conviction that another person or organization will act in accordance with their expectations (meaning expectations of positive behavior)" (Antonov et al., 2023). Trust in an organization is related to the motivation system and corporate culture. It is considered as an important condition for increasing the competitiveness of an organization by strengthening relations with business partners (Kornai, 2003).

The project approach gives an idea of knowledge transfer as a kind of project (Thiel, 2002) aimed at obtaining a specific result at a certain time (Kopytova, Pakhnina, 2023). It should be borne in mind that the result of the transfer depends, on the one hand, on the acquisition of new knowledge, its perception by the organization, on the other hand, on its application. In fact, the factors of the result of knowledge transfer characterize the absorbing ability of an organization, which means the ability to realize the value of new external knowledge,

assimilate it and apply it for commercial purposes (Cohen, Levinthal, 1990).

The above approaches to understanding knowledge transfer and the factors influencing it complement each other, therefore, in the aggregate, we can identify several groups of key factors influencing knowledge transfer *(Tab. 2)*.

In addition, the nature of knowledge and its content is important. Knowledge of a fundamental nature, as a rule, is transferred to enterprises from the academic sector. The presence or absence of cognitive affinity between participants in knowledge transfer also affects (D'Este et al., 2013), that is, their functioning within a similar knowledge base.

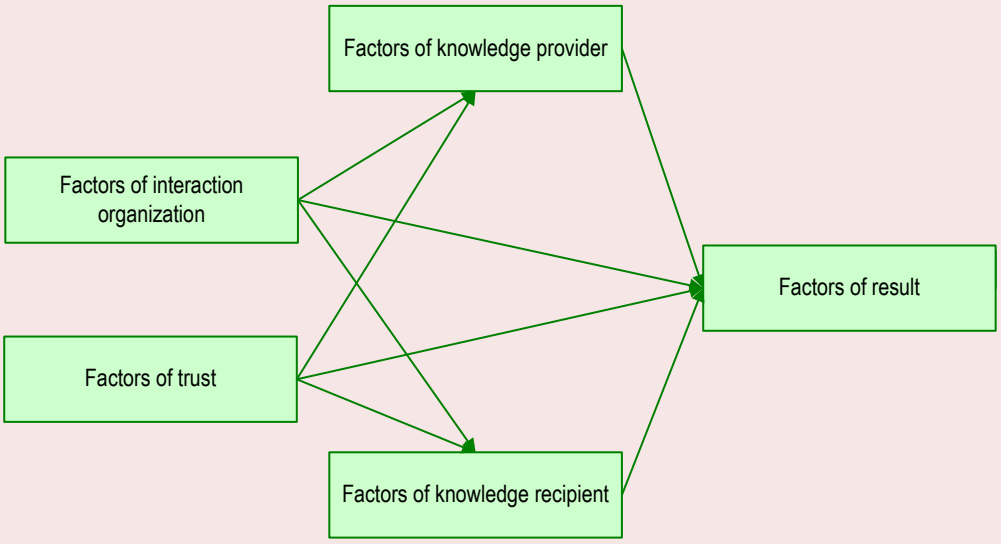
The knowledge transfer factors indicated in Table 2 are interrelated. Ultimately, they all have an impact on the result of the transfer. At the same time, as a research hypothesis, we denote that factors related to the organization of interaction and trust between participants in knowledge transfer affect factors related to the supplier and recipient of knowledge. This is due to the fact that knowledge providers and recipients interact in a certain environment, an important factor of which is trust. In addition, the mechanism of organizing interaction for knowledge transfer also has a great impact on these participants.

Based on the above, the theoretical basis of the research model of the interrelation of knowledge transfer factors will look as follows *(Fig. 2)*. We show that the factors of the recipient and knowledge providers characterizing the ability of their carriers

Table 2. Groups of key factors influencing knowledge transfer

Approach	Process approach	Network approach	Project-based approach
Groups of factors	– Related to the knowledge provider; – related to the knowledge recipient; – related to organization of interaction between participants of knowledge transfer	Trust between knowledge transfer participants	Ensuring application of the acquired knowledge, the result of transfer
Source: own compilation.			

Figure 2. Interrelation of key factors influencing knowledge transfer



Source: own compilation.

(or recipients) to be involved in the process of knowledge transfer affect the result. We also emphasize that the factors of interaction and trust organization affect not only the result of knowledge transfer, but also factors related to suppliers and recipients. However, the impact of these factors will not be equivalent. Further, to test the research hypothesis and establish the impact of these factors on the results of knowledge transfer, their analysis was carried out on the example of a large industrial enterprise.

Knowledge transfer: high-tech enterprise experience

A large enterprise belonging to the field of high technologies was chosen as the knowledge recipient. This field most often feels the need for new knowledge due to the shortest half-life of high-tech knowledge (about 2.5 years). The company is located in the Rostov Oblast; it is a city-forming one. The total number of its employees is over 7 thousand people, 40% of them have higher education.

To analyze knowledge transfer factors in April – May 2023, we conducted a selective anonymous survey of the company's employees by means of a questionnaire. A total of 136 people was interviewed. The sample consisted of two categories of employees: highly qualified specialists (engineers) and managers (heads of departments, sections, bureaus) – 53 and 47%, respectively. Employees' activity of these groups is more connected with obtaining new knowledge in the process of solving professional tasks, which is why their choice for conducting the survey is conditioned.

The share of men was 53%. The age range of respondents is from 23 to 46 years, the average age is 37 years. The respondents' work experience at the enterprise is from 2 to 23 years, on average – 12 years.

In addition to general information about the respondents, the questionnaire contained two sections. The first section dealt with the general characteristics of knowledge acquisition at the enterprise, that is, the questions were aimed at identifying the presence of direct, reverse and internal knowledge transfer, as well as knowledge creation.

The second section is devoted directly to the characteristics of knowledge transfer factors in the five groups presented in Figure 2. The questionnaire questions were compiled with a focus on some literary sources (Sun et al., 2019) and experts' opinion in the field of HR management. The second section of the questionnaire assumed the choice of an answer to each question on a five-point Likert scale (Likert, 1932), where 1 is "completely disagree", and 5 – "completely agree".

The analysis of the state of knowledge transfer at an enterprise included three stages:

1) general characteristics of the ways of obtaining and transferring knowledge in an enterprise;

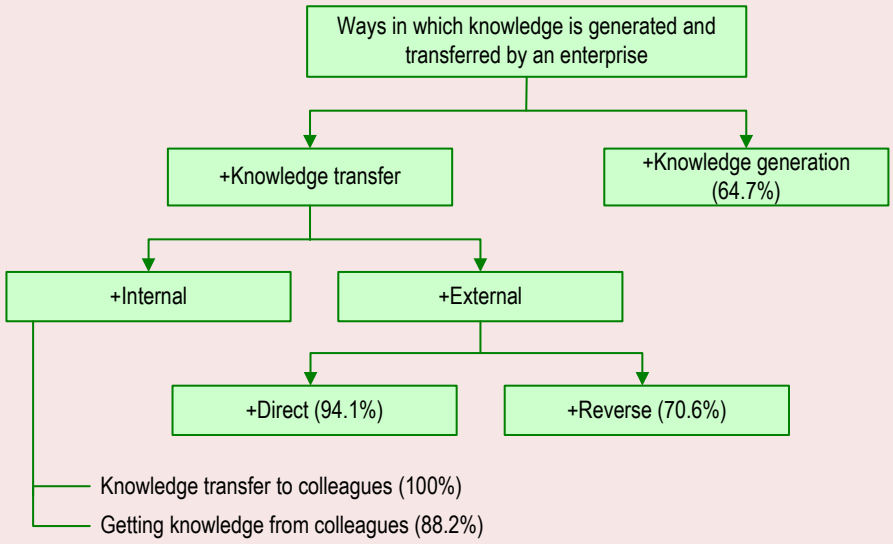
2) processing of primary data characterizing the knowledge transfer factors at an enterprise, verification of the research reliability (consistency of questionnaire questions) and factor analysis;

3) correlation and regression analysis, which allows establishing the actual relationship between groups of factors.

It is worth noting the limitations of the study. They relate to the nature of knowledge, since we consider only professional knowledge, which is necessary for employees to successfully implement their work in a high-tech enterprise. At the same time, they can be both fundamental and applied.

Since we are talking about professional knowledge, its transfer can be carried out only if the cognitive proximity of the transfer participants is ensured. At the enterprise under consideration, such cognitive proximity is conditioned by stable relations with the academic sector: with the Don State Technical University, which trains personnel for this organization, the Southern Scientific Center of the Russian Academy of Sciences, which carries out scientific research in areas related to the

Figure 3. Realization of ways of knowledge acquisition and transfer by enterprise as assessed by respondents



Note: "+" means having this way of acquiring knowledge.
Source: own compilation.

activities of the enterprise. As for the joint projects of the enterprise with the academic sector, they can be conditionally divided into two groups: joint educational projects (for example, aimed at training the personnel management reserve) and scientific and technical projects (for example, related to the manufacture of composite parts, computer modeling of vacuum infusion).

Within the framework of the first stage of the analysis, based on the questionnaire survey results, we have formed a general idea of the ways of knowledge acquisition by an enterprise. Both external and internal knowledge transfer is carried out. All respondents answered that they shared professional knowledge with colleagues, 88.2% of respondents received new knowledge from colleagues.

In terms of external knowledge transfer, 94.1% of respondents reported receiving knowledge and 70.6% reported transferring knowledge. Thus, there is both direct and reverse knowledge transfer. At the same time, the direct one is more pronounced.

Only 64.7% of respondents indicated that they had participated in creating new knowledge (for instance, making a patent proposal, applying for a patent, participating in joint strategy development, etc.).

Figure 3 presents the general view of the ways in which knowledge is generated (and transferred) by an enterprise as assessed by the respondents.

Thus, transfer is the predominant way of acquiring new professional knowledge. At the same time, in the external knowledge transfer, the direct one prevails over the inverse.

Further, we will discuss the factors affecting direct knowledge transfer, i.e. knowledge transfer to an enterprise from the academic sector.

The second stage of analysis is based on respondents' answers to the questions of the second section of the questionnaire. For each group of factors, experts prepared statement questions characterizing them. The respondents were asked to evaluate on a five-point scale how much this statement corresponds to the real situation at an enterprise.

Table 3. Survey results on the presence of knowledge transfer factors at an enterprise

Group of factors	Min	Max	Mean	Std. Dev
Factors of interaction organization	1	5	2.88	1.10
Factors of knowledge providers	1	5	3.79	0.82
Factors of knowledge recipient	3	5	4.51	0.46
Factors of trust	2	5	3.78	0.64
Factors of result	2	5	4.16	0.72
Source: own compilation.				

The factors of interaction organization include the presence of communication and close interaction on work issues and professional tasks with representatives of universities / scientific organizations, frequent exchange of scientific and technical information with them, as well as the availability of opportunities to discuss professional problems with them.

The factors of knowledge providers are characterized by the willingness of employees of universities and/or scientific organizations to share their knowledge and experience in the field of technology, the availability of constructive suggestions, the provision of training by employees of the academic sector, as well as their assistance in solving problems and overcoming difficulties arising in professional activities.

The factors of knowledge receivers are related to the readiness, willingness of employees to learn, to obtain new technological and managerial knowledge outside their enterprise, understanding the importance of obtaining new knowledge from external sources and undergoing training.

Trust factors are characterized by confidence that in the process of solving work tasks other participants will keep promises, their honesty, fairness to other participants, that other participants of knowledge transfer are trustworthy.

Factors of knowledge transfer result are determined by the acquisition of new technological, managerial and other related knowledge by the employees of the enterprise from external sources over the previous year, new methods of solving professional problems, reduction of dependence on others in solving professional problems due to active knowledge transfer.

Table 3 summarizes the results of the work.

We present the minimum (min), maximum (max), mean values (mean) given by respondents for each group of factors, as well as the standard deviation (Std.Dev). The standard deviation shows the spread of results relative to the mean. The more the value of the standard deviation, the greater the disagreement in the respondents' estimates. For instance, the greatest disagreement in the respondents' assessments is demonstrated in relation to the factors of organization of interaction between the participants of knowledge transfer (1.10). The least disagreement is about the factors influencing the knowledge recipient (0.46).

To test the research reliability, we calculated Cronbach's α-coefficient (Cronbach, 1951):

$$\alpha = \frac{N \times r}{1 + r \times (N - 1)}, \quad (1)$$

where N – number of groups of factors under consideration,

r – average correlation coefficient between groups of factors.

The closer its value is to 1, the more reliable and consistent the components under study will be. If the α-coefficient is greater than 0.7, the result is reliable (Nunnally, 1978). Consequently, the above calculations of α-coefficient *(Tab. 4)* indicate the reliability of respondents' assessments of knowledge transfer factors.

Table 4. Reliability checks and factor loadings of groups of knowledge transfer factors

Group of factors	α-coefficient	Factor loading
Factors of interaction organization	0.97	0.88
Factors of knowledge providers	0.99	0.94
Factors of knowledge recipient	0.95	0.79
Factors of trust	0.95	0.78
Factors of result	0.98	0.91
Source: own compilation.		

Table 4 also shows the factor loadings of each group of factors calculated on the basis of the estimates received from respondents. Factor loading represents the values of correlation coefficients of each of the initial attributes with each of the identified attributes. The higher the connection of the analyzed group of factors with the knowledge transfer system at an enterprise, the greater the value of factor load. The load value lies within the range from -1 to 1. A positive sign indicates a direct and a negative sign indicates an inverse relationship of the given attribute with the factor. Factor loadings less than 0.3 are considered insignificant. There are no such factor loadings in Table 3. Factor loadings greater than 0.7 indicate strong relationships. Since this value for all groups of factors is more than 0.7, they all have a significant impact on the knowledge transfer system at an enterprise.

As part of the third stage, we performed correlation analysis by calculating the Pearson correlation coefficient. This coefficient allows determining the strength of correlation between two groups of factors. *Table 5* presents the calculations of the Pearson coefficient. Since all values are positive, the relationship between all factors is direct.

Values greater than 0.75 indicate a very strong positive relationship. This degree of strength of relationship is noted between knowledge provider factors and organizational interaction factors, as well as between knowledge provider factors and outcome factors. If the value of the correlation coefficient is between 0.5 and 0.74, it indicates a strong positive relationship (Borodyuk et al., 1983). All other pairs of correlations between groups of knowledge transfer factors are in this range, hence are strong. Thus, it is worth emphasizing the importance of knowledge providers' factors, as the correlation with them of other factors is characterized as very high.

Since the relationship between all groups of factors is characterized as strong and very strong, it is advisable to perform regression analysis to establish the causal relationship. The calculation of the regression coefficient shows the influence of some variables on others. According to the theoretical model (see Fig. 2), all other factors

Table 5. Correlation matrix of groups of knowledge transfer factors

Group of factors	Factors of interaction organization	Factors of knowledge providers	Factors of knowledge recipient	Factors of trust	Factors of result
Factors of interaction organization	1.00	**0.80**	0.63	0.51	0.72
Factors of knowledge providers	**0.80**	1.00	0.69	0.66	**0.90**
Factors of knowledge recipient	0.63	0.69	1.00	0.66	0.62
Factors of trust	0.51	0.66	0.66	1.00	0.69
Factors of result	0.72	**0.90**	0.62	0.69	1.00
Source: own compilation.					

(independent variable) have been selected as variables affecting the knowledge transfer outcome factors (dependent variable). In addition, it is necessary to assess the influence of the factors of interaction organization and trust on knowledge providers and recipients. It is the paired regression coefficients that show the influence of the explanatory independent variable on the dependent variable.

Checking the validity of the model by the level of significance of Fisher's criterion (F significance) confirms the significance of the model because the F significance for all pairs of regression estimation is significantly less than 0.05 *(Tab. 6)*.

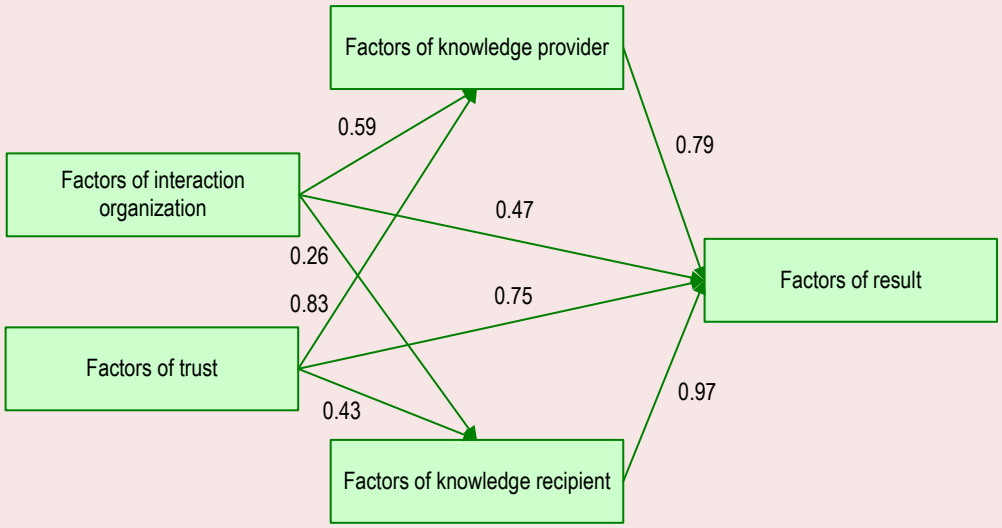
The calculation of the paired regression coefficients showed *(Fig. 4)* that knowledge receiver factors (0.97), trust factors (0.75) and knowledge provider factors (0.79) have the highest impact on the outcome factors.

As for the impact on knowledge transfer participants, we can note that trust factors have the greatest impact on knowledge providers (0.83), as well as on knowledge recipients (0.43). At the same time, the impact of trust factors on knowledge providers is more pronounced than on recipients. Interaction organization factors have the least impact on knowledge recipient (0.26 is the lowest value of the paired regression coefficient).

Table 6. Significance level of the Fisher criterion

Group of factors	F significance
Factors of interaction organization → Factors of knowledge providers	0.000
Factors of trust → Factors of knowledge providers	0.003
Factors of interaction organization → Factors of knowledge recipient	0.005
Factors of trust → Factors of knowledge recipient	0.002
Factors of knowledge providers → Factors of result	0.000
Factors of knowledge recipient → Factors of result	0.008
Factors of interaction organization → Factors of result	0.001
Factors of trust → Factors of result	0.002
Source: own compilation.	

Figure 4. Interrelation of groups of knowledge transfer factors at an enterprise: regression coefficients



Source: own compilation.

This result can be explained by the fact that external stimulation, interaction and cooperation organization have less impact on knowledge transfer participants than the trust factor. Similarly, the trust factor has a significantly greater impact on the result of knowledge transfer than the factors of organization of interaction of participants (paired regression coefficients of 0.75 and 0.47 respectively). But the greatest impact on the results of knowledge transfer has the capabilities and abilities of the participants of this process, i.e. the factors of recipients and suppliers of knowledge.

In general, the conducted empirical study confirmed the hypothesis that the factors of suppliers, recipient, interaction organization and trust have an impact on the result of knowledge transfer (all the coefficients of paired regression are positive). However, in the analyzed enterprise, some factors have a stronger impact than others. We can conclude that the analyzed enterprise should pay special attention to the impact of factors related to the organization of interaction of transfer participants and trust of the recipient of knowledge.

Practical relevance of assessing the impact of knowledge transfer factors

The obtained results allow formulating a number of recommendations aimed at improving the effectiveness of factors that influence knowledge transfer at an enterprise. In general terms, we can present five main directions that should be used to influence the development of knowledge transfer:

– increasing the efficiency of the organization of interaction between knowledge provider and recipient;

– raising the level of trust between knowledge transfer participants, contributing to both attracting new knowledge providers and strengthening relations with existing partners;

– attracting knowledge suppliers required by the enterprise, development of their ability to transfer knowledge;

– promoting the ability to perceive new knowledge by its recipient (enterprise);

– increasing the efficiency of implementation of the acquired knowledge into practical activities.

Table 7 reflects possible ways of implementing key directions of knowledge transfer development at an enterprise. They are selected based on the results of in-depth interviews with ten managers of the enterprise's structural units. The main criterion for the selection of ways to implement the key directions in the development of knowledge transfer is the real possibility of their implementation. All respondents noted that an important factor in the

Table 7. Main directions of knowledge transfer development at an enterprise

Direction	Possible ways of implementation
Improving the efficiency of organization of interaction between knowledge provider and knowledge recipient	Development of collaborative projects; organizing collaborative learning; development of partners' motivation for knowledge transfer
Increasing the level of trust between knowledge transfer participants	Formation of positive image, business reputation; development of corporate culture; development of corporate training
Engaging knowledge providers	Holding joint events aimed at sharing knowledge and expanding business contacts (workshops, conferences, master classes, coaching sessions, exhibitions, etc.).
Enhancing recipient's ability to absorb knowledge	Mentoring development; planning for training needs; development of flexible forms of learning; improvement of motivation system to training for company's employees
Improving utilization of acquired knowledge	Formation of "knowledge repositories" (databases of structured data); improvement of motivation system of employees to introduce new knowledge into company's activities
Source: own compilation.	

development of knowledge transfer at the enterprise is the internal motivation of the participants involved in it.

Undoubtedly, the implementation of all these directions will contribute to the development of external knowledge transfer for any enterprises. However, we should pay special attention to measures related to the factors that have the least impact, due to the need to strengthen them. Based on the empirical results obtained, we note that the analyzed enterprise should consider measures related to improving the efficiency of interaction between the supplier and the recipient of knowledge, as well as strengthening the level of trust, since these groups of factors have shown different degrees of influence (sometimes weak) on suppliers, the recipient of knowledge and the final result. Increased attention to these areas should be paid in the strategy for the development of knowledge management in the enterprise.

The development of all the directions, mentioned in Table 7, can be facilitated by the formation of professional-educational ecosystems. A professional-educational ecosystem is "a spatially localized, complex dynamic system consisting of a set of interrelated independent subjects, the environment in which they function, interacting with each other and this environment, as well as the products (results) of their activities. The product is formed as a result of the above-mentioned coordinated (cooperation) and/or uncoordinated (competition) interaction" (Flek, Ugnich, 2022a). Such an ecosystem is based on an open non-hierarchical sustainable relationship of the enterprise with educational, scientific, social organizations. It allows for the implementation of continuous training, starting from school, continuing in universities, colleges and within the framework of professional development programs, taking into account the current and future needs of the enterprise. Joint training programs and research projects are implemented in professional-educational ecosystems due to the existence of sustainable links between partners. Such ecosystems also help to expand the circle of partners, increase the level of trust and provide flexible practice-oriented forms of training for employees, which can help to ensure the implementation of the knowledge gained by them.

The main product of the professional and educational ecosystem is the human capital of an enterprise. At the same time, socio-economic ecosystems can have additional products. In a professional-educational ecosystem, such a product is knowledge, which is channeled through interaction with scientific and educational organizations (Flek, Ugnich, 2022b).

Through close interaction between ecosystem organizations, knowledge transfer problems due to differences in participants' corporate culture, knowledge context (Inkpen, Tsang, 2005), and lack of cognitive proximity can be solved.

In general, the advantages of the professional-educational ecosystem include ensuring continuous training of enterprise employees, a customized approach to employee training – taking into account the specific needs of an enterprise due to the close relationship with educational organizations; providing a variety of forms of training (including flexible), focused on the needs of learners and taking into account their actual level of knowledge; high adaptability of training, contributing to the acquisition of new progressive knowledge.

Discussion of results

The growth of research interest in the topic of knowledge transfer is due to the understanding of knowledge as the most important resource of an organization and the need to improve the efficiency of its management for the development and implementation of new technologies and products that create a competitive advantage. Quite a large number of knowledge management models have been developed (Nosulenko, Terekhin, 2017), many of which are based on the ideas of I. Nonaka and

H. Takeuchi (Nonaka, Takeuchi, 1995). But at the same time, to date, there is virtually no best practice of knowledge transfer.

Many works are devoted to the study of universities' activities (Giuri et al., 2019) on knowledge transfer to the real sector, as well as intra-firm knowledge transfer (Argote et al., 2000). Works concerning knowledge sharing for the development of resource potential of an organization are of interest (Kalabina, Belyak, 2020; Kalabina, Belyak, 2021). However, knowledge sharing and knowledge transfer are not identical concepts. Knowledge sharing implies mutual transfer, in particular, it is applicable to team-level research, while knowledge transfer represents its movement from one participant to another and is more suitable for the inter-organizational level. It is the transfer of knowledge in order to increase the resource potential of the organization within the framework of interaction with the academic sector that is the focus of this paper.

Within the framework of strategic knowledge management, the most important is the concept of dynamic capabilities (Teece et al., 2033), which explains the mechanism of creating sustainable competitive advantages of an organization in a changing external environment. As a basic dynamic capability of an enterprise, absorptive (absorptive) capability is considered (Cohen, Levinthal, 1990), meaning the ability of an organization to realize the value of new external information, assimilate it and apply it for business purposes. This provision is the basis for understanding the direct external knowledge transfer (i.e., its transfer to the organization from the academic sphere) that serves as the subject of this study.

However, despite the variety of works, there are gaps in the literature in understanding what factors, conditions help organizations to gain knowledge from universities. Our study was an attempt to address this gap. Approaches to understanding the factors of knowledge transfer are different. For example, M. De Silva et al. (De Silva et al., 2023) cite groups of pull and push factors. But their identification in practice can be quite difficult. D. Meng et al. (Meng et al., 2019) elaborate on knowledge content factors (entrepreneurial norms, market information, etc.), which are of primary importance rather in reverse knowledge transfer (to the academic environment from industrial partners). Of interest is the study by M. Klippert et al. (Klippert et al., 2022), which proposes four clusters of knowledge transfer factors (people, organization, technology, knowledge and transfer). We have made an attempt, based on the literature analysis, to identify groups of factors characterizing the multidimensionality of knowledge transfer from the position of understanding it as a process, as a network interaction and from the position of the project approach. At the same time, factors characterizing both external motivation (factors of interaction organization) and internal motivation (factors of trust, the ability to transfer knowledge providers and its perception by recipients) are presented. In this, the findings of the present study are consistent with the results of E.G. Kalabina and O.Yu. Belyak (Kalabina, Belyak, 2021). At the same time, our results indicate the significance of the trust factor for knowledge transfer, which remains outside the scope of most approaches.

The limitation of our study is that the factors characterizing the nature of knowledge were not taken into account, since it focused on organizations of the high-tech sphere that primarily need professional knowledge. At the same time, knowledge can be both fundamental and applied in nature.

In terms of knowledge transfer practices, of interest is the experience of Chinese postdoctoral workstations (Ma, Li, 2022), which provide knowledge transfer between organizations and universities. As part of the establishment of such

workstations in large enterprises, cooperation with research institutes and universities is developed to support research work and obtain specific results for the enterprise's benefit with government support, including grants (Huang et al., 2021). The purpose of postdoctoral workstations is to search for and select qualified enterprise personnel capable of research and development, perform R&D to solve technological problems and realize innovations. However, such a mechanism is largely conditioned by China's state policy. We propose the formation of professional-educational ecosystems of a high-tech organization. They are initiated by an enterprise itself, without state support, unlike Chinese postdoctoral workstations. The self-organization mechanism embedded in the ecosystems allows them to develop regardless of external regulation by the state.

Conclusion

The acquisition of knowledge by an enterprise through interaction with the academic sector, which plays a major role in terms of competitiveness, can take place through knowledge transfer and co-creation. Knowledge transfer implies its unidirectional movement from the academic sector to the real sector (from the researcher to the employee of the enterprise). Co-creation (generation) implies the integration of advanced, up-to-date knowledge of researchers with sectoral, practical knowledge possessed by employees of the enterprise in order to jointly solve specific problems. In addition, an enterprise itself can act as a supplier of knowledge to the academic sphere, i.e. carry out the so-called reverse transfer.

Among the ways of knowledge acquisition by an enterprise, transfer has more specific goals and clear results, therefore, it is expedient to study the factors affecting knowledge transfer. The analysis of the literature allowed identifying several approaches to knowledge transfer and key groups of factors affecting it. These are factors related to the supplier of knowledge; related to the recipient of knowledge; related to an organization of interaction between the participants of knowledge transfer; factors of trust between the participants of knowledge transfer; factors that ensure the application of acquired knowledge, the result of transfer.

The initial data for the assessment can be the results of a survey of employees involved in knowledge transfer at an enterprise. Such an assessment includes a general characterization of the ways of knowledge acquisition by an enterprise; analysis of factors characterizing knowledge transfer; correlation and regression analysis that allows establishing the actual relationship between the knowledge transfer factors.

This assessment can result in concrete proposals for enhancing the positive impact of factors on knowledge transfer.

As a general recommendation aimed at improving the efficiency of knowledge transfer, we can suggest the formation and development of professional and educational ecosystems of enterprises, the main purpose of which is the formation of enterprise's human capital. They have a direct impact on the strengthening of interaction and form a high level of trust between the participants of this process.

The scientific novelty of our work consists in systematizing the ways of knowledge acquisition by an enterprise and its transfer to the academic sector, as well as in the way of analyzing the factors affecting the external knowledge transfer in order to determine the strength of the impact on its results. The importance of the professional and educational ecosystem of the enterprise in the development of knowledge transfer is emphasized. The prospects of the study are seen in the evaluation of the ways of knowledge transfer, in particular, taking into account their division into explicit and implicit. In addition, it is of interest to analyze the sources and methods of knowledge transfer of different nature.

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Financial Balances of Territories as a Tool for Modeling the Effectiveness of Spatial Development

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Abstract. The spatial development of the Russian Federation has been actively discussed virtually since the formation of modern statehood. The institutionalization of the problem of single-industry towns in 2014 and the adoption of the Spatial Development Strategy of the Russian Federation in 2019 gave a new impetus to such discussions. However, despite a significant amount of research, the issues concerning the effectiveness of spatial development decisions at the level of macro-regions, urban agglomerations and single-industry towns have not been sufficiently worked out; this fact determines the relevance of the work. The aim of our study is to substantiate the tools for assessing the effectiveness of spatial development for various territorial entities. The novelty of the research lies in the methodological substantiation of the use of the System of National Accounts (SNA) for the formation of financial balances of territories at various levels, which in the future can become a single tool for modeling the effectiveness of spatial development. It is proved that the most accurate tool to determine the relationships between regions and

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evaluate the effectiveness of decisions for macroregions can be the creation of interregional input-output tables, for urban agglomerations – the development of individual and combined financial balances of municipalities, for single-industry towns – the development of tables for the formation, redistribution and use of financial resources, with the allocation of channels for the outflow/inflow of flows. The article, providing an example of the practical application of the proposed approaches, presents the financial balances of several single-industry towns of the Sverdlovsk Oblast for 2020 in the context of institutional sectors of the economy ("Corporations", "Public Administration", "Households"). According to the analysis of the data obtained, we see that the construction of financial balances made it possible to clearly identify the existing imbalances in the economic development of the territories: the Ural Mining and Metallurgical Company (UGMK) has a great influence on financial flows in Urban Okrug Verkhnyaya Pyshma; financial resources are being actively withdrawn from the Kamensk-Uralsky Urban Okrug by corporations and the population; financial balances in Severourasky Urban Okrug show a classic picture of a single-industry town with crisis phenomena. The findings of the study can be used to develop a full-fledged system for modeling the effects of spatial development of various territories of the Russian Federation.

Key words: System of National Accounts, financial balances, spatial development, macroregions, urban agglomerations, single-industry towns.

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Introduction

In the context of shrinking sources of income for the Russian economy, caused by the imposition of various restrictive measures on Russian exports and imports, the question of finding internal sources of the country's development is becoming more and more acute. This phenomenon can be discussed from different points of view, for example, from the sectoral point of view, as a replacement of foreign goods and services with national ones (import substitution), or, from the financial point of view, increasing the independence of the Russian financial system from the influence of reserve world currencies, transition to settlements in national currencies. One of the "slices" of the Russian economy efficiency growth, based on internal development reserves, forms the deepening of inter-territorial integration, territorial connectivity, the search for new "points of growth" in socio-economic development of individual municipalities.

In view of the above, the interest of public authorities at the federal and regional levels of government arose related to the identification of opportunities for improving the efficiency of development of various spatial formations. The result was the adoption of the document "RF Spatial Development Strategy until 2025", which was approved by RF Government Resolution 207-r, dated February 13, 2019. According to the document, the objects of management at the state level are: 1) 12 macroregions of the Russian

Federation; 2) 20 promising major centers of economic growth; 3) promising centers of economic growth of the constituent entities of the Russian Federation, where gradation is made both by contribution to economic growth and by population size; 4) promising mineral and agro-industrial centers, "municipalities" of one or another specialization are identified; 5) 20 promising centers where conditions for the formation of world-class scientific and educational centers have developed; 6) geostrategic territories of the Russian Federation.

Thus, the Spatial Development Strategy uses different-level territorial entities classified according to various characteristics as the object of management. Some territories (regions and municipalities) are mentioned repeatedly, as part of certain management objects. We believe that this approach is conditioned by the search for optimal parameters of spatial development management by public authorities, due to which the Strategy lists various grounds for the classification of territories. Since this document is designed for the period until 2025, in our opinion, the current version is the primary one for the elaboration of further strategy of spatial development of the Russian Federation.

This version is supported by the structure and content of target indicators of Russia's spatial development (Annex 5 of the Strategy). There are only five indicators, which do not even cover the selected subjects of management. The most verifiable indicator – the average annual GRP growth rate of the RF constitute entities, where promising large centers of economic growth are located – assumes an acceleration of growth from 101% in 2017 to 103.7 in the target scenario and 102.6% in the inertial scenario in 2025. The second indicator, characterizing priority geostrategic territories (except for the Arctic), already has relative values to the Russian average. The last three indicators by themselves do not reflect the results of Russia's spatial development (differentiation of the human development index, growth of transport mobility, export of services from transit transportation), have rather vague criteria of fulfillment, the value of 100% in 2017 is taken as the baseline.

At the same time, the spatial development strategy should be based both on clear production and settlement benchmarks of the country's development and clear and verifiable indicators of the effectiveness of the financial and organizational resources used. In this regard, the issues of efficiency of the prepared and adopted management decisions on financial and economic mechanisms of territorial development are not sufficiently elaborated within the framework of the existing approaches at the state level. The available development indicators (GDP, wage level, etc.) do not fully reflect the management impacts within the framework of these financial and economic mechanisms. We can argue that for territorial entities of different levels (macroregions, urban agglomerations and individual municipalities) it is necessary to apply different approaches to assessing the effects of management impacts due to the differences in the initial objectives, so the main objective of our study is to substantiate the tools for assessing the effectiveness of spatial development for different territorial entities using a unified methodological framework.

Existing approaches to assessing the effectiveness of spatial development

Many researchers are engaged in studying the spatial development of territories. At the same time, the works devoted to assessing the effectiveness of development of large territorial systems (macroregions and urban agglomerations) are largely aimed at measuring the local effects of certain decisions.

Due to the rapid development of the economy of the People's Republic of China in recent decades and, consequently, the radical change in the centers of spatial development in recent years, studies on this topic are widely presented in the scientific literature. For example, the Multi-Regional Input-Output Table (MRIOT) has been widely used to

study the interrelationships among provinces in China, from which the work (Wang et al., 2021), using network analysis tools, draws conclusions about the predominant increase in goods exchange within provinces rather than between them. Applying regional input-output tables, other Chinese scholars (Lu et al., 2023) analyzed the dynamic changes in the spatial structure of employment and concluded the increased role of agglomerations, hierarchies and networks in the employment distribution.

The largest body of scientific research is devoted to the issues of urbanization and development of large agglomerations. For example, the work (Yang et al., 2023) examines the spatial and temporal structure of the network of economic ties of cities in the economic belt of the Northern Slope of the Tian Shan Mountains (PRC), showing the widening gap between large and small settlements. The impact of large infrastructure projects (using the example of The One Belt and One Road Initiative) on the development of the Guanzhong urban agglomeration is investigated in the research (Zheng, Cao, 2021). The construction of population mobility patterns across China has allowed scholars (You et al., 2023) to identify different types of urban agglomerations not previously known. The problem of inefficient urbanization in some parts of China related to the construction of new cities is discussed in (Han et al., 2021); it is argued that the placement of new settlements is often made without taking into account population density and distance to central areas, which increases the risks of inefficient use of financial resources. We can also highlight a number of studies on the relationship between the development of urbanized areas and ecology (Li et al., 2021; Cui et al., 2021; Tian et al., 2021), geographical location (Ploeckl, 2021; Gibson et al., 2023), the quality of development of certain areas (Li, Lu, 2021; Fang, Yu, 2017), etc.

Analyzing the experience of assessing the development of single-industry towns, we can note a number of publications by Russian scientists. The work (Rubtsov, Litvinenko, 2020) reviews the experience of supporting the socio-economic development of single-industry towns in the Russian Federation, suggest ways to improve organizational measures and specify the target indicators of development. Based on the accumulated experience, the scientists propose to transfer the management system of single-industry town development to the level of federal districts, while forming territorial clusters. Similar ideas of socio-economic development of single-industry towns are developed in the work (Ivanova et al., 2017), where the principles of creating municipal industrial clusters, which are the basis for the advanced development of the single-industry town's economy, are studied. A conceptual model for the development of single-industry towns belonging to mining municipalities is proposed in the work (Artukhova et al., 2018). Using the example of the single-industry town of Leninsk-Kuznetsky, located in the Kemerovo Oblast, the authors highlight the significant dependence of socio-economic development of the territory on the town-forming enterprise: the role of other enterprises is small to influence the economy of the town.

In foreign literature, the problems of single-industry town development are actively studied by researchers from the People's Republic of China. For instance, the work (Fan et al., 2023) carries out the modeling of socio-economic development depending on a set of factors on the example of 8 resource-type single-industry towns in Sichuan province. As a result, it was shown that the greatest influence on the development of Chinese single-industry towns is the availability of natural resources, the second place is occupied by social conditions, then the environment and finance. The article (Yang Y. et al., 2023) analyzes the international index of well-being in single-industry towns engaged in coal mining in China, highlights the stages of life type of this index:

growth, regeneration, maturation, recession. Also, the world literature studies certain aspects of the development of single-industry towns: historical aspects of mining development and contemporary change of mining settlements in Africa (Rubbers, 2019), architecture and settlement planning of mining towns in Sweden and Quebec (Avango et al., 2022) and other (He, Song, 2023).

As we can see from the review of scientific publications, Russian research on the efficiency of financial and economic mechanisms of development of macroregions, agglomerations and single-industry towns is mainly focused on the theoretical justification of the management structure of such objects, while the issues of efficiency themselves are discussed to a lesser extent. Foreign researchers rely more on ex post facto assessment of development effects based on historical data, modeling the relationship between various indicators and indicators. Therefore, given the lack of a generally accepted system for assessing the effectiveness of decisions on the spatial development of different types of territories, we hypothesize the need and possibility of developing modeling tools for different territorial objects on a common methodological basis, which will allow forming a unified system for assessing the effects of spatial development in the future.

Methodological approaches to assessing the effectiveness of spatial development on the basis of the System of National Accounts

As we have already noted, currently, in the Russian Federation, despite the growing interest in spatial development, the working out of methodological tools to assess the effectiveness (or evaluating the results of any management decisions) is in its infancy. This applies not only to macroregions, but also to practically all the studied territorial entities of spatial development (large agglomerations, single-industry towns). The indicators used to assess the socio-economic development of territories (average wages, turnover of organizations, creation of new jobs, etc.) are quite aggregated, their dynamics is influenced by a large number of factors, often not related to the adoption of specific decisions on spatial development. Therefore, in our opinion, the need to create a system for assessing and modeling the effectiveness of decisions on spatial development of territories at various levels is obvious. The financial balances of territories developed on the basis of the System of National Accounts (SNA) could become such an assessment system. On the one hand, the construction of such balances will ensure comparability with the indicators used at the national level (GDP, tax payments, population income), and on the other hand – a unified system for assessing the impact of decisions on the financial flows of territories at different levels (macroregions, agglomerations, individual municipalities), taking into account the specifics of each territorial entity.

For large spatial areas, which in Russia include a set of regions united on one or another basis (federal districts, macroregions), the construction of financial balances should be based on the zoning objectives:

– if the "slicing" of federal districts in its time pursued more political goals to increase the controllability of territories, the main criteria for the formation of macroregions are territorial connectivity and the potential for joint development; from this point of view, the study of financial balances of macroregions should be based on the measurement of the effects of such interaction;

– for these purposes it is necessary to form a tool for assessing (modeling) the effectiveness of interregional interaction, usually in the form of implementation of joint infrastructure projects;

– the complexity of building such a tool lies in isolating the contribution of decisions taken on the implementation of joint projects to the added value of territories, since the regional economies are diverse and the dynamics of economic and social development is influenced by a large number of factors;

– the use of traditional indicators of regional economic development (GRP, population income, investments, etc.) in this case cannot "highlight" the effect of interregional interaction with a sufficient degree of reliability;

– the closest systems for assessing financial and economic mechanisms of interaction in macroregions are the Russian SIRENA project and the Social Accounting Matrix (SAM); the first project has been developed by the IEIE SB RAS since the early 1980s (Suspitsyn, 2017; Suspitsyn, 2021) on the basis of optimization intersectoral interregional models of a high degree of aggregation using material balances between regions; the second is a modification of the intraregional balance of formation, redistribution, and use of the financial flows with some possibilities to calculate models of financial resources movement;

– due to a high degree of aggregation and existing problems with data sources, these systems can only serve as a basis for the development of tools for modeling the effects of spatial development of macroregions, combining the positive aspects of both systems.

In our opinion, the creation of interregional input-output tables may be the most accurate tool for determining the interrelationships between regions and assessing the effectiveness of decisions taken. All-Russian tables are an integral part of the SNA and contain detailed characteristics of production and use of goods and services, as well as income generated in the process of production. The construction of interregional tables should be based on the relationship between the movement of goods and services between the regions of macroregions (in value terms) and their application in inter-territorial exchange. For this purpose, it is most logical to form a table of the use of goods and services of each region with the allocation of flows between the territories of the macroregion.

Unlike the assessment of the macroregion, the assessment of the effectiveness of financial and economic mechanisms of urban agglomeration development should be based on the study of agglomeration as a single object, i.e. a set of municipalities of the "core" and "periphery". In our opinion, such an approach to the construction of financial balances should take into account a number of features of economic development of agglomerations:

– it is necessary to clearly define the set of territories included in the object of the study, since different approaches may determine the heterogeneous composition of municipalities belonging to one or another agglomeration; in our opinion, in terms of financial connectivity of agglomerations, close attention should be paid to the ratio of the working-age population of peripheral municipalities to those employed in the economy of a large city, which may signal the formation of a common labor market with the agglomeration core;

– at the same time, based on the existing concepts of agglomerations based on "attraction" of various resources by the "core" (which is generally true), situations of self-sufficient development of peripheral municipalities with no less economic development potential are possible; however, this should not be perceived as a lack of agglomeration effect in such municipalities, perhaps, on the contrary, the development potential is due to it; much depends on the administrative-territorial "slicing" of municipalities, which are not less than the "core"; and, on the contrary, the potential of agglomeration is due to the "core".

– financial balances of peripheral municipalities in most cases will be unbalanced, which is not an anomaly, since the influence of the agglomeration center is felt; if we imagine the agglomeration "core" itself as the aggregate of the center and surrounding districts, we can observe the same effect of pulling resources to the central part of the city;

– construction of financial balances of agglomeration territories should be based on the same principles and methods as those of any other

municipalities, but the complexity of balance sheet construction lies in the formation of general accounts, since the financial flows especially of the "core" and peripheral areas in particular are influenced by other factors not related to agglomeration effects;

– as a rule, an agglomeration center is a point of attraction not only for nearby municipalities, but also for the vast territory around it; however, adjacent territories may also be a point of attraction of resources for settlements more distant from the agglomeration center, and such flows are very difficult to identify when compiling balances of financial resources flows;

– we should pay attention to the problem of allocation of financial flows between territories in the public administration sector: on the one hand, the existing system of paying taxes at the place of registration of enterprises leads to distortion of the real contribution of peripheral municipalities to the added value of agglomeration; on the other hand, the use of public administration services by economic agents in the central part of agglomeration increases the dependence of periphery on the center.

Thus, the task of assessing agglomeration effects for a set of municipalities based on the construction of financial balances is solved from two sides. First, the development of tables of formation, distribution and utilization of the added value of municipal entities will allow identifying the sources of economic development of territories (large businesses, small businesses, government agencies, etc.), which will make it possible to focus on the study of the effectiveness of decisions made within the municipality. Second, the determination of net lending/borrowing balances by institutional sectors will allow highlighting the degree of interconnection between the core and periphery territories. Such interrelations are most significantly manifested in household balances, which reflect the income and expenditures of the population of the territories. The current registration of flows of income sources and the structure of household consumption does not allow to identify transmunicipal flows of labor and capital, so the formation of general tables by institutional sectors, where it is possible to clearly identify both the movement of labor and the territorial linkage of household expenditures, is of particular importance.

In the formation of financial balances of agglomerations, in our opinion, due to the increase in the accuracy of measurements of resource movement, alternative sources of information should be used to determine the directions of resource movement. For example, it can be balances of labor resources (working-age and employed population in the territories of municipalities), monitoring of daily migration on the databases of cellular operators, etc. It is also necessary to build a balance of public services provided to households (health care, education, law enforcement, etc.), which would significantly increase the visibility and accuracy of the data used on financial flows between municipalities.

As a result, the development of an individual and combined financial balances of municipalities included in agglomerations will form a fairly detailed scheme of financial flows both within the territories and by individual institutional sectors. All this will make it possible to start developing tools for modeling the effects of spatial development to improve the efficiency of decision-making and search for "points of growth" in the joint socio-economic development of agglomerations.

If the main feature of agglomerations is a strong interdependence between adjacent municipalities, the specifics of economic and financial development of single-industry towns are characterized by the following features:

– availability of the only source of formation of added value of a town (town-forming enterprise), the income of which is transformed into the income of other economic agents, i.e. the population, the budget of the municipality and service industries;

– transformation of value added of a town-forming enterprise into the income of other economic agents depends on many factors, including the structure of production of a single-industry town (presence of redistribution and service companies), degree of attracting external labor, embeddedness of town-forming production in vertically integrated companies, applied tax regimes, etc.; accordingly, even with similar parameters of financial indicators (turnover of a town-forming enterprise, average wages of personnel, share of those employed at the main production facilities, share of employed at the main production facilities) the real situation in the economy of single-industry towns may differ significantly.

– in most single-industry towns there are no alternative incoming financial flows (i.e. except for a town-forming enterprise), forming the added value, as the municipality's economic isolation (due to remoteness from other economic centers, as well as the initial specialization of a single-industry town) reduces the competitiveness of enterprises; at the same time, the financial flows of public administration are not always taken into account, in some cases having significant importance in the economy of single-industry towns;

– financing of public institutions from the budget can be considered as a basis for the formation of added value of the territory (if the basis of specialization of a single-industry town is the provision of services to the state, for example, ensuring military security) or an additional source of attracting financing for the territory (i.e. if there is a sufficiently large number of jobs in sectors financed by budgets of all levels);

– imbalances in the labor market and income/expenses of the population can also be a feature of single-industry towns, since the limited number of highly profitable places of labor application and underdevelopment of service industries in the territories form a negative cash flow; it can be manifested both in the use of migrant workers in the production activities of enterprises (especially in the northern regions) and outflow of the population who do not want to link their fate with a single-industry town (depressed territories);

– level of socio-economic development and well-being largely depends on the phase of formation of a town-forming enterprise (conditionally: growth, stabilization, fading); as a rule, a high risk of adverse effects in the socio-economic development of single-industry towns occurs at the stage of fading of the town-forming enterprise's activity, caused either by the exhaustion of resource reserves of deposits, or a decrease in the competitiveness of manufactured products.

The identified specific features determine the formation, redistribution and use of financial resources in such territories. Given the authors' early research in the theory of building the SNA analog at the territorial level and the methodology of formation of institutional sector accounts (Zakharchuk, Pasynkov, 2016; Zakharchuk, Pasynkov, 2017; Zakharchuk, 2022), the construction of financial balances of single-industry towns is a practically solvable task, since they are based on Rosstat data. Thus, the interaction with other territories of a single-industry town is minimal, the construction of balances by sectors and finding the net outflow/inflow of financial resources reveals the picture of financial flows. As in the situation with the northern territories, the isolation of single-industry towns implies that the calculations for institutional sectors show "clean" balances in contrast to agglomerations. At the same time, any major movement of financial resources in any of the sectors, due to the rather simple economic structure, is clearly reflected in the financial balances of the territory. Placement of new production facilities, changes in the dynamics of investments, significant transformation of economic activity in service and trade sectors, increase in budget expenditures, dynamics of the structure of incomes and expenditures of the population, etc. are sufficiently reflected in the accounts of institutional sectors.

Thus, the construction of financial balances of single-industry towns can be considered as a primary experience in identifying problems of statistical, methodological and practical nature in the course of developing tables of formation, distribution and use of value added of municipalities in Russia. Also, the opportunities for the development of tools to influence the socio-economic development of territories are most effectively considered on the cities of this type. Using few connections between economic agents and a fairly simple economic structure, it is possible to determine quite clearly the effectiveness of financial and economic mechanisms adopted in recent years for the development of single-industry towns on the basis of changes in the balances of institutional sectors, primarily public administration and households. Having studied such interrelations and dependencies, we can start to determine the directions and mechanisms for the formation of "points of growth" of certain types of economic activities of territories, allowing the effective use of the available resources to be used effectively.

Results

To test the proposed approach to the formation of financial balances within the SNA and to improve the clarity of application of the balance principle of their compilation, we selected three single-industry towns located in the Sverdlovsk Oblast as the object: Verkhnyaya Pyshma, Kamensk-Uralsky and Severouralsky urban okrugs. These municipalities are included in the official list of single-industry towns established by the Government of the Russian Federation (RF Government Resolution 1398-r, dated July 29, 2014). The Table presents the main characteristics of the territories. It shows that Verkhnyaya Pyshma is actually a satellite city of Yekaterinburg, forming a large agglomeration with other suburbs. Moreover, a characteristic feature of the relationship with the capital of the Sverdlovsk Oblast is a significant gap between the working-age population of the Urban Okrug (43,370 people) and those employed in the urban economy (28,258 people), which may be a sign of daily labor migration. Kamensk-Uralsky is located about 100 kilometers from Yekaterinburg, which, given the lack of high-speed infrastructure, can be considered as a sufficient reason for its inclusion in the list of single-industry towns by distance. At the same time, Kamensk-Uralsky is a rather large settlement in the Middle Urals (the third largest in terms of population after Yekaterinburg and Nizhny Tagil) and acts as a "point of attraction" for settlements in the south-east of the Sverdlovsk Oblast. It is worth noting that the number of working-age and employed population of the city practically coincides, but the distribution of the employed is not homogeneous. The largest number of employed (11.7% of the working-age population) is accounted for by the Sinarsky Pipe Plant, other enterprises have a smaller share in employment. Despite the fact that the major enterprises included in the list of town-forming enterprises belong to the metallurgical profile, they produce a fairly wide range of products, from aluminum to pipes for the oil and gas industry. Severouralsk is the only town on this list that can claim the status of a single-industry town without any conditionality. The town-forming enterprise AOA "Sevuralboksitruda", engaged in bauxite mining, employs about one third of the total number of people, and the town is quite distant from the main labor markets. The population of the Urban Okrug (about 40 thousand people) is gradually decreasing, which indicates its unfavorable socio-economic situation.

Consequently, the municipalities selected for analysis are quite diverse both in terms of economic development and opportunities for the use of resources of large agglomerations, which allows us to assess the impact of various factors on the formation, distribution and use of value added. To compile the financial balances of these territories, we used the data of Rosstat, the Ministry of Finance of the Russian Federation, the Federal Tax Service

Main characteristics of Verkhnyaya Pyshma, Kamensk-Uralsky, Severouralsky urban okrugs classified as single-industry towns in the Sverdlovsk Oblast, 2020

Characteristic	Verkhnyaya Pyshma Urban Okrug	Kamensk-Uralsky Urban Okrug	Severouralsk Urban Okrug
Category	Category 2	Category 2	Category 1
Location	14 kilometers north of Yekaterinburg	100 km southeast of Yekaterinburg	Distance to Yekaterinburg is 450 km
Administrative Okrug	West	South	North
Population, people	85,149	169,131	40,016
Number of employed population of the municipality, people	28,258	88,600	18,808
Number of working-age population, people	43,370	89,600	20,249
Town-forming enterprise	OAO “Uralelelectromed”, a leading non-ferrous metallurgy enterprise within the Ural Mining and Metallurgical Company	1. UAZ-SUAL branch of OAO “Siberian-Urals Aluminum Company”. 2. PAO “Sinarsky Pipe Plant”. 3. OAO “Kamensk-Uralsky Metallurgical Plant”. 4. OAO Kamensk-Urals Plant for Processing Non-Ferrous Metals”	OAO “Sevuralboksitruda”
Main products manufactured	Cathodes, copper rod, copper powder and copper products	1. UAZ-SUAL Branch of OAO “SUAL” – aluminum 2. PAO “Sinarsky Pipe Plant” – wide range of oil pipes 3. OAO “KUMZ” – semi-finished products made of aluminum and aluminum alloys. 4. OAO “KUZOCM” – metal products from copper, nickel, zinc and alloys based on them	Bauxite mining
Share of people employed at an enterprise in the average number of employees of municipal organizations, %	20.3	1. At branch “UAZ-SUAL” – 4.31. 2. At PAO “Sinarsky Pipe Plant” – 11.7. 3. At OAO “KUMZ” – 7.3. 4. At OAO “KUZOCM” – 1.8.	33.5
Source: own compilation.			

Balances of financial resources of Verkhnyaya Pyshma, Kamensk-Uralsky, Severouralsky urban okrugs of the Sverdlovsk Oblast for 2020, thousand rubles

VERKHNYAYA PYSHMA URBAN OKRUG

Corporation sector

Resources		Usage	
Gross value added (calculated)	46 564 396,84	Remuneration of labor	16 240 808,84
		Other net production taxes	840 042,00
Taxes on production and imports, excise taxes	78 573,00	Income tax	3 078 380,00
		Investments	9 983 465,00
		Dividends and capital withdrawals	28 979 350,50
		Net borrowing	-12 557 649,50

Public Administration sector

Resources		Usage	
Taxes on production and imports, excise taxes	78 573,00	Cash and in-kind benefits	216 081,00
Other net production taxes	840 042,00	Public sector wages	4 312 168,00
Income tax	3 078 380	Public sector final consumption	4 899 277,35
Current taxes on DX	504 922,00		
PIT	3021142,199	Investments	1 836 586,00
		Net borrowing	- 3 741 053,15

Household sector

Resources		Usage	
Taxable income	16 498 848,00	Final consumption	12 794 393,00
Income of entrepreneurs (small business and rent)	28 979 350,50	Tax payments	3 526 064,20
Social benefits	6 971 973,79	Gross accumulation	5 405 239,00
Net lending	30 724 476,09		

Balance of financial resources

Net borrowing of the Corporate sector	-12 557 649,50	**14 425 773,44**
Net borrowing of the Administration sector	- 3 741 053,15	
Net borrowing of the Household sector	30 724 476,09	

KAMENSK-URALSKY URBAN OKRUG

Corporation sector

Resources		Usage	
Gross value added (calculated)	71 465 852,36	Remuneration of labor	24 842 275,39
		Other net production taxes	580 093,00
Taxes on production and imports, excise taxes		Income tax	1 861 488,00
		Investments	6 274 345,00
		Dividends and capital withdrawals	11 365 821,90
Net lending	26 541 829,07		

Public Administration sector

Resources		Usage	
Taxes on production and imports, excise taxes		Cash and in-kind benefits	760 463,00
Other net production taxes	580 093,00	Public sector wages	4 603 396,00
Income tax	1 861 488,00	Public sector final consumption	4 624 680,88
Current taxes on DX	604 971,00		
PIT	4 099 147,24	Investments	760 463,00
		Net borrowing	-4 191 909,64

Household sector

Resources		Usage	
Taxable income	25 992 622,00	Final consumption	25 187 379,00
Income of entrepreneurs (small business and rent)	11 365 821,90	Tax payments	4 704 118,24
Social benefits	16 548 552,15	Gross accumulation	1 019 907,00
Net lending	22 995 591,81		

Balance of financial resources

Net borrowing of the Corporate sector	26 541 829,07	**45 345 511,24**
Net borrowing of the Administration sector	-4 191 909,64	
Net borrowing of the Household sector	22 995 591,81	

SEVEROURALSK URBAN OKRUG

Corporation sector

Resources		Usage	
Gross value added (calculated)	13 124 050,03	Remuneration of labor	4 475 583,56
		Other net production taxes	229 995,00
Taxes on production and imports, excise taxes	3,00	Income tax	70 392,00
		Investments	1 387 541,00
		Dividends and capital withdrawals	1 094 451,90
Net lending	5 866 086,57		

Public Administration sector

Resources		Usage	
Taxes on production and imports, excise taxes	3,00	Cash and in-kind benefits	174 981,00
Other net production taxes	229 995,00	Public sector wages	1 529 530,00
Income tax	70 392,00	Public sector final consumption	1 127 453,74
Current taxes on DX	80 132,00		
PIT	802 052,46	Investments	174 981,00
		Net borrowing	-1 727 719,28

Household sector

Resources		Usage	
Taxable income	5 841 250,00	Final consumption	3 826 960,00
Income of entrepreneurs (small business and rent)	1 094 451,90	Tax payments	882 184,46
Social benefits	4 738 827,49	Gross accumulation	8 175,00
Net lending	6 957 209,93		

Balance of financial resources

Net borrowing of the Corporate sector	5 866 086,57	**11 095 577,22**
Net borrowing of the Administration sector	-1 727 719,28	
Net borrowing of the Household sector	6 957 209,93	

Source: own compilation.

for 2020, as well as own calculation methods. In aggregate form, without breakdown by individual indicators, let us highlight the main features of balance sheet formation for each territory *(Fig.)*.

Verkhnyaya Pyshma Urban Okrug. The main feature of the municipal district's accounts is the net borrowing of the Corporation sector. This often happens when implementing large investment projects, when the municipality's own value added is insufficient for the project implementation. However, the corporate sector investment indicator is, although at a rather high level, not an anomaly. The largest item of corporations' "expenditures" was the line "Dividends and capital withdrawals" balanced with households' incomes. We should note that when constructing the "Households" account, several official sources of information on income were used and the data differed greatly. As a result, we have found out that a significant part of household income is closed in the data of primary statistics, it concerned dividend payments to foreign shareholders. This feature of Verkhnyaya Pyshma is explained by the registration of the parent holding of the Ural Mining and Metallurgical Company on the territory of the municipality, which accumulates profit from the holding's enterprises, and dividend payments are shown at the place of registration. Accordingly, this situation was reflected in the accounts of the household sector – while residents' income amounted to 52,450 million rubles, only 21,725 million rubles was spent, i.e. the outflow amounted to more than half of the income received. However, if we remove the amount of capital withdrawal (28,979 million rubles), then the balances for households are practically equal, while for corporations there will be an excess of value added (+16,422 million rubles) due to the insufficiency of value added (-12,558 million rubles).

It is also worth noting the good results of public sector tax payments, which are comparable to the amount for Kamensk-Uralsky Orban Okrug (where the population is twice as large), but they were not enough to finance the needs of the state on the territory of the urban okrug due to a significant number of institutions financed from the federal budget. Thus, the financial balances of Verkhnyaya Pyshma are very strongly influenced by the activities of UMMC Holding, at the same time, we can see that formally received revenues in the territory of the urban okrug are not actually used in the urban economic turnover.

Kamensk-Uralsky Urban Okrug. The generated accounts for the municipality show quite clearly that the corporate sector is actively withdrawing financial resources from the city economy. Compared to Verkhnyaya Pyshma, all indicators both in terms of tax burden, investments, and even capital withdrawals are much lower, which signals the withdrawal of value added outside the territory of the municipal entity through holding structures. As a result, more than one third of value added was withdrawn by the Corporation sector (i.e. 26.5 billion rubles out of 71.5 billion rubles). Households are also actively involved in this process; with 53,907 million rubles of income received, only 30,911 million rubles was spent on the town's territory, and even if capital withdrawals (11,366 million rubles) are removed, the imbalance in income and expenditures will not disappear. Verkhnyaya Pyshma, however, bearing in mind the twofold superiority in population size, we can speak about a much lower "subsidization" of the municipality, and a vivid indicator here is the lower volume of public administration investments. In general, the financial balances of the Kamensk-Uralsky Urban Okrug can be characterized as rather good, with a strong bias toward outflow of financial resources. In order to understand whether this is an isolated case of the year under consideration, associated with the epidemic, or a stable trend, it is necessary to build the balances in dynamics.

Severouralsky Urban Okrug. Based on the constructed balances, we can see that the situation in the urban okrug is the worst among the territories under consideration. First, the withdrawal of value added by the corporate sector accounts for approximately 45% of the total amount (5,866 million rubles out of 13,124 million rubles). Second, public administration revenues from taxes collected in Severouralsk do not cover even half of the sector's expenditures (in the previous municipalities, the lack of resources is about 35%). Also, a benchmark of low budget potential is investment costs, which amount to only 2.7%. Third, if we remove income from entrepreneurial activity from household resources, only 45% is spent in the urban district (Verkhnyaya Pyshma – 93%, Kamensk-Uralsky – 73%). The share of social payments in total household income is also a record high (more than 40%), which indicates a decline in the number of working-age population in the urban okrug. Thus, we can see the strongest relative outflow of financial resources by sectors, which is a rather alarming sign in the socio-economic development of this territory.

Conclusions

Assessment of the effectiveness of spatial development of the Russian Federation is a rather extensive topic for research, including production, settlement, demographic, natural-resource, economic and other aspects. At the same time, in the conditions of formation of management policy of impact on certain processes of spatial development, the assessment and modeling of effects from the use of various resources to achieve the set goals should be based on the comparison of costs and the result obtained, expressed in a single measurement system. The proposed approach to the formation of financial balances of territories on the basis of the System of National Accounts has all the possibilities to display both incoming flows of financial resources (management impact in financial terms) and the result obtained (changes in the movement of financial flows in the management object). The considered specificity of different territories and their associations leads to the understanding that for each management object it is necessary to take into account exactly those financial flows, which are targeted by the management impact itself. If for macroregions the key direction of efficiency is declared to be the strengthening of interregional cooperation, then the modeling of effects should be based on the study of interrelations between the constitute entities of the Russian Federation. Input-output tables are most suitable for this purpose. If we talk about urban agglomerations, the strengthening of interaction between the municipalities included in them implies the assessment of effects for all territories of the "core" and "periphery", expressed in some economic indicators (value added, average wages, revenues and expenditures of municipal budgets, etc.), characterizing the success of spatial development. For these purposes, we have proposed to form individual and consolidated financial balances of territories, providing for the possibility of modeling inter-municipal flows. Single-industry towns characterized by crisis phenomena in most spheres, from the point of view of financial balances can be considered as an isolated territory with the construction of dynamic series of formation, distribution and use of value added in the municipality, as well as the allocation of external flows. Any impact in the financial dimension on the economic development of a single-industry town due to simple economic interrelationships is displayed in financial balances with a small lag, allowing us to develop a tool for modeling the efficiency of spatial development.

Since the scientific novelty of our study is the methodological justification of tools for assessing the effectiveness of spatial development with the possibility of developing a single modeling tool,

the arguments and conclusions described above characterize the general design of using the methodology of the System of National Accounts in the formation of financial balances of territories. To demonstrate the possibilities of the presented methodology, we offer practical calculations of financial balances of a number of single-industry towns in the Sverdlovsk Oblast, performed in aggregate form for 2020. The above calculations show the structure of formation, distribution and use of value added of single-industry towns, as well as the scale and directions of capital outflow/inflow, which made it possible to highlight the existing imbalances in the economic development of territories. To work out an applied tool for modeling the effectiveness of decisions made, it is necessary to disaggregate the balances and construct them for a certain period of time, which will help to assess the effects of financial investments in certain activities and serve as a basis for future research.

In general, further expansion and adaptation of financial balances of territories of different levels to specific management objectives is a rather labor-intensive task, but it forms new opportunities for assessing financial and economic mechanisms of development, expanding the ideas about the interrelationships of economic development of territories.

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Financial Well-Being of Older Adults: Theoretical and Methodological Aspects and Assessment Issues

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Abstract. The tasks to promote active ageing and a prosperous old age, laid down in Russia's program and strategic documents (federal project "The Older Generation", "Strategy of Actions in the Interests of Citizens of the Older Generation in the Russian Federation until 2025", etc.), can be addressed effectively only if financial well-being has been achieved. The aim of the study is to reveal theoretical and methodological foundations of the financial well-being of older adults, reflected in foreign and domestic scientific discourse. The article presents a theoretical and methodological framework for the financial well-being of older adults, and provides its preliminary assessment in the case of older adults in the conditions of Russian reality. As a result of a critical analysis of the scientific literature, we show that the concept "financial well-being" is commonly used in foreign scientific discourse, but it is not widespread in Russian research. We highlight general aspects of financial well-being: good current financial situation; financial stability in relation to shocks; confidence in the security of the future. We put forward a set of indicators to assess the financial well-being of older adults based on data from the All-Russian Survey of Consumer Finance – 2022 (a survey conducted by the Ministry of Finance of the Russian Federation and the Bank of Russia). We apply sociological analysis methods (descriptive analysis, frequency distribution analysis using combination tables). It is revealed that older adults feel more prepared for possible financial shocks, which is facilitated by the orientation toward savings practices and low credit activity. We identify

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the following sore spots: older adults are more concerned about the likelihood of money shortage, and they also do not feel confident in the sufficient financial security of their future. At the end of the article, we outline promising areas for research.

Key words: financial well-being, older adults, pension, sociological survey, income, planning.

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Introduction

Currently, one of the main demographic trends observed not only in Russia, but also worldwide[1], is the population aging, which is expressed in an increase in the share and number of older adults in its age structure. As of 2022, the share of Russians over working age was 25.2%. According to Rosstat demographic forecast, by 2036 it will be at least 24%, with a simultaneous reduction in the share of the population below working age to 14% (18.7% in 2022) and an increase in the share of working-age people to 62% (56.3% in 2022)[2].

In Russia, the tasks of ensuring a high standard of living and quality of life for the older adults, comprehensive maintenance and development of its human potential form the basis of the most important program and strategic documents regulating the issues of socio-economic and demographic policy (federal project "The Older Generation"[3], "Strategy of Actions in the Interests of Citizens of the Older Generation in the Russian Federation until 2025"[4], Presidential Decree 204, dated May 7, 2018 "On national goals and strategic objectives of development of the Russian Federation for the period through to 2024", etc.). In these documents, the concept of "active aging" is the basis of the policy related to the older adults[5]. It is widely used in research and expert discourse along with such concepts as "successful aging", "prosperous aging", "productive aging", "harmonious aging", "healthy aging", etc.[6] (Kalachikova et al., 2023). According to the analytical report on the project "Concept of Active Aging Policy in Russia", prepared by the HSE University, active longevity is "a state of social, economic, physical and psychological well-being of older adults, which provides them with the opportunity to meet their needs, inclusion in various spheres of society and is achieved with their active participation"[7].

[1] The UN estimates that in 2020 the number of people aged 60 and over surpassed the number of children under 5, and that between 2015 and 2050 the proportion of the world's population over 60 will almost double from 12% to 22% See: Ageing and health. 2022. Available at: https://www.who.int/news-room/fact-sheets/detail/ageing-and-health (accessed: August 28, 2023).

[2] Demographic forecast up to 2035. Rosstat. Available at: https://rosstat.gov.ru/folder/12781 (accessed: August 28, 2023).

[3] Passport of the federal project "Development and implementation of a program of systemic support and improvement of the quality of life of citizens of the older generations". Available at: https://mintrud.gov.ru/ministry/programms/demography/3 (accessed: August 28, 2023).

[4] On Approval of the Strategy of Actions in the Interests of Citizens of the Older Generation in the Russian Federation until 2025: Government Resolution 164, dated February 5, 2016. Available at: https://mintrud.gov.ru/ministry/programms/37/2 (accessed: August 28, 2023).

5 For example, the "Strategy of Actions in the Interests of Citizens of the Older Generation in the Russian Federation until 2025" notes that "The result of the Strategy implementation is the creation of conditions for the *active aging* of senior citizens, which will improve the level and quality of life of such citizens".

[6] Ovcharova L.N., Morozova M.A., Sinyavskaya O.V. (Eds.) (2020). Active Aging Policy Concept. In: *Scientific and Methodological Report to the 21st April International Scientific Conference on the Problems of Development of Economy and Society, Moscow, 2020.* Moscow: Izd. dom Vysshei shkoly ekonomiki. P. 4.

[7] Ibidem. P. 7.

It is important to realize that "the development of the potential for successful and active aging is possible only under the condition of a socially acceptable standard of living of older adults"[8]. This standard of living implies the achievement of economic independence, financial freedom and resilience to shocks, the ability to fully and freely meet their own (current and future) needs. In the foreign scientific and expert field, these characteristics are often summarized in the category of "financial well-being" (Brüggen et al., 2017).

International surveys prove that people are seriously concerned about their own financial situation. According to the surveys, in 2020, on average across OECD[9] countries, 66.5% of respondents were concerned to some degree about their household finances and overall economic well-being over the following two years. More than half of respondents (58.7%) were anxious about fully paying for all their expenses. In the long term (on the horizon of the following decade), risk perceptions are also financially centered – more than 70% of respondents were worried about financial security in old age[10].

Nationwide sociological surveys conducted in Russia also reveal a high level of concern among the population about their own economic situation. According to FOM surveys[11], for many years, in addition to fear for their children (grandchildren), for the health of their relatives and their own health, Russians have been experiencing great fears about the lack of money (34% in 2015, 31% in 2022). This assessment is more typical for the population of young and middle age (18–30 years – 35%; 31–45 years – 35%) than for older adults (over 60 years – 23%). In the country as a whole, concern about rising prices and impoverishment of people (39% in 2015, 40% in 2022) is at the top of the list, with the urgency of this problem being emphasized annually by representatives of all age groups.

Broadly speaking, the financial well-being of older adults is included in many concepts of active and healthy aging. In particular, the World Health Organization (WHO) concept of active aging, which is based on three pillars (health, social participation and security), is inextricably linked to the financial situation of the population through indicators of work activity and financial security[12]. The active ageing approach promoted by the Australian Department of Health and Ageing, in addition to social, mental and physical activity and participation in the workforce, also involves ensuring the financial security of older adults[13]. According to the UN Decade for Healthy Ageing 2020–2030, which continues the traditions of the WHO Global Strategy on Ageing and Health and the Madrid International Plan of Action on Ageing, the social and economic resources and opportunities available to people throughout their lives are important for living well into old age, as

[8] Ovcharova L.N., Morozova M.A., Sinyavskaya O.V. (Eds.) (2020). Active Aging Policy Concept. In: *Scientific and Methodological Report to the 21st April International Scientific Conference on the Problems of Development of Economy and Society, Moscow, 2020.* Moscow: Izd. dom Vysshei shkoly ekonomiki. P. 28.

[9] Main Findings from the 2020 Risks that Matter Survey. Chapter 1. Taking the pulse of OECD countries. OECD Report. Available at: https://www.oecd-ilibrary.org/sites/b9e85cf5-en/1/3/1/index.html?itemId=/content/publication/b9e85cf5-en&_csp_=3bd26a099e8ba997c4158500e11028fe&itemIGO=oecd&itemContentType=book#section-d1e711 (accessed: August 28, 2023).

[10] Ibidem.

[11] See: People's anxieties and fears (dated February 11, 2022). FOM. Available at: https://fom.ru/Nastroeniya/14685 (accessed: August 25, 2023).

[12] The Australian Government Department of Health and Ageing by the Healthpact Research Centre for Health Promotion and Wellbeing, A Review of the Literature on Active Ageing, Canberra, Australia, 2006. Cited by: (Kalachikova et al. 2023, p. 28).

[13] Active Ageing: A Policy Framework (2002). Geneva: World Health Organization. Available at: https://iris.who.int/bitstream/handle/10665/67215/WHO_NMH_NPH_02.8.pdf?sequence=1&isAllowed=y (accessed: October 13, 2023).

they influence the ability to make good health choices and help to maintain a full and active life in older age[14].

Several international indices are used to monitor progress toward the goals of active and healthy aging. The best known of them are the Active Ageing Index, the Global AgeWatch Index, the Natixis Global Retirement Index, the Wellbeing in Later Life Index (WILL) (Pavlova et al., 2021). Measurement is carried out with the help of specially developed indicators and indicators that characterize various aspects of well-being of older adults. Economic (material) well-being is mainly assessed through quantitative indicators (retirement income, old-age poverty rate, credit burden, accumulated wealth, GDP per capita, relative income level of older adults, etc.) and indicators of sufficiency of available resources (e.g., the share of older adults who do not experience severe material deprivation when purchasing certain products, goods and services). Integral indices are convenient and effective measurement tools, and the better the components are developed, the more reliable the assessment will be.

Given the orientation of many program documents related to older adults on the successful and active aging, which implies, among other things, a secure and economically independent life in older age, we believe it is possible to use the category of "financial well-being" as an integral element in assessing the overall well-being and quality of life of older adults. The importance of measuring this category increases in the context of modern challenges for the economy and social sphere, manifested in the growth of expenditures on pensions, medical and social services; the increasing role of older adults in the sphere of consumption; the expansion of opportunities for investing money; the development of formats for providing financial and social services in the context of widespread digitalization, etc.

The aim of the research is to reveal theoretical and methodological foundations of financial well-being of older adults, presented in foreign and Russian scientific discourse. We pay attention to theoretical and methodological aspects of studying the financial well-being. In particular, we consider the views on the essence of the category "financial well-being"; identify the factors promoting the formation of financial well-being and systematize approaches to its assessment; summarize the features of financial well-being of older adults, identified by foreign researchers. The second part of the article is devoted to empirical testing of the possibility to assess the financial well-being of older adults on the basis of Russian data. In the case of the All-Russian household survey on consumer finances, conducted on the initiative of the Ministry of Finance of the Russian Federation and the Bank of Russia, we assess how older adults perceive their financial well-being, how they plan expenditures, save and invest free funds, and how they cope with financial shocks.

Research methods and information base

In the research, we used a set of general and special methods of scientific knowledge. The solution of the problem related to the systematization of theoretical and methodological aspects of studying the financial well-being of population was based on the application of general scientific methods: generalization, comparison, analysis and synthesis of scientific literature, and open sources. The main pool was formed from English-language publications, since the search in the Russian bibliometric system (eLibrary) did not yield relevant results.

We carried out the realization of analytical tasks to assess the financial well-being of older adults using the methods of sociological analysis

[14] Decade of Healthy Aging for the period 2020–2030. UN. Available at: https://cdn.who.int/media/docs/default-source/decade-of-healthy-ageing/final-decade-proposal/decade-proposal-final-apr2020-ru.pdf?sfvrsn=64fd27ba_4 (accessed: October 13, 2023).

(descriptive analysis, frequency distribution analysis using combinational tables).

The empirical basis for assessing the financial well-being of older adults was formed by the data of the All-Russian Household Survey on Consumer Finances – 2022[15]. The project has been implemented since 2013 every two years. The first four waves were organized by the Ministry of Finance of Russia, and the fifth wave (the survey in 2022) was organized by the Bank of Russia. The coordination and implementation of all waves of the survey, including fieldwork, is carried out by OOO "Demoscope". In 2022, 6,081 households were interviewed, including 12,162 respondents living in 32 constituent entities of Russia.

"Old age" is a static concept. The measure of "old age" is determined by some conventional age boundary. There are many age classifications, each of them distinguishes different periods and boundaries of stages of human life, including old age, but in most of them the lower boundary of old age is 60 years (Barsukov, Kalachikova, 2020). In this study, we will take into account not only the demographic criterion, but also the legal one. Taking into account that many strategic documents and measures of social support are differentiated by age, to identify older adults we will be guided by the retirement age, which in Russia in 2022 is 56.5 years for women and 61.5 years for men. Accordingly, the volume of the analyzed sample, including only older adults (women from 56 years, men from 61 years), is 4,331 people, and the volume of the sample of the rest of the population is 7,831 people. Data processing was performed in SPSS.

Financial well-being: conceptualization, operationalization, factors

In foreign scientific literature, the category of financial well-being is given much attention (Kaur et al., 2021), including in relation to the situation of older adults (Ching Yuen Luk, 2023; Xue et al., 2020). In Russian research practice, this discourse is virtually absent, and more traditional is the reference to the level and quality of life of older adults (Barsukov, Kalachikova, 2016; Aizinova, 2017; Shabunova, Rossoshanskii, 2018; Burtseva et al., 2019), their well-being (Pavlova et al, 2021), health status and labor activity of older adults (Korolenko, Barsukov, 2017; Barsukov, Shabunova, 2018), prevalence of active aging practices, motivations and barriers to their implementation (Korolenko, 2022), social policy in terms of ensuring high quality of life and well-being of older adults (Barysheva, Nedospasova, 2017; Dobrokhleb, 2021).

The concept of "well-being" includes elements that ensure an individual's ability to live a full-on life (Ryazantsev, Miryazov, 2021, p. 6). Usually five aspects of well-being are distinguished: physical, material, social, emotional, development and activity. These aspects can be reformulated as physical health, income and well-being, social relations, work and free time, absence of depression (Kislitsyna, 2016). A similar approach is used in the Gallup-Healthways Global Well-being Index[16], which includes five dimensions of well-being: 1) physical (good health and sufficient energy to carry out daily activities); 2) economic/financial (managing the economic situation to reduce stress and increase security); 3) social (feeling safe and proud to belong to a community); 4) social (having support and love); and 5) success (the relationship between daily activities and motivation to achieve goals). In this study we consider financial well-being as a constituent element of higher-level well-being – economic well-being.

[15] All-Russian Household Survey on Consumer Finances. Central Bank of the Russian Federation. Available at: https://www.cbr.ru/ec_research/vserossiyskoe-obsledovanie-domokhozyaystv-po-potrebitel-skim-finansam/ (accessed: August 14, 2023).

[16] Country Well-Being Varies Greatly Worldwide. Gallup. Available at: https://news.gallup.com/poll/175694/country-varies-greatly-worldwide.aspx (accessed: August 28, 2023).

The categories of standard of living, quality of life, socio-economic status, and well-being, which are adjacent to well-being, essentially characterize the same object – human life. In most "strategic documents, ratings, results of scientific research of social orientation, the terms "well-being" and "quality of life" are used interchangeably and considered as indicators for assessing the effectiveness of public policy on governance and development of society" (Burtseva et al., 2019, p. 6). These categories are complex, include a variety of elements (material provision, employment characteristics, health status, comfort and security of living, social relations, social activity, etc.), and to fully describe them, not only quantitative socio-economic indicators, but also non-material indicators (self-assessment of opportunities, satisfaction with aspects of life, happiness, well-being, etc.) are often used.

The results of the review of works by Russian authors show that the category of "financial well-being" has not been widely used in the study of the socio-economic situation of older adults (*Tab. 1*). Usually, when assessing well-being, active aging or quality of life, Russian researchers operate with indicators that characterize the level of income

Table 1. Approaches of Russian researchers to assessing well-being of older adults

Authors	Components of quality of life / well-being / longevity of older adults	Indicators characterizing the economic situation
T.A. Burtseva, N.Yu. Chausov, S.N. Gagarina (Burtseva et al., 2018)	Quality of life of older adults: 1. Quality of life of older adults: 2. Level of well-being of older adults 3. Quality of social sphere of older adults 4. Quality of labor sphere of older adults	The component "Level of well-being" is characterized by the following indicators: – volume of paid social services provided to older adults and disabled citizens per capita; – real size of minimum wage; – assessment of "very poor" by pensioner households of the condition of the housing they occupy; – share of older adults who participated in any recreational activities; – share of older adults who participated in any sporting activities
E.V. Vasil'eva (Vasil'eva, 2022)	Active aging index: 1. Health 2. Labor activity 3. Security	The component "Safety" is characterized by the following indicators: – ratio of the average pension to the pensioner's subsistence minimum, times; – replacement rate
G.L. Voronin, V.Ya. Zakharov, P.M. Kozyreva (Voronin et al., 2018)	Subjective well-being of older adults: 1. Financial means (income and wealth, work and earnings, housing conditions). 2. Quality of life (health, work-life balance, social connections, civic responsibility, environment, safety)	The component "Financial means" is characterized by the following indicators: – household aggregate net disposable income per person; – level of individual income of each family member; – average monthly income per employee; – satisfaction with labor remuneration; – housing costs
I.A. Pavlova, E.A. Monastyrnyi, I.V. Gumennikov, G.A. Barysheva (Pavlova et al., 2018)	Russian Elderly Well-being Index (REWI): 1. Economic dimension 2. Social dimension 3. Health 4. Regional space and state provision	The component "Economic dimension" is characterized by the following indicators: – actual amount of pensions assigned; – ratio of the average size of assigned pensions to the subsistence minimum; – share of working population over the working age; – availability of any paid work in cash or in kind in the past week (at least 1 hour); – job satisfaction on eight dimensions, including earnings
Source: own compilation based on scientific literature analysis.		

and consumer opportunities of older adults; slightly less often the assessment is supplemented with an indicator of satisfaction with the income received.

As we have already noted, foreign studies reveal a higher level of interest in the problems of financial well-being (Kaur et al., 2021; Wilmarth, 2021). Several terms are used, sometimes interchangeable with financial well-being – financial health, financial satisfaction, financial comfort, financial stability, but in most works the authors operate with the concept of well-being (*Tab. 2*). Initially, financial well-being was understood as general satisfaction with the financial situation, but later its interpretation went beyond the assessment of the current financial situation by including such aspects as perception of financial opportunities, feeling of economic sustainability, confidence in financial security in the future, etc. (Porter, Garman, 1993).

Table 2. Definitions of the category "financial well-being"

Authors	Interpretation	Comment
N.M. Porter*; W. Vosloo, J. Fouche, J. Barnard (Vosloo et al., 2014)	Financial well-being can be defined as objective and subjective aspects that allow forming a person's opinion about their financial situation	Financial well-being as a reflection of financial situation without specifying financial security, freedom and future
United Nations Secretary-General's Special Advocate for Inclusive Finance for Development – UNSGSA**	Financial health, or well-being, is a new concept that looks at the financial side of the ability of individuals and families to thrive in society	
R.G. Netemeyer, D. Warmath, D. Fernandes, J.G. Lynch (Netemeyer et al., 2018)	Financial well-being includes: 1) current money management stress (CMMS); it is a feeling of anxiety about current financial situation and inability to manage one's money, meet one's financial obligations effectively and live the life a person wants to live; 2) expected future financial security (EFFS) is a vision of a financially secure future and the achievement of future financial goals.	A broader view of financial well-being than the previous one, as it is supplemented by an assessment of the financial future
E. Kempson, A. Finney, C. Poppe (Kempson et al., 2017)	Financial well-being determines the extent to which a person is able to comfortably meet all their current obligations and needs, and has the financial strength to sustain this in the future	The most comprehensive view of financial well-being; these definitions include the parameters of current situation and day-to-day financial management, financial freedom and sustainability in the present, financial security in the future
E.C. Brüggen, J. Hogreve, M. Holmlund, S. Kabadayi, M. Löfgren (Brüggen et al., 2017)	Financial well-being is the perception of the ability to maintain a desired standard of living, maintain current economic potential, and increase one's financial freedom in the future	
L. Riitsalu, R. Sulg, H. Lindal, M. Remmik, K. Vain (Riitsalu et al., 2023)	– Feeling good about personal financial situation and being able to afford the desired lifestyle now and in the future; – maintaining one's current lifestyle and achieving the desired lifestyle in the future, including being able to meet necessary expenses and obligations, ideally being able to afford whatever a person wants to do	
Consumer Financial Protection Bureau – CFPB***	Financial well-being is a state in which a person can fully meet current financial obligations, feels secure in the future, and is able to make choices that allow them to enjoy life	

* Porter N.M. (1990). Testing a model of financial well-being (Doctoral thesis). Available at: https://vtechworks.lib.vt.edu/handle/10919/39899 (accessed: September 4, 2023).
** Financial Health: An introduction for financial sector policymakers. (2021). UNSGSA Financial Health Working Group. Available at: https://www.unsgsa.org/publications/financial-health-introduction-financial-sector-policymakers (accessed: August 28, 2023).
*** CFPB Financial Well-Being Scale: Scale development technical report. (2017). Consumer Financial Protection Bureau. Available at: https://www.consumerfinance.gov/data-research/research-reports/financial-well-being-technical-report/ (accessed: August 28, 2023).
Source: own compilation based on the scientific literature analysis.

The above opinions clearly show that there is no single approach or universal scientific concept of financial well-being in the foreign literature. *However, we can emphasize some general aspects of its essence: good current financial position; financial stability to shocks; confidence in the security of the future*. We should emphasize that in the literature we have studied there is no specific definition or approach to the conceptualization of financial well-being in relation to specific groups of the population (for example, large families, workers in any industry, older adults, etc.).

As Table 2 shows, with all the variety of interpretations of financial well-being, their semantic differences are minimized and mostly relate to the details. In most foreign studies, the definition proposed by the Consumer Financial Protection Bureau (CFPB) is taken as a basis, as it is convenient for operationalization and best reflects the elements of financial well-being of an individual: the ability to control daily and monthly finances (daily financial management); the ability to overcome financial shocks caused by unforeseen life events (financial stability); the ability to achieve financial goals and have financial freedom[17]. In this study, we also focus on the outlined approach.

Financial well-being, as a complex multidimensional phenomenon, is *assessed through various objective and/or subjective indicators*, which have both direct quantitative expression and are a projection of individual's perception of his or her own financial situation. *Objective indicators* characterize quantitative aspects of financial situation (income, family size, amount of funds on bank deposit, credit load, etc.), and also allow describing financial knowledge and practices of the population (budgeting, planning purchases, knowledge of signs of financial fraud, etc.). *Subjective indicators*, such as satisfaction with the amount of savings for old age, sufficiency of formed financial reserves, propensity to impulse purchases, etc., characterize personal and behavioral features of individuals. A number of authors prefer objective indicators, others use subjective measures determined by means of Likert scales, dichotomous variables, sociological indices, and others combine both variants of assessment (Riitsalu et al., 2023). On the one hand, the subjective approach is good as it reflects people's perceptions and values better than objective indicators. On the other hand, the assessment by objective measures is more thorough and reasoned in terms of developing measures of financial well-being (Riitsalu et al., 2023). However, it is the subjective approach that researchers most often turn to, as it provides a more meaningful insight into the financial well-being (*Tab. 3*).

The multidimensionality of the category "financial well-being" itself leads to the identification of a large list of factors affecting it, from external conditions (level of development of financial markets, state guarantees, economic and political stability in the country, social support system, inflation rate, cultural and religious traditions, etc.) to individual factors (socio-demographic characteristics of individuals, development of social contacts, behavioral characteristics: comparison with others, level of trust, openness and receptivity, etc.). The identification of factors largely depends on the research objectives and details of the survey instrument. Foreign publications most often track such factors of financial well-being as financial capability, financial knowledge (or in a broad sense – financial literacy) and financial behavior (as a record of experience of past behavior or behavioral intentions) (Kaur et al., 2021; Riitsalu, Murakas, 2019; Xiao, Porto, 2017).

A large body of research touches upon a variety of behavioral factors. In particular, the influence of a person's attitude to money on the formation of

[17] CFPB Financial Well-Being Scale: Scale development technical report. (2017). Consumer Financial Protection Bureau. Available at: https://www.consumerfinance.gov/data-research/research-reports/financial-well-being-technical-report/ (accessed: August 28, 2023).

Table 3. Methodologies for assessing the financial well-being (within the framework of the subjective approach)

Authors	Methodology description
A. Gutman, T. Garon, J. Hogarth, R. Schneider (Gutman et al., 2015)	Financial health is assessed by a broad list of questions on four different topics: managing daily finances, resilience, ability to capitalize on opportunities, financial attitude
Consumer Financial Protection Bureau – CFPB*	Financial well-being is measured by four components: – daily financial management; – financial stability; – ability to meet financial goals; – feeling of financial security about the future. The questions used are: "How well does this statement describe you or your situation?" (5-point scale from "completely" to none); "How often does this statement apply to you?" (5-point scale from "always" to "never"). Examples of statements are the following: 1. I can cover major unforeseen expenses. 2. Due to my financial situation, I feel like I will never have what I want in life. 3. I'm worried that the money I have or save won't be enough. 4. Giving a gift for a wedding, birthday or other occasion will put a strain on my finances for that month.
E. Kempson, A. Finney, C. Poppe (Kempson et al., 2017)	Financial well-being is measured in three components: – financial obligations (active savings, spending limits, and plan monitoring), – financial comfort (freedom to spend, confidence to enjoy money instead of financial stress), – financial strength (the ability to cope with unforeseen circumstances without borrowing or selling assets at an unfair price). Examples of questions are: 1. How often do you lack money for food or other regular expenses? (frequency scale). 2. Which of the following statements best describes how well you are able to pay your bills and credit obligations right now? ("without any difficulty"; "it's a struggle from time to time"; "it's a constant struggle"). 3. How confident are you about your financial situation in the next 12 months? (5-point scale from "not at all confident" to "rather confident"). 4. If your income dropped by a quarter, for how many months could you cover all your expenses without having to borrow?
O. García-Mata, M. Zerón-Félix, G. Briano (García-Mata et al., 2022)	The Financial Well-Being Index is calculated according to nine components; the index is based on dichotomous variables; includes objective and subjective measures; does not take into account variables related to the emotional state caused by personal financial management The questions are: 1. Insurance – "Do you have any type of insurance, such as automobile, home, life, health, or other insurance (independent of Social Security and Medicare provided by the government)?" 1 = Yes, 0 otherwise. 2. Retirement – "Do you plan to cover your expenses in your senior years with funds you receive from a pension fund, a private pension plan, or a fund managed by an institution specializing in retirement?" 1 = Yes, 0 otherwise. 3. Budget – "Do you keep a budget or record of your income and expenses?" 1 = Yes, 0 otherwise. 4. Liquidity – "In the previous year, have you saved money at home?" 1 = Yes, 0 otherwise. 5. Goals – "Do you usually set long-term economic goals and strive to achieve them?" 1 = always, sometimes; 0 = rarely, never. 6. Urgent Need – "If you had a need today to make a purchase equal to what you will earn or receive in a month, would you be able to pay for it with your savings?" 1 = Yes, 0 otherwise. 7. Затраты – «Достаточно ли за последний год того, что вы зарабатывали или получали каждый месяц, чтобы покрывать ваши текущие расходы?» 1 = Да, 0 в противном случае. Costs – "Over the previous year, is what you earned or received each month enough to cover your current expenses?" 1 = Yes, 0 otherwise. 8. Resources – "In the previous year, did you save money when buying goods?" 1 = Yes, 0 otherwise. 9. Capital – "Do you own a house or apartment?" 1 = Yes, 0 otherwise.

End of Table 3

Authors	Methodology description
J. Fu (Fu, 2020)	Financial well-being is measured by five components: 1) income and expense balance; 2) establishing and maintaining reserves; 3) debt management; 4) planning; 5) stability to financial shocks. Self-assessments on a Likert scale and binary questions (yes/no) are used. The composite measure of financial well-being is calculated by aggregating component scores. It is scaled from 0 to 100 for ease of interpretation. *Panel A. Income and expense balance sheet.* "I worry about paying for ordinary everyday expenses" (scale from "strongly agree" to "strongly disagree"). "Sometimes people find that their income does not quite cover their living expenses. In the previous 12 months, has this happened to you personally?" (yes, no, don't know) *Panel B. Creation and maintenance of reserves.* "If you lost your main source of family income, how long could your family continue to meet living expenses without borrowing money or moving to a new home?" (less than a week; less than a month; 1 to 3 months; at least 3 months but not more than six months; more than six months; difficult to answer) *Panel C. Manages debt and access to resources.* "I have too much debt right now" (scale from "strongly agree" to "strongly disagree"). "What did you do to make ends meet the last time your income did not fully cover your daily expenses?" (used an outside resource; paid expenses later or waived part of the expenses). *Panel D. Planning and prioritization.* "My financial situation limits my ability to do the things that are important to me" (scale from "strongly agree" to "strongly disagree") "How confident are you that you have done a good job of making financial plans for retirement?" (scale from "very confident" to "not at all confident" and no retirement plan, difficult to answer). "How will you fund your retirement?" (unable to specify any method at all; plan to rely solely on partner/spouse/children; any other formal method). *Panel E. Managing and recovering from financial shocks.* "I am satisfied with my current financial situation" (scale from "strongly agree" to "strongly disagree"). "If you were personally faced with a major expense today (equivalent to your own monthly income), would you be able to pay it without borrowing money or asking family or friends for help?" (yes, no, don't know).

* CFPB Financial Well-Being Scale: Scale development technical report. (2017). Consumer Financial Protection Bureau. Available at: https://www.consumerfinance.gov/data-research/research-reports/financial-well-being-technical-report/ (accessed: August 28, 2023).
Source: own compilation based on the scientific literature analysis.

financial well-being is shown: people with a proactive approach (preference for savings rather than spending; avoidance or minimal use of loans, etc.) tend to be more financially satisfied (Joo, Grable, 2004). Other works reveal the relationship between financial well-being and an individual's financial inclinations (such as materialism, willingness to take risks, delaying rewards, conscientiousness, time orientation, self-control). It has been found that individuals who are willing to sacrifice immediate gratification for future needs and emphasize long-term financial planning are more financially satisfied and experience less current stress from money management (Netemeyer et al., 2018). It has also been shown that a lack of self-control, manifested by impulsive behavior and deviation from plans, leads to undesirable financial behaviors (overspending, late credit card payments, etc.) with subsequent negative outcomes for financial well-being (Strömbäck et al., 2017).

Features of financial well-being of older adults (foreign experience)

Financial skills and needs change with age, so it is important to understand the characteristics of financial well-being in different age groups. Foreign

publications present contradictory data on the relationship between age and financial well-being of the population. Some researchers have found that it has a U-shape: higher financial well-being among young people and older adults, lower in middle age (Riitsalu, Murakas, 2019; Xiao, Porto, 2017). Other authors have found that financial well-being increases with age (Fu, 2020), while others have found that it becomes lower in older age groups (García-Mata et al., 2022).

Despite the ambiguous assessment of financial well-being at older ages, most foreign studies prove that older adults paradoxically experience higher financial satisfaction at relatively low income levels (Hansen et al., 2008). To elucidate the reasons for this, authors have examined the relationship of older adults' financial well-being with factors such as labor and retirement trajectories (Palomäki, 2019), various income variables (Hsieh, 2004), life satisfaction, mental health, and retirement satisfaction (Wilkinson, 2016). For example, Fan and Lei's work explored the relationship between objective and subjective aspects of financial well-being and symptoms of depression in elderly Chinese based on a longitudinal study in health and retirement. Objective financial well-being was measured by two indicators – expenditure to income ratio and financial assets ratio. The perception of money management difficulties was used to measure subjective financial well-being. According to the results of correlation analysis, the authors found that both objective and subjective financial well-being have an impact on the manifestation of depression symptoms: a high expenditure-to-income ratio and the perception of difficulties in money management increase the manifestation of depression, while the financial assets ratio has the opposite effect (Fan, Lei, 2023).

Life-cycle concept studies are widespread. In particular, Madero-Cabib and Fasang studied the financial well-being of German and Swiss retirees, taking into account work-family trajectories, early life trajectories, and the characteristics of individuals' interactions with the pension system (Madero-Cabib, Fasang, 2016). The results show lower individual retirement income for all work-family profiles that deviate from the standard male model of full-time employment combined with two children and stable family relationships. The authors also argue for the importance of studying longer periods of the life course, not only events close to the retirement transition, as determinants of financial well-being in old age.

Interesting results are presented in the work of Estonian scientists (Riitsalu et al., 2023), based on data from semi-structured interviews. It was determined that people of pre-retirement and retirement age understand financial well-being primarily as financial independence from others, a situation when all their needs are met ("Financial well-being is when there is enough money for all my needs. Let us say there is enough money for traveling, living and buying things") (Riitsalu et al., 2023). The second mandatory component is the ability to financially support one's close relatives. Another element some older interviewees mentioned was having "funeral money" (Riitsalu et al., 2023). The formation of financial well-being, as noted by respondents, is based on labor activity and options of medical and social security. The authors conclude that financial well-being in the perception of older adults is the ability to maintain their current lifestyle, which implies "making ends meet" without stress and a sense of confidence in their personal finances. For them, financial well-being does not imply wealth, but includes financial freedom and independence, interpreted as not needing someone else's financial support for the rest of one's life, including the ability to cover one's own funeral expenses (Riitsalu et al., 2023).

As an example of research on the financial well-being of older adults at the national level, we can cite the work of the U.S. Consumer Financial Protection Bureau. Older Americans were found

to have higher average financial well-being than younger adults. Low financial well-being is characteristic of those seniors who unexpectedly lost their jobs or significantly reduced their working hours, did not plan for retirement (did not participate in pension programs), live without other household members, provide financial support to close relatives, have debts on credit cards or for educational and mortgage loans, and have poor health. Higher rates of financial well-being among older Americans are correlated with having a defined contribution retirement plan, owning real estate or having low rent payments for housing, having financial support from family and friends, high levels of financial literacy, and regular savings and shopping planning[18].

Financial well-being of older adults in Russia: preliminary assessment

In the framework of the study we follow the approach to the understanding of financial well-being presented in the reports of the U.S. Consumer Financial Protection Bureau (CFPB) and the works of some scientists (Riitsalu, Fu, Kempson, Strömbäck, etc.), as it is universal for any population group, suitable for operationalization and allows assessing not only the current financial situation, but also the possibilities of achieving financial security in the future and the perception of financial freedom. Accordingly, financial well-being is considered as a state in which a person can fully fulfill current financial obligations, freely achieve their financial goals, overcome financial shocks, and feel safe in the future.

In Russia, the most detailed and diverse in terms of the list of questions related to the financial activity of the population is the All-Russian Household Survey on Consumer Finances – 2022 (Ministry of Finance, Bank of Russia, Demoscope). It is impossible to exactly copy any of the methodologies for assessing financial well-being studied in the foreign literature, so at this stage we will try to construct a set of indicators that will help to assess the financial well-being of older adults in the most comprehensive way. The proposed assessment design is of exploratory nature – it will allow assessing the completeness of the available database of sociological data on the financial well-being, to identify "stagnant" components and "nonworking" questions.

The assessment will be guided by the subjective approach and methodologies presented in the works of the U.S. Consumer Financial Protection Bureau (CFPB)[19] and (Fu, 2020)[20]. Accordingly, the selected questions are designed to capture individuals' perceptions of objective facts and actual financial practices (savings, credit, etc.; household budgeting), as well as feelings about the stability and security of their financial situation. The questions are organized into five components: 1) income and expense balance; 2) establishing and maintaining reserves; 3) debt management; 4) planning and prioritizing; and 5) managing and recovering from financial shocks. The highlighted components correspond to the key aspects of financial well-being identified above (daily financial management, financial sustainability; financial freedom in meeting needs; feeling financially secure about the future). A detailed list of assessed components of financial well-being and a set of indicators is given in *Table 4*.

[18] Financial Well-being of Older Americans. (2018). Consumer Financial Protection Bureau. Available at: https://www.consumerfinance.gov/data-research/research-reports/financial-well-being-older-americans/ (accessed: August 31, 2023).

[19] See: CFPB Financial Well-Being Scale: Scale development technical report. (2017). Consumer Financial Protection Bureau. Available at: https://www.consumerfinance.gov/data-research/research-reports/financial-well-being-technical-report/ (accessed: August 28, 2023).

[20] Evaluation methodology proposed in (Fu, 2020) is based on that of the U.S. Consumer Financial Protection Bureau (CFPB) and is characterized by more detailed components and questions.

Table 4. Measuring financial well-being

Component of financial well-being	Coding and question wording from the All-Russian Household Survey on Consumer Finances – 2022	Answers
Component 1. Income and expense balance	(K84) How stable was your monthly income during the year?	Scale from 1 to 5 (1 – "Completely unstable"; 2, 3, 4 – no decoding given; 5 – "Completely stable")
	(M7_1) How often do you personally buy things that are not necessary for you, and then find yourself running out of money for food or other urgent regular spending?	Never; Rarely; Occasionally; All the time; Hesitate to respond
	(T12) Does your household keep a written record of income and expenses?	Yes, a complete written record of income and expenses is kept; Yes, some written records are kept, but far from complete; No, no written records are kept; Hesitate to respond
	(L1_5) You are just making ends meet (How accurately the statement describes you or your life situation)	Absolutely not; Only a little; To some extent; Quite accurately; Completely; Hesitate to respond
Component 2. Establishing and maintain reserves	(Y6_1) You try to save money for the future	It is definitely about me; It is probably about me; It is more like not about me; It is definitely not about me; Hesitate to respond
	(Y6_2) You try to set aside money, even a small amount, on a regular basis	
	(L1_6) You are concerned that you will not have enough money that you have or that you will save (How accurately does the statement describe you or your life situation)	Absolutely not; Only a little; To some extent; Quite accurately; Completely; Hesitate to respond
	Availability: – cash savings (P14_1), – account/deposit (P10_1), – insurance policy (life P41_1, ДМС P41_3)	Yes: No; Hesitate to respond
Component 3. Debt management	(P9_1) Do you personally have unpaid consumer loans?	Yes: No; Hesitate to respond
	(P13_1) Do you currently owe any amount of money to private individuals?	
	(C3_1) Do you personally currently have unpaid loans from a pawn shop or microfinance organization?	
Component 4. Planning and prioritization	(L1_2) Do you personally currently have unpaid loans from a pawn shop or microfinance organization?	Absolutely not; Only a little; To some extent; Quite accurately; Completely; Hesitate to respond
	(Y8) What time period do you mostly take into consideration when (you/you and your family) plan how much money to set aside and how much to spend?	Not more than a month; Next few months; Next year; Next 5–10 years; More than 10 years; Timing is not important as we are not planning at all; Hesitate to respond
	(P9_7) Do you accumulate personal savings mainly to spend them in the next few months or for long-term purposes: as a "safety cushion", for life after retirement, for children's education, buying an apartment, etc.?	For the next months; For long-term goals; No savings; Hesitate to respond
Component 5. Managing and recovering from financial shocks	(Y6_3) You always try to have at least some amount of money for unexpected expenses, just in case	It is definitely about me; It is probably about me; It is more like not about me; It is definitely not about me; Hesitate to respond
	(K93) Do you think your financial situation is stable or could your financial situation easily be shaken, deteriorate?	Steady; Could easily deteriorate; Hesitate to respond
	(L1_1) You can handle large unexpected expenses (How accurately does the statement describe you or your life situation?)	Absolutely not; Only a little; To some extent; Quite accurately; Completely; Hesitate to respond
Source: hereinafter – own compilation.		

Component 1: Income and expense balance (*Tab. 5*). Older adults, unlike young and middle-aged people, more often indicates high stability of income (which, among other things, is ensured by the regularity of various social payments), as well as more prudent approach to purchases, less often allowing unnecessary spending. However, such a fundamental aspect of financial literacy, and therefore financial well-being, as keeping records of income and expenditures in writing, is a neglected practice among all the groups under consideration. In addition, older adults have a slightly worse sense of current financial sustainability: one in five (20%) agree with the statement that they "make ends meet" (among young and middle-aged it is 16–17%).

Component 2. Establishing and maintaining reserves (*Tab. 6*). Older adults are more oriented toward saving practices, as evidenced by the high share of respondents stating that they try to save money for the future and regularly put aside even a small amount in savings. The role here is played not only by the narrowing of material opportunities or the motive of "saving for a rainy day" or for expensive medicines, but also by the stereotypical attitude about the narrowing of claims and needs in old age, and, consequently, the reduction in the volume of consumption of goods. Despite this, about one third of respondents in each age group are concerned about the probable lack of money at the right time.

In fact, the savings orientations of older adults are manifested in the formation of savings in cash (21% of respondents from this group noted the presence of this form of savings) and in the form of bank deposits (68%). In contrast to elderly, people of young and middle age to a greater extent prefer organized forms of savings (deposits – 75–78%, cash – 11–15%). Investment and insurance products

Table 5. Income and expense balance*, % of number of respondents in the respective group

Respond option	Older adults	Rest of the population	
		Up to 30 years old	Over 30 years to retirement age
Income stability			
Completely stable	74.7	39.5	49.6
2	0.8	5.2	3.8
3	6.0	17.5	15.1
4	16.2	22.0	25.3
Not stable at all	0.5	8.3	3.4
Thoughtless purchases leading to a shortage of money			
Permanently	1.5	2.5	2.0
Time to time	8.8	21.9	15.8
Rarely	24.8	30.2	32.9
Never	62.8	41.3	47.4
Written accounting of income and expenses			
Yes, a complete written record of income and expenses is maintained	3.7	2.8	2.9
Yes, some kind of written record is kept, but it is far from complete	8.5	8.8	9.3
No, no written records are kept	86.3	84.9	86.7
"You are just making ends meet"			
Absolutely not	35.3	39.7	39.0
Only a little	15.5	15.6	16.0
To some extent	26.5	24.7	25.6
Quite accurate + Completely	20	16	16.8

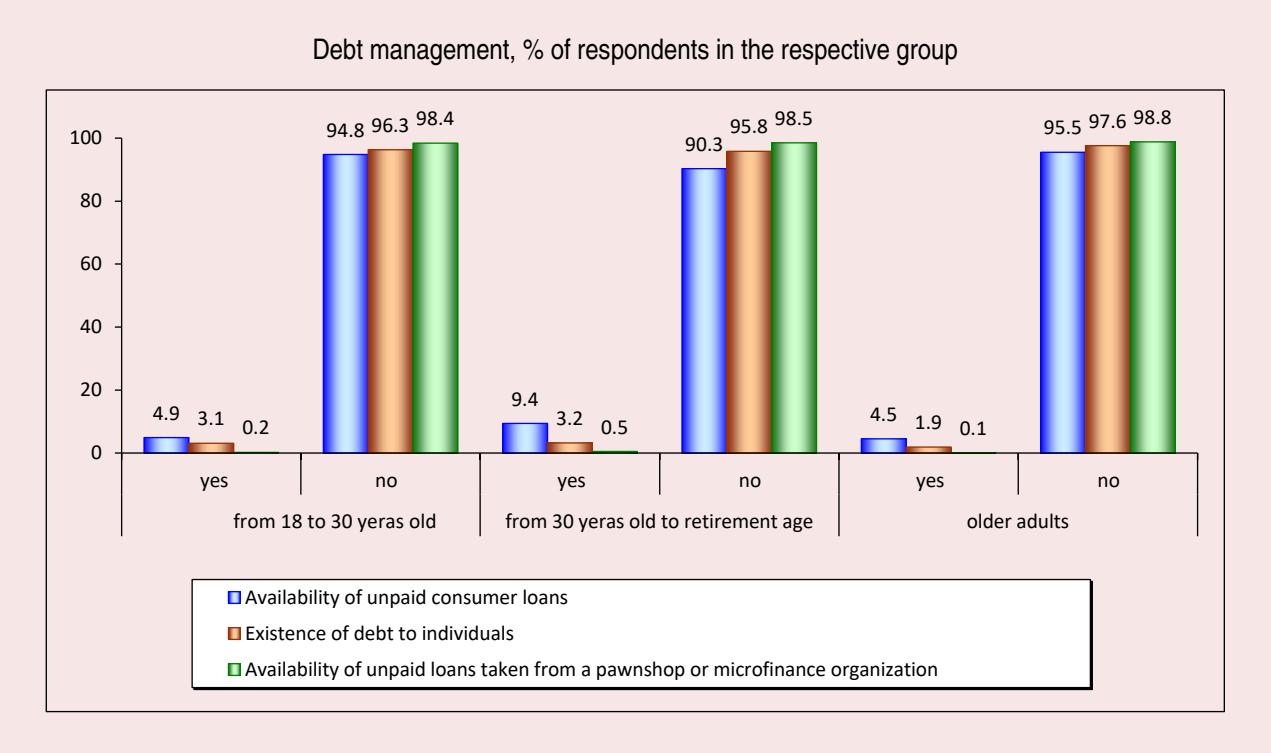
* Hereinafter the answer options "Hesitate to respond", "No answer", "Refuse to answer" are not given, which in total do not exceed 3%.

Table 6. "Establishing and maintaining reserves", % of number of respondents in the respective group

Respond option	Older adults	Rest of the population	
		18–29 years old	Over 30 years to retirement age
"You are trying to save money for the future"			
It is definitely about me + It is probably about me	65.8	42.4	54.5
It is more like not about me + It is definitely not about me	32.5	55.9	43.9
"You try to set aside money on a regular basis, even a small amount"			
It is definitely about me + It is probably about me	61.9	40.5	52.5
It is more like not about me + It is definitely not about me	36.2	57.2	45.9
"You're concerned that you won't have enough money that you have or that you will save"			
Absolutely not	14.1	13.0	11.2
Only a little	16.7	17.7	18.4
To some extent	34.9	37.5	37.2
Quite accurate + Completely	30.8	27.5	29.9

(life insurance policy and VHI medical insurance policy) are used by no more than 2–3% of respondents in each group.

Component 3. Debt management (*Figure*). Older adults in Russia are usually less involved in debt relations due to various restrictions of banks and narrower consumer demands. However, the available survey data do not show any noticeable difference with the rest of the population, nor do they suggest that there is any critical situation with the use of credit, loans from private individuals or microfinance organizations by senior Russians.



Component 4. Planning and prioritization (*Tab. 7*). Older adults, as well as people of young and middle age, do not feel strong confidence that they can secure their financial future. Probably, that is why financial planning practices are focused on the short-term period (for the nearest couple of months), and every fifth person in all age groups does not think through his/her actions in principle. However, among older adults, there is a noticeably higher share of those who form savings for the long term, rather than for soon-to-be acquisitions (26% compared to 9% among young people and 15% in the middle-aged group).

We should note that the all-Russian survey used, unfortunately, does not allow retrospectively assessing the strategies of preparation for life in retirement (nly those who have not yet reached retirement age answer the questions about the sufficiency of the state pension and possible sources of income at an older age).

Component 5. Managing and recovering from financial shocks (*Tab. 8*). In terms of preparedness to financial shocks, older adults have the best characteristics. There is a higher share of people who have a reserve for unforeseen expenses (the insurance motive characteristic of older age groups), as well as those who consider their financial situation to be quite stable. However, in a hypothetical situation of large unforeseen expenses middle-aged people feel more confident.

Brief summary of the assessment. The proposed research design allows for a very detailed assessment of the financial well-being of older adults, and integrates the assessment of objective (availability of deposits and loans; budgeting) and subjective (feeling of stability and sufficiency of funds, etc.) indicators. Some questions on financial well-being proved difficult for respondents (the majority of respondents either found it difficult to answer or chose a neutral option). In addition, the database

Table 7. Planning and prioritization, % of number of respondents in the respective group

Respond option	Older adults	Rest of the population	
		Up to 30 years old	Over 30 years to retirement age
"You are securing your financial future"			
Completely + Quite accurate	12.7	13.3	16.7
To some extent	32.6	27.4	35.6
Only a little	28.0	21.8	23.7
Absolutely not	23.6	34.3	22.1
Financial planning interval			
No plans at all	18.3	20.3	17.8
No more than a month	34.2	33.7	31.6
In the next few months	31.6	25.6	30.2
The nearest year	11.1	12.1	14.3
Next 5–10 years	2.1	2.6	3.0
More than 10 years	0.2	0.1	0.2
Expenditure period of accumulated savings			
For the next few months	16.2	17.6	17.7
For long-term goals	26.1	9.2	14.9
No savings	53.6	70.9	64.1

Table 8. Managing and recovering from financial shocks,
% of number of respondents in the relevant group

Respond option	Older adults	Rest of the population	
		Up to 30 years old	Over 30 years to retirement age
Availability of contingency reserve			
It is definitely about me + It is probably about me	73.5	54.7	65.8
It is more like not about me + It is definitely not about me	24.8	43.2	32.8
Stainability of financial position			
Stable	32.0	22.3	21.3
Could easily worsen	61.5	68.0	71.4
"You can handle large unexpected expenses"			
Absolutely not	34.6	38.2	26.8
Only a little	24.6	20.1	21.9
To some extent	30.4	29.1	37.8
Quite accurate + Completely	7.3	9.6	10.9

capabilities do not allow for a broad consideration of such aspects as preparation for retirement, financial planning and experience in achieving financial goals, financial well-being and attitudes, financial fraud and financial security rules, and use of digital financial services. In the case of developing a full-fledged methodology to assess the financial well-being of older adults, the list of variables should be checked for redundancy and multicollinearity.

Conclusion

Sustainable financial well-being is the ultimate goal of the OECD initiatives in the field of financial education[21], as well as the target benchmark and "measure of success" of the Russian Government's activities to improve financial literacy of the population within the framework of the Strategy of the same name[22]. Low financial well-being can have serious negative consequences for households and overall well-being. At the individual level, it is associated with an increased likelihood of material hardship, inability to fully meet needs, etc.[23] At the macro level, it can manifest itself in a decrease in overall consumption, increased dependence of the population on social support, expansion of poverty in the country, etc. (Brenner et al., 2009). (Brenner et al., 2020).

Addressing the problem of financial well-being has shown that this category is familiar in foreign scientific discourse, but it is not widespread in Russian studies. At the same time, tracking the financial well-being of older adults, along with monitoring of financial literacy and financial behavior, is important for a number of reasons. First, financial well-being represents a comprehensive assessment of the financial situation of individuals, being the resultant outcome of their application of financial knowledge and skills to solve certain financial issues. Second, financial well-being can

[21] Measuring financial literacy: Questionnaire and guidance notes for conducting an internationally comparable survey of financial literacy (2011). OECD – International Network on Financial Education, Paris. Available at: http://www.oecd.org/finance/financial-education/49319977.pdf (accessed: August 28, 2023).

[22] Strategy for Improving Financial Literacy in the Russian Federation for 2017–2023: approved by the Russian Government Order 2039-r, dated September 25, 2017. Government of Russia. Documents. Available at: http://government.ru/docs/29441/

[23] Financial well-being: The goal of financial education. Consumer Financial Protection Bureau (CFPB). Available at: https://www.consumerfinance.gov/data-research/research-reports/financial-well-being/ (accessed: August 28, 2023).

be considered as an element of the assessment of living standards and used as an indicator of the effectiveness of social policy. Third, financial well-being can be used to characterize the availability of financial instruments and identify problematic aspects of the population's interaction with financial institutions.

The study shows that the financial well-being of the population is in many respects a synthetic, multidimensional category, which is characterized by some general aspects (good current financial position; financial stability to shocks; confidence in the security of the future). There is no specific definition and methodology for measuring financial well-being in relation to specific population groups (e.g., older adults, etc.). Financial well-being is assessed by means of objective and subjective indicators, which have both direct quantitative expression and are a projection of an individual's perception of their own financial situation.

We substantiate that it is impossible to fully transfer foreign methods of assessing the financial well-being to the Russian data. We propose a set of indicators that allows conducting a preliminary (exploratory) assessment of financial well-being of older adults in comparison with other age groups. The selected indicators reflect individuals' perception of objective facts and real financial practices (availability of savings, loans, etc.; family budgeting), as well as people's feelings about stability and security of their financial situation.

The data of the All-Russian Household Survey on Consumer Finances – 2022 shows that older adults are more oriented toward savings practices; they are more prudent in their approach to purchases, less often making unnecessary expenditures; they are more responsible for the formation of financial reserves. At the same time, they save slightly more money in cash than young and middle-aged people; are more concerned about the probable shortage of cash at the right time, as well as do not feel confident in sufficient security of their financial future.

The scientific novelty of the work consists in clarifying the theoretical and methodological framework of financial well-being and the possibility of using this category to assess the standard of living of older adults in Russian conditions. *The practical significance* lies in identifying the peculiarities of financial well-being of older adults and determining their specific financial competencies and attitudes, so that it would be possible, first, to identify the vulnerable places in the financial well-being of this age group; second, to outline recommendations for the actors responsible for implementing policies in the field of financial education and improving the standard of living of older adults (which is planned to be implemented at the next stages of the research).

The main directions for further consideration of this issue are related to clarification of the content of the phenomenon under consideration, expansion of opportunities for its more detailed assessment (including in terms of differentiation of the constituent elements of financial well-being depending on the age group of older adults, since the costs of maintaining health, the level of income and opportunities for labor activity differ significantly between persons aged 65 and 80 years); identification of factors affecting the formation of financial well-being of the population.

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Identifying Regional Foci of Potential Geopolitical Activity on the Basis of Demographic Scale Effect

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Abstract. Within the framework of the article, we assess regions and countries that in the future may become new foci of economic and civilizational activity. This issue is relevant because many countries are now witnessing the exhaustion of demographic growth opportunities, which in turn will hinder intensive economic growth in them. To address the issue, we propose a two-stage econometric modeling procedure. The first econometric dependence links population growth rate with total fertility rate, and the second dependence reveals the impact of economic, institutional and cultural factors on fertility rate. Empirical testing of models was performed for a sample of 15 countries (Russia, Ukraine, Kazakhstan, Kyrgyzstan, France, Germany, Iran, Japan, China, Mexico, Egypt, Great Britain, USA, Canada and Australia) and showed high productivity and invariance of the proposed model scheme. Based on the constructed models, we put forward several quantitative characteristics of national demographic regimes. The most important

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of them is the long-term demographic effect of scale, taking into account the reaction of the population to the growth of per capita welfare. Applied calculations show that the U.S. still has the potential to maintain its growth regime for quite a long time, while China, Japan and Germany have almost exhausted this resource. The most likely foci of a new round of development of human civilization may be Russia, Kazakhstan and Iran, which, taking into account neighboring countries, form a kind of regional cluster in the center of Eurasia. It is in this area of the planet that we should expect the greatest economic and political activity in the next two to three decades.

Key words: economic growth, demographic regime, birth rate, econometric model.

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Introduction

The year 2022 witnessed the onset of an active phase of de-globalization with its inherent geopolitical turbulence. During this period, many countries that are more or less under pressure exerted by the world hegemon (the United States) are beginning to use the increasing uncertainty for defending their political sovereignty and strengthening their geopolitical and economic positions. The world's former monocentricity is being replaced by multipolarity, as new regional centers of power are emerging. The countries that will manage to "ride" the wave of changes will later exit the periphery and semi-periphery and join a group of states at the core of the world economic system. And vice versa – some core countries may find themselves on the sidelines of world history. In this regard, new national geopolitical strategies based on available civilizational advantages in the context of international confrontation are becoming particularly relevant. Russia, which finds itself in the epicenter of global events, is facing the most urgent need for a new geopolitical course.

The unfolding events highlight with unprecedented clarity the importance of the size of countries, because only large ones will be able to take a worthy position on the world stage. In turn, the size of the country is traditionally expressed by two parameters –territory and population. All other economic indicators are derived from these two, so there emerges a new round of competition for two fundamental parameters. Today, the old consensus on national borders is already being denied and processes are being launched to revise them. This has happened in Iraq, Syria, Georgia, Armenia and Azerbaijan, it is happening in Ukraine; many Eastern European nation-states engage in covert fighting for part of western Ukraine, Transdniestria and even Moldova. On the other hand, the demographic factor has already fully manifested itself: the most populated territories – China, India and the USA – are the most powerful countries. It is already quite clear that in the future the increase in a country's power will largely be determined by its reserves in the development of the territory and population growth. However, the situation is complicated by the fact that in relation to the first and second factors, many countries have already completely or almost completely exhausted their potential. At this point of analysis lies a research intrigue: which countries and which regions of the world still retain the potential of demographic and economic activity. In this regard, the goal set in the article is to identify regional foci and countries that

preserve civilizational development potential. The methodology of our study is based on constructing econometric models of population growth, determining reproduction regimes established in different countries, and assessing the demographic scale effect indicator designed for these purposes.

The aim of the study involves solving the following tasks: formally determine the demographic effect of scale using econometric models; construct indicators of demographic regimes based on the constructed models; carry out applied calculations using the models based on data for 15 countries; determine the potential of future economic growth for the counties under consideration.

Review of the literature and key ideas

The volume of literature on demography is truly limitless; therefore we will focus only on certain milestones of this scientific direction.

Apparently, the first step in the creation of the population theory was the historical work of Th. Malthus (Malthus, 1992), according to which the supply of income decreases due to delaying marriage (preventive checks) and increasing the death rate (positive checks) due to lower wages. However, the simplest Malthusian model poorly described the real course of subsequent events, and the next milestone in the description of economic growth was R. Solow's neoclassical model (1956), in which the role of regulator of economic activity shifted to capital and the rate of accumulation. Despite the differences in the initial assumptions of the Malthusian and neoclassical models, the mechanisms they describe are very similar. G. Becker showed quite clearly that in the above models there is a kind of symmetry of the mechanisms that restore economic equilibrium: if in the neoclassical model the capital ratio exceeds the equilibrium level, then the rate of return decreases and weakens the incentives to invest, thereby contributing to the return of capital ratio to its original equilibrium; if in the Malthusian model wages exceed the equilibrium level, then this stimulates population growth, which, in turn, causes a shortage of investments and restores the initial wage and capital endowment (Becker, 1988). Subsequently, the population theory was enriched with the concept of human capital, which became a new milestone in the study of economic dynamics (Becker, 1988).

A different line in the study of population dynamics can be seen in the works of S.P. Kapitsa, who built a phenomenological theory of human growth based on a simple dependence of population size on time in the form of a diffusion differential equation, the solution of which is provided by specific functions: logistic function and cotangent (Kapitsa, 2009). Despite careful calibration, Kapitsa's model does not include any growth factors, and therefore provides a very primitive explanation for the mechanism of expansion of human population. In this sense, the Kapitsa model has extremely limited usage – for tracking population growth on a global scale and over a very long time interval with its subsequent stabilization.

Malthus' ideas were further developed in the models describing the functioning of an ecological and economic system with the participation of the population and its resource-ecological basis (Lee, 1980; Wood, 1998). Recently, interesting models of this type have been built by P.V. Turchin, who considers the dynamics of the elite (consumers) and commoners (producers) against the background of state resources (budget) (Turchin, 2020). Turchin's models are distinguished by the fact that they undergo careful calibration on historical data and are already being used to forecast large-scale political upheavals (Turchin, 2023).

In addition to the above population models, which are focused on revealing historical patterns over long time intervals, there exist a number of more specific model developments with an emphasis on identifying human population growth factors over shorter time intervals. Here the list of

indicators acting as determinants is quite extensive and diverse and includes both external (global) and intracountry factors (Biryukova, Kozlov, 2023). In particular, global factors that have a reactive effect on population decline include various kinds of epidemics and pandemics, mass migration, military conflicts and natural disasters. For example, according to the World Health Organization, the number of deaths from coronavirus infection amounted to 6.9 million people[1], and the latest earthquake in Türkiye in 2023 alone reduced the population by more than 50 thousand people[2]. Studies of epidemiological shocks have shown that they can have a delayed effect and affect not only demography (Boberg-Fazlic et al., 2021; Chandra, Yu, 2015; Rangel et al., 2020), but also other spheres of human life – from the economy (Karlsson et al., 2014) and education (Percoco, 2016) to the level of public trust (Aassve et al., 2020) and the impact of stressful situations experienced in childhood on demographic indicators in the future (Noghani-Behambari et al., 2020; Johnson et al., 2020). Currently, a large number of works consider the impact of the COVID-19 pandemic on demographic aspects, but it is too early to draw unambiguous conclusions, since measures to counteract the pandemic itself in many countries were combined with unprecedented socio-economic support, which makes it difficult to determine its consequences (Vakulenko et al., 2022; Kazenin, Mitrofanova, 2023; Emery, Koops, 2022; Sobotka et al., 2022).

The range of internal demographic factors is represented by a fairly extensive list, including the influence of economic and social aspects (Semeko, 2021; Khasanova, Zubarevich, 2021; Butz, Ward, 1979; Sobotka et al., 2011; Dzhioev, Caberty, 2021; Aassve et al., 2020; Charles-Edwards et al., 2021; Ullah et al., 2020), and a wide palette of cultural cross-section, which can include the institution of family (Arkhangelskiy, Zayko, 2022; Bessonova, 2020; Ibragimova, Ildarkhanova, 2021; Galoyan et al., 2021), religion (Buber-Ennser, Berghammer, 2021; DeRose, 2021; Herzer, 2019), effects of age, period of life and social cohort (Vakulenko, 2023; Frantsuz, Ponarin, 2020) and other indicators (Kalabikhina, Kuznetsova, 2023).

The latest work of this type of research is the article (Balatsky, Ekimova, 2023), which reveals the cumulative influence of institutional, economic and cultural factors on population growth. It is this very model that will be the basis for further empirical research. This choice is due, at least, to the following circumstances: first, the dependence of population growth on sufficiently mobile factors that comprehensively reflect deep shifts in the social nature of the nations and counties under consideration; second, the opportunity to rely on such a relatively new concept as the demographic scale effect, which means the ability of the population to increase in response to an increase in welfare. Thus, economic and demographic growth are either consistent if there is a demographic scale effect, or inconsistent if there is no such effect. Accordingly, in the first case, we can talk about the presence of the potential for further growth of the nation and the state, and in the second – about its absence.

Research methodology

To determine the demographic potential of different countries and parts of the world we will use simple econometric models that help to establish population reproduction regimes that have developed over the past 15–30 years. To do this, we will use the approach tested in (Balatsky, Ekimova, 2023). The essence of this approach lies in constructing two econometric dependencies. Let us consider their structure in more detail.

[1] See: https://www.rbc.ru/society/13/05/2023/645cb6969a7947b6fba130a6

[2] See: https://www.mk.ru/incident/2023/04/05/turciya-obnovila-dannye-po-chislu-pogibshikh-izza-zemletryaseniya.html

The first econometric model sets the mode of population growth depending on birth rate and can be represented by the following linear dependence:

$$P_t = \alpha + \beta \times B_t + \gamma \times F_t, \quad (1)$$

where t – observation period (year); P – "net" population growth rate, i.e. actual population growth minus migration growth, which is the difference between the number of those who arrived in the country and those who left it in the current year; B – birth rate, which uses the traditional total fertility rate, showing how many children on average one woman would give birth to throughout the entire reproductive period (15–50 years old) while maintaining the age of fertility at the level of the year for which the indicator is calculated; F – dummy binary variable that takes the values 0 and 1 and is intended for technical calibration of the model; α, β and γ – model parameters.

The second econometric model reflects the birth rate regime depending on the main economic, cultural and institutional factors and can be represented by a linear autocorrelation dependence of the following type:

$$B_t = n + mB_{t-1} + a \times L_{t-v} + \\ + b \times D_{t-w} + c \times Y_{t-h}, \quad (2)$$

where L – life expectancy at birth (number of years); D – divorce rate (number of divorces/number of marriages); Y – GDP per capita in comparable prices; v, w and h – lags in variables L, D and Y, respectively; n, m, a, b and c – model parameters.

Thus, we investigate a two-stage regime of population growth and assume that specifications (1) and (2) are sufficiently universal and can be applied to all the countries under consideration. An important advantage of model (2) consists in a balanced set of factors: determinant L takes into account the effectiveness of social institutions, D – the culture of family relations, and Y – the achieved level of economic welfare. Thus, institutions, culture and economy are present as explanatory variables in model (2) (Balatsky, Ekimova, 2023).

Here and further we will proceed from the fact that the parameters of the models are sufficient for a complete understanding of the demographic regimes established in the countries under consideration. At the same time, it is also quite obvious that models (1) and (2) cannot be used directly for a correct comparison of different countries; to do this, it is necessary to construct additional demographic indicators on their basis. In the future, three such indicators will be used in applied calculations; let us look at them in more detail.

The first indicator assumes assessing the *stability of the demographic growth regime*; we can use the traditional half-life indicator for its quantification. In this case, we mean taking into account the nature of the autocorrelation mode of birth rate, which is characterized by parameter m in model (2). Then half-life period θ is estimated by the formula:

$$\theta_i = -ln2/lnm_i, \quad (3)$$

where i – index of the analyzed country.

In this case, the value θ shows how many years later the initial birth rate will decrease by half in the absence of the influence of all other reproductive conditions[3]. The greater the value θ, the longer the self-sustaining fertility effect lasts. We note that indicator (3) imposes a natural restriction on econometric dependence (2): $\theta > 0$. This automatically puts forward a requirement for the corresponding model parameter: $m < 1$; otherwise, there is not a damping, but a self-reinforcing mode, which does not make economic sense.

The second and, perhaps, the most important indicator of demographic growth is the indicator of

[3] Instead of (3), we can use a simplified formula: $\theta = -0.693/ln(m_i)$.

demographic scale effect (E), which refers to the ability of the population to increase with the growth of welfare. To construct the specified indicator, the following formula can be used:

$$E_i = c_i\beta_i(T - h_i)\,, \qquad (4)$$

where T – time horizon of the long-term estimation.

Let us explain formula (4). The meaning of the demographic scale effect implies assessing the degree of sensitivity of the population growth rate to changes in per capita GDP, i.e. $E = dP/dY$. Given that the population growth model consists of two econometric models (1) and (2), we obtain the ratio $E = (dP/dB)(dB/dY) = c\beta$. However, in model (2), indicator Y has time lag h, which may vary greatly for different countries. Consequently, the growth of per capita GDP does not affect population growth immediately, but with a significant and differentiated delay by country. This means that to measure the scale effect, we should switch from a point (short-term) value to an interval (long-term) one. For certainty, we will consider the 10-year effect: $T = 10$. Then the accumulated effect of the growth of per capita GDP over T years will be expressed by formula (4)[4]. In the case of $E > 0$, we will talk about the presence of a demographic scale effect; otherwise, this effect is absent. The greater the value of E, the greater the potential for population growth during economic growth and, consequently, the greater the overall potential for economic development of the country.

The third indicator of demographic potential is *the indicator of the population's welfare growth reserve R*:

$$R_i = Y_{USA}/Y_i\,, \qquad (5)$$

where Y_{USA} – reference (maximum) value of per capita GDP, for which the US level for the last year of observation (2021) is taken.

[4] This automatically follows from the generalized cumulative scale effect: $E = \sum_t^T E_t$.

The meaning of the demographic growth reserve R in formula (5) is extremely simple: how many times a country can increase its per capita GDP to reach the level of the USA, after which it is legitimate to expect a weakening of the influence of the welfare factor on the birth rate and, consequently, population growth.

Somewhat isolated, but no less important is another characteristic of the demographic regime – the critical value of birth rate B^*, which ensures *simple reproduction* of the population. This calculated value is obtained directly from model (1) at $P = 1$ for modes $F = 0$ and $F = 1$, respectively:

$$B^* = (1 - \alpha)/\beta\,, \qquad (6)$$

$$B^* = (1 - \alpha - \gamma)/\beta\,. \qquad (7)$$

Comparison of indicators (3)–(7) for different countries allows us to get a completely objective picture of civilizational growth potential for each of them. At the same time, it is obvious that these characteristics can "scatter" in different directions for different countries and thereby hinder simple and unambiguous conclusions. In such a situation, the procedure of aggregating private indicators into one composite index is often used, but in this case it is practically impossible due to their substantial incompatibility. As a more rational scheme of analysis, it is proposed to consider the "main" indicator – the demographic scale effect E – against the background of three other "auxiliary" indicators.

We should emphasize that the logic of all model constructions involves determining the *potential* economic and demographic growth of countries depending on their current situation. Of course, from this point of view, African countries, which are currently on the periphery of the world economic system, possess great potential. This approach is aimed at understanding the very ability of countries to grow in the course of economic growth, and this

ability is not typical for all countries today. The intrigue of analytical calculations lies in determining the potential of future activity of regional centers; the realization of the discovered potential lies at the heart of future geopolitical castling.

Initial data and statistical sources

Despite the presence of a considerable amount of data and arguments that allow us *a priori* to determine possible "growth points" of human civilization, it is still necessary to scan all possible demographic movements of the planet. All five continents, as well as the main cultures – Europe, Asia, Africa, Latin America, the post-Soviet space, the Anglo-Saxon states – should be in the spotlight. Of course, it is difficult to conduct a comprehensive monitoring of all countries; therefore, we will limit ourselves to the most representative members of the enlarged regions of the world.

A significant limitation in the selection of countries for our sample consists in the lack of statistics. For example, for a large number of countries, one or two indicators needed to build models (1) and (2) are missing. In this regard, the final set of regional groups of countries turned out to be as follows: the post-Soviet space is represented by four states – Russia, Ukraine, Kazakhstan and Kyrgyzstan; the sample of Asia is limited to three countries – China, Japan and Iran; when considering continental Europe, we limited ourselves to the two largest economies – France and Germany; Latin America is represented by one country – Mexico, and Africa – by Egypt; the Anglosphere is represented by four countries – the UK, the USA, Canada and Australia. We believe that the listed 15 countries are sufficient for system-wide diagnostics of the main zones of geopolitical activity.

When collecting data for models (1) and (2), we used mainly the statistical databases of the World Bank and the United Nations; in some cases they were supplemented with information from the official websites of national statistics of the countries under consideration.

Results of empirical calculations

The results of applied calculations for 15 countries for model (1) are presented in *Table 1,* for model (2) – in *Table 2*. When constructing country models (1), we used the following logic of applying dummy variables: for Iran, $F = 1$ for the failure of 1994, $F = 0$ for the rest of the years (since $F = 1$ neutralizes a single outlier, then the calculation of B^* for this regime was not carried out); for Japan, $F = 1$ for the growth regime ($P > 1$), $F = 0$ for the depopulation regime ($P < 1$); for Germany, $F = 1$ for the "tail" of the 20th century (1990–1996), $F = 0$ for the subsequent period.

In Tables 1 and 2, the value of the regression coefficients is indicated in curly brackets, and their t-statistics are in parentheses; in Table 2, the value of the time lag of the corresponding variable is indicated under t-statistics. The following characteristics of the model are indicated: n – number of observations (years); A – approximation error (in percent); R^2 –determination coefficient; DW – Durbin – Watson coefficient; h – Durbin's h-criterion used to test the hypothesis of auto-correlation of residues in models that include lag values of the resultant attribute as independent variables ($|h| < 1.96$). In Tables 1 and 2, the calculation results for Canada and Australia are highlighted in dark color, thereby demonstrating the unsatisfactory nature of the models constructed; the remaining models have fairly good statistical characteristics. For Canada, $\beta < 0$ occurs in model (1), which contradicts the a priori condition of the positive effect of birth rate on population growth; no experiments helped to eliminate the indicated contradiction. For Australia and Canada, $m > 1$ is observed in model (2), which also contradicts the a priori condition of the fading of the influence of the past period on the current values of the output variable; and in these cases, working with models

Table 1. Characteristics of econometric model (1) in the context of countries

Country	Years	Model parameters			Model characteristics	B^*
		A	β	γ		
Post-Soviet space						
Russia	1990–2021	0.977 (245.33)	0.014 (5.39)	–	n = 32; R^2 = 0.49; DW = 2.30; A = 0.16%	1.60
Kazakhstan	1991–2021	0.959 (56.27)	0.019 (2.76)	–	n = 31; R^2 = 0.21; DW = 2.13; A = 1.18%	2.20
Kyrgyzstan	1996–2021	0.993 (113.73)	0.007 (2.52)	–	n = 26; R^2 = 0.21; DW = 2.00; A = 0.43%	0.86
Ukraine	1991–2021	0.970 (231.65)	0.018 (5.86)	–	n = 31; R^2 = 0.54; DW = 1.80; A = 0.18%	1.65
Asia						
China	2001–2021	0.994 (607.79)	0.006 (5.92)	–	n = 21; R^2 = 0.65; DW = 1.53; A = 0.30%	0.98
Japan	1990–2021	0.986 (295.68)	0.009 (3.69)	0.003 (9.99)	n = 32; R^2 = 0.80; DW = 2.14; A = 0.07%	1.55 1.16
Iran	1991–2021	0.991 (222.40)	0.012 (5.97)	–0.049 (–6.21)	n = 31; R^2 = 0.68; DW = 1.74; A = 0.51%	0.73
Continental Europe						
Germany	1990–2021	0.969 (79.04)	0.022 (2.56)	0.008 (3.98)	n = 32; R^2 = 0.36; DW = 1.59; A = 0.23%	1.40 1.03
France	2007–2021	0.986 (132.32)	0.009 (2.33)	–	n = 15; R^2 = 0.30; DW = 1.55; A = 0.13%	1.53
Latin America						
Mexico	1991–2021	0.988 (383.86)	0.011 (10.19)	–	n = 31; R^2 = 0.78; DW = 1.78; A = 0.16%	1.14
Africa						
Egypt	1999–2021	0.990 (191.16)	0.009 (5.84)	–	n = 23; R^2 = 0.62; DW = 1.62; A = 0.09%	1.03
Anglosphere						
United Kingdom	1991–2021	0.990 (230.39)	0.010 (4.12)	–	n = 31; R^2 = 0.37; DW = 1.67; A = 0.86%	0.97
USA	1991–2021	0.982 (127.42)	0.014 (3.54)	–	n = 31; R^2 = 0.30; DW = 1.89; A = 0.20%	1.28
Australia	1990–2021	0.303 (4.48)	0.394 (10.83)	–	n = 32; R^2 = 0.80; DW = 0.73; A = 3.17%	1.76
Canada	2002–2020	1.048 (79.94)	–0.023 (–2.77)	–	n = 19; R^2 = 0.31; DW = 1.90; A = 0.23%	2.07

Compiled on the basis of own calculations.

Table 2. Characteristics of econometric model (2) in the context of countries

Country	Years	Model parameters					Model characteristics
		n	*m*	*a*	*b*	*c*	
Post-Soviet space							
Russia	1998–2021	2.470 (6.15)	0.712 (7.93)	−0.030 (−5.17) 1	−0.539 (−4.45) 3	2.36E − 05 (4.86) 3	n = 24; R^2 = 0.97; h = 0.089; A = 1.68%
Kazakhstan	1994–2021	4.539 (4.41)	0.403 (3.24)	−0.067 (−4.32) 0	0.872 (2.55) 4	7.16E − 05 (5.63) 2	n = 28; R^2 = 0.98; h = -0.112; A = 2.09%
Kyrgyzstan	1996–2021	6.558 (3.37)	0.303 (2.12)	−0.073 (−2.37) 0	−3.253 (−2.66) 6	2.66E − 04 (4.22) 0	n = 26; R^2 = 0.91; h = -0.190; A = 2.71%
Ukraine	1991–2020	1.124 (3.15)	0.710 (15.55)	−0.012 (−2.09) 1	−0.278 (−2.63) 1	1.99E − 05 (4.84) 0	n = 30; R^2 = 0.96; h = 1.911; A = 1.99%
Asia							
China	1995–2021	−4.284 (−4.59)	0.513 (3.64)	0.076 (4.88) 3	−2.244 (−4.32) 5	−2.00E − 05 (−2.25) 3	n = 27; R^2 = 0.87; h = -0.584; A = 2.42%
Japan	1991–2020	−2.362 (−3.08)	0.493 (3.64)	0.052 (3.65) 0	−1.078 (−3.34) 0	−2.20E − 05 (−2.96) 1	n = 30; R^2 = 0.88; h = 1.516; A = 1.32%
Iran	1998–2020	−0.350 (−2.07)	0.946 (15.65)	–	−0.954 (−4.74) 2	4.40E − 05 (5.55) 4	n = 23; R^2 = 0.93; h = 0.467; A = 1.64%
Continental Europe							
Germany	1999–2020	−5.420 (−4.81)	0.547 (4.24)	0.085 (4.89) 2	−0.558 (−3.48) 8	−1.00E − 05 (−2.50) 7	n = 22; R^2 = 0.95; h = 0.770; A = 1.12%
France	1999–2020	2.810 (3.25)	0.763 (6.95)	−0.036 (−2.76) 1	−0.272 (−1.96) 9	1.75E − 05 (2.55) 6	n = 22; R^2 = 0.91; h = -1.782; A = 0.83%
Latin America							
Mexico	1996–2020	1.942 (5.06)	0.740 (16.57)	−0.019 (−5.16) 1	−1.316 (−6.54) 3	1.29E − 05 (2.60) 6	n = 25; R^2 = 0.99; h = 1.161; A = 0.35%
Africa							
Egypt	1993–2020	5.670 (2.44)	0.843 (9.42)	−0.086 (−2.54) 1	−1.204 (−2.07) 1	1.10E − 04 (3.57) 2	n = 28; R^2 = 0.97; h = 0.620; A = 1.06%
Anglosphere							
United Kingdom	1999–2019	1.745 (2.80)	0.901 (9.44)	−0.030 (−3.19) 2	0.797 (2.73) 9	1.05E − 05 (2.31) 3	n = 21; R^2 = 0.93; h = -1.033; A = 1.34%
USA	1998–2021	3.095 (4.82)	0.980 (16.44)	−0.049 (−4.76) 0	0.813 (2.98) 4	6.00E − 06 (2.20) 0	n = 24; R^2 = 0.98; h = 0.507; A = 0.90%
Australia	1998–2020	7.382 (2.18)	1.019 (13.22)	−0.117 (−2.25) 1	0.771 (4.18) 5	4.02E − 05 (2.22) 0	n = 23; R^2 = 0.94; h = 1.215; A = 1.20%
Canada	1999–2020	2.552 (2.96)	1.177 (13.89)	−0.043 (−3.05) 2	0.087 (2.17) 1	1.23E − 05 (2.24) 1	n = 22; R^2 = 0.92; h = 0.846; A = 0.96%

Compiled on the basis of own calculations.

did not give a positive result. Thus, the models for Australia and Canada pass formal statistical tests, but do not meet the substantive requirements and must be recognized as degenerate; in the future they are excluded from the analysis.

Let us consider some characteristic results of the models constructed.

First, models (1) and (2) have shown their versatility. Thus, out of 15 countries, only three required the introduction of a dummy variable to calibrate the results; for the rest of the countries, model (1) is implemented in its "pure" form. Only in relation to Iran did model (2) give a deviation in the sense that parameter a turned out to be insignificant under all modifications of the econometric dependence. This means that at the current stage of development of the Islamic Republic of Iran, life expectancy of its population does not directly affect the birth rate.

Second, alongside the specification versatility in model (2), there is a great variety in the nature of the influence of three factors on birth rate, which is manifested in different signs of regression coefficients. For example, life expectancy factor has a beneficial effect on birth rate only in China, Japan and Germany; whereas in other countries it leads to a reduction in women's reproductive activity. We should note the symmetry in relation to the welfare level, which positively affects birth rate in all countries except China, Japan and Germany. This fact suggests that in these three countries, the financial factor has already lost its stimulating value and its role has shifted to the factor reflecting the general health status of the nation, which is shown by the indicator of life expectancy. Considering that life expectancy depends on the general institutional welfare of society (state of health, social security, public safety and observance of the law), we can say that for China, Japan and Germany economic (material) incentives for birth rate are already being actively replaced by institutional (organizational) ones. This circumstance clearly shows that these three countries are at a later stage of social evolution compared to the rest of the countries within the sample.

Third, there are traditional and nontraditional (abnormal) family models in the world. Calculations convincingly show that the culture of family relations can undergo a complete inversion over time. This follows from the fact that the increase in the divorce rate in all countries negatively affects the birth rate, whereas in Kazakhstan and the Anglo-Saxon countries – the UK and the USA (and with the above reservations in Canada and Australia) – this phenomenon has a stimulating effect. At first glance, this situation seems paradoxical and abnormal, but a completely natural explanation can be found for it. In Western countries, the institution of family is becoming increasingly weak, but even in its current weakened form restrains, rather than promotes, the reproductive imperatives of the female population. Currently, an interesting phenomenon has arisen – remarriage is accompanied by the birth of children, because joint children, rather than the children from previous marriages, are required to consolidate the new marriage. In this regard, there is a latent rule: the more marriages a woman enters into, the more children she gives birth to. Conversely, maintaining one marriage union does not contribute to the birth of a second or third child in an already established family. As a stylized example, the following real case from life in the United States[5] can be cited: a woman who is legally married gave birth to a child from another man and was ready to divorce for this man, and to give birth to one or two more children in a new marriage; however, the orthodox Jewish community to which this woman belonged prevented the implementation

[5] This case took place in California and was accompanied by a lengthy trial between its participants, because the preservation of the woman's previous marriage occurred against the background of a ban for the biological father of the child to participate in their life and fate. Thus, the struggle for the right to influence the fate of the child leads to conflicts and the desire to destroy the old marriage in favor of a new one.

of such a scenario, because the Jewish tradition requires the preservation of an already established family: pressure from the parents and relatives of both the woman herself and her husband outweighed her original desire. In this regard, countries within the Anglosphere provide a vivid example of a new family culture typical of the later stages of post-industrial society; the case of Kazakhstan requires separate consideration.

Fourth, among the sample countries, there is an extremely high differentiation in the sensitivity of birth rate to different groups of factors. For example, the sum of lags for all variables for Japan is 1 year, Ukraine – 2 years, Russia – 7 years, UK – 14 years, France – 16 years, and Germany – 17 years; the maximum difference between Germany and Japan is 17 times. Thus, Germany is characterized by an extremely retarded reaction to various incentives in relation to birth rate. No less impressive is the gap in the response to the material incentive. For example, the growth of per capita GDP in the United States immediately has a positive effect on the birth rate (in the current year, without lag), whereas in Germany – only after 7 years. It seems that Europe provides examples of the most conservative countries with regard to the impact on birth rate. In addition, there is another interesting pattern: the richest countries not only demonstrate a slower response to existing incentives, but they are characterized by lag inequality $w > h$, i.e. the population overlooks the influence of the cultural factor for a longer time, compared to the influence of the material factor; for "younger" countries, the situation is vice versa. This observation can be interpreted as follows: rich countries have already formed their culture and changes in it do not manifest themselves soon, whereas less rich countries are in the stage of cultural construction and the corresponding changes are noticed by the population much faster. With regard to the material incentive, everything is exactly the opposite: rich countries are more sensitive to it because of the high standard of living, while poor people with their low level of financial security may not react to its growth for longer, because small improvements do not change their lives dramatically.

Fifth, model calculations reject the common cliché that simple population reproduction requires birth rate at the level of two children in a family. As it turns out, this indicator (B^*) varies enormously across countries – from 0.7 in Iran to 2.2 in Kazakhstan, i.e. we see a threefold gap. These figures may seem unrealistic at first glance, but they are easily explained. To do this, we recall that model (1) is one-factor and, therefore, extremely simplified. Only in 7 out of 15 countries the coefficient of determination exceeds 0.5, which means that many circumstances affecting population growth are not taken into account. Suffice it to say that the same birth rate can be accompanied by a completely disparate population structure; it is the structural differences that determine the significant spread of the critical value B^*. Thus, the proportion of women relative to the proportion of men may vary greatly; the proportion of women of childbearing age in different countries may also vary significantly; no less strong are the discrepancies in the distribution of new and expectant mothers on the age scale. With equal values of B^*, these structural differences will give a completely different rate of population growth. The main thing is that different levels of B^* determine completely different demographic reserves of countries. For example, in Kyrgyzstan and Iran, even a sharp drop in the birth rate in the medium term may not cause a demographic collapse, whereas in Russia, Kazakhstan and Ukraine, any reduction in the birth rate is associated with the threat of depopulation of the nation.

All of the above indicates that the countries under consideration differ in "demographic age": some of them are capable of and ready for demographic expansion, while others have already passed this stage of their development.

Regional foci of potential geopolitical activity

Now let us find out which countries and regions can act as foci of economic and, as a consequence, geopolitical activity in the coming decades. We will use demographic indicators, which are summarized in *Table 3*; for the *E* effect, all values are reduced for convenience to one denominator (multiplier $E - 06 = 10^{-6}$). At the same time, the future geopolitical activity of a country depends on its size, which considerably limits the set of candidate countries.

A close study of Table 3 allows us not only to confirm certain traditional assumptions and provisions, but also to reject some of them. Let us consider this question in more detail.

First, China, the world's top economy, has already exhausted its potential and in the future its growth will not be able to last for too long. The growth of welfare in China leads to demographic compression, and taking into account the already accumulated population, other factors are unlikely to reverse this process. Thus, in the near future, we can say there might be a slowdown in the economic development of the Celestial Empire and stabilization of demographic processes in it. This aspect leads to the understanding that China is currently at the peak of its development, and further strengthening of its position will be insignificant and short-lived – no more than 10–15 years.

Second, the two most developed economies – the Japanese and the German – are also facing a situation that does not contribute to further demographic and economic growth. For Japan, given the density of its population, such a situation looks quite natural, while for Germany this conclusion is somewhat unexpected. Moreover, even in France, which is close to Germany in many aspects, the situation is fundamentally different – its demographic scale effect *E* is a positive value. In this regard, there are quite serious reasons to believe that the dynamism in the development of Japan and Germany will decrease in the future, and these countries may lose their leading positions in the world economic system. We do not intend to explain the fundamental demographic differences between Germany and France, but in this context we cannot but recall that after the Second World

Table 3. Characteristics of national demographic regimes

Country	Characteristics of a demographic regime		
	θ, years	*E*, conv. units	*R*, multiplicity factor
Japan	0.9	-1.8 E-06	1.6
China	1.0	-0.8 E-06	3.6
Germany	1.1	-0.7 E-06	1.2
Mexico	2.3	0.5 E-06	3.3
France	2.6	0.6 E-06	1.4
United Kingdom	6.6	0.7 E-06	1.4
USA	34.8	0.9 E-06	1.0
Russia	2.0	2.4 E-06	2.3
Iran	12.6	3.1 E-06	4.2
Ukraine	2.0	3.6 E-06	4.9
Egypt	4.0	8.3 E-06	5.5
Kazakhstan	0.8	10.7 E-06	2.4
Kyrgyzstan	0.6	20.5 E-06	13.2
Source: own calculations.			

War these countries found themselves in different camps: France was among the winners and retained its political sovereignty, while Germany lost it and faced all the implications thereof. A similar picture can be seen in the differences between Germany and the UK whose demographic parameters are even slightly better than those of France. It is possible that at present we are witnessing the long-term consequences of Germany's subordinate position in the world political hierarchy in the post-war period.

Third, we can already say with a high degree of confidence that the United States will remain a focus of significant geo-economic and geopolitical activity for a long time. Among Western countries, America holds the record value of the long-term scale effect against the background of the highest value of parameter θ among all countries in the sample. This means that the demographic growth regime established in the country is extremely stable – if it does not encounter negative extraordinary events, this regime will last for a long time. Thus, the United States will continue to play an important role in the global geopolitical system for the next 25–30 years.

Fourth, such diverse countries as Kyrgyzstan and Mexico fall into the group of states with questionable demographic potential. For example, Kyrgyzstan, in comparison with the United States, has a long-term sensitivity to welfare growth, almost 23 times higher, and a 13-fold comparative reserve for its growth, but the regime established in Kyrgyzstan is characterized by extreme instability against the background of its small territory. Consequently, Kyrgyzstan can essentially become a local focus of economic activity, but its impact on the world economic system will be hardly noticeable. As for Mexico, its demographic characteristics look more stable and reliable, but their scale is not impressive; therefore, this country is unlikely to become at least a regional driver of economic development in the future. Most probably, these countries will move in the economic wake of other regional leaders.

Fifth, among the countries in our sample, Russia, Kazakhstan, Ukraine, Iran and Egypt are clear contenders for the role of future regional foci of geopolitical activity. The first three make up the backbone of the post-Soviet space and could switch to revanchist strategies in the future; Iran and Egypt are literally at the start of their economic and geopolitical activity. Given the size of the territory and its development reserves, it is the countries of the post-Soviet space that have the most impressive potential for demographic growth with the subsequent increase in their geopolitical influence. However, it is also necessary to take into account the fact that the conclusions obtained are based on statistical data until 2021, whereas the special military operation that has unfolded on the territory of Ukraine since 2022 has "broken" its reproductive regime and, apparently, deprived it of any demographic and economic drivers for a long time. As for Iran and Egypt, they will undoubtedly become powerful regional leaders. This conclusion is supported by the high values of all three demographic indicators for these two countries.

The sample did not include countries such as Brazil, Argentina, Algeria and India, which can be considered as future regional drivers of geopolitical activity. However, there is reason to assume that their underestimation does not change much in our picture. Argentina and Brazil are most likely similar in their characteristics to Mexico, which means their activity in the future will be moderate. Algeria is most likely similar to Egypt and will complement it as a regional driver of Africa in the coming decades. As for India, its demographic growth has already reached its physical limit; if it continues, its productivity will be in great doubt. However, these are only preliminary theses that need careful empirical verification.

Summing up, we would like to point out once again that we are not talking about a forecast of how demographic and economic processes *will* proceed, but about how they *may* proceed based on the characteristics of each country. Naturally, there is no guarantee that the detected potencies will be realized. However, the presence of these potencies in the future will exert constant pressure in the direction of their implementation, which justifies the very task of determining them.

Conclusion

The demographic models constructed in the course of the work for each country under consideration allowed us to see some nuances in the development of the current geopolitical space. Today, US economic activity is fading amid its growth in China. At the same time, over the past 30 years, the post-Soviet space has not manifested itself in any way. At first glance it may seem that this configuration will become the main evolutionary trend for future decades, but calculations show that more serious geopolitical castling may take place. Thus, the calculations prove that there are territories that have not yet reached the limit to their development – they are not too heavily populated, they have rich natural resources and quite sufficient civilizational potential. It is these regional foci that can become the drivers that push the world forward. The applied calculations make it possible to identify these zones of future geopolitical activity: they are Russia, Kazakhstan and Iran. Thus, the future economic and political activity of the planet will be concentrated on the territory of Eurasia, mainly its Asian part.

In addition to good demographic characteristics, these countries have a vast territory, rich natural resources and a relatively low population density. Thus, they can be considered as new potential centers of activity. In addition, these countries are adjacent to each other and form a kind of country cluster at the intersection of the main international trade zones, which further increases the likelihood of their transformation into a global cauldron of economic and political activity. We can talk about the high probability of economic cooperation of these countries with neighboring nation-states – Belarus, Uzbekistan, Turkmenistan. This will increase the scale of the emerging regional cluster of geopolitical activity and strengthen the ties within it.

Of course, the conclusions drawn are preliminary, they need to be rechecked and supplemented. However, as a primary guideline for the future geopolitical configuration, the picture we provide can be a useful tool for developing national economic and political strategies. The significance of the proposed approach to determining possible activity in different parts of the world consists in finding another effective scheme for analytically linking the two fundamentally different aspects of society – demographic and economic growth.

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Features of the Standard of Living and Labor Situation in Households with Children and without Them

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Abstract. The relevance of the study is determined by the need to improve public policy in order to address current issues concerning Russians' standard of living and quality of life in the context of new risks posed by the socio-economic impact of a growing external pressure on the country. The article presents findings

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of a study that identifies the features of the standard of living of households with children (target group) and without children (control group), and considers the role of the labor situation of household members. The standard of living of households was considered through its modeling by per capita money income and by quality of housing conditions that were assessed with the help of social standards. We reveal that the most common models for households with children are those of low and lowest standard of living, which are less typical for households without children. Households with children are much more likely, in comparison to households without children, to face the most vulnerable situation in terms of income and quality of housing conditions. The article considers the labor situation of economically active members of households with different levels of per capita money income. We reveal the differences in the level of employment of persons aged 15 years old and older, with different income levels, living in households with and without children, depending on the age group. We assess the level of income from main employment, which ensures the positioning of households by standard of living (taking into account the actual dependent burden) and reveal that the presence of children increases the risks of households entering the lower strata by standard of living. We consider main reasons for the unemployment of persons aged 15 years old and older (by age group) living in households with children with different income levels and also determine "reserves" for increasing the level of employment in households with children and, as a consequence, their income level.

Key words: standard of living, social standards, money income level, quality of housing conditions, labor situation, employment, income from employment, reasons for unemployment, households with children, households without children.

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Introduction

Improving the standard of living is one of the priorities of Russia's strategic development, implemented through program-targeted tools in the areas of improving the employment quality, increasing real incomes, reducing poverty, improving the housing conditions of Russians, etc.[1]. The relevance of these priority directions for the "internal agenda" of the state policy is conditioned by the still acute problems of mass insecurity of Russians, formed by the basic components of the standard of living – purchasing power of monetary income and housing security (Bobkov et al., 2007; Bobkov, Guliugina, 2020; Monitoring..., 2022; etc.). The crisis caused by the COVID-19 pandemic and its socio-economic consequences have actualized the importance of solving these problems in the context of new risks to the living standards of citizens. In the period of the pandemic and coronacrisis, one of the "blows" of which came to the sphere of employment (Laykam, 2021; Korchagina, Prokofieva, 2023), the "role of employment and its quality in maintaining and

[1] On the National Security Strategy of the Russian Federation: Presidential Decree 400, dated July 2, 2021. Available at: https://base.garant.ru/401425792/; On the national development goals of the Russian Federation for the period through to 2030: Presidential Decree 474, dated July 21, 2020. Available at: http://publication.pravo.gov.ru/Document/View/0001202007210012; Housing and Urban Environment. National Projects of Russia. Available at: https://xn--80aapampemcchfmo7a3c9ehj.xn--p1ai/projects/zhile-i-gorodskaya-sreda; etc.

improving the standard of living of households" became even more obvious (Bobkov, Odintsova, 2023, p. 197). The socio-economic consequences of the Covid-19 crisis and measures to overcome them on the part of the state once again confirmed that households with children are the most vulnerable group and ensuring their well-being should be the "core" of strategic planning for the country's development.

At the new stage of development, which Russia entered in early 2022, associated with the strengthening of external sanctions pressure in the context of geopolitical confrontation, the priority of ensuring the well-being of households with children (in the sphere of living standards, health, etc.), interconnected with the problems of national saving, development of human resources, etc., becomes even more important for achieving the national interests of Russia's sovereign strategic development. The need to work out effective measures of state policy in the conditions of a new stage of development requires the actualization of the scientific and analytical basis and, accordingly, the continuation of research in the field of studying the standard of living, including the socio-demographic group of households with children.

In the framework of our study, this task is solved in the aspect of identifying the features of living standards in relation to households with and without children, as well as considering the role of the labor status of household members in the formation of living standards.

The scientific novelty of the study conducted by us consists in the identification of differences in the models of living standards, defined by the level of per capita cash income and the quality of housing conditions, assessed on the basis of social standards, in Russian households with and without children.

The significance of the work lies in identifying the most vulnerable households in terms of living standards, as well as the features of the labor situation of their economically active population, in determining the "reserves" for increasing the employment rate and, accordingly, the level of per capita income. The results obtained may be in demand in the development of targeted measures of state policy in the field of improving the quality of employment and real money income, improving housing security, social support for families with children.

Methodological approaches and research data

The target group of the research is Russian households with a child (children) (hereinafter – households with children). This category of households, which is significant in terms of achieving national demographic development targets, is characterized by high vulnerability and poverty risks (Bobkov, 2019; Korchagina, Prokofieva, 2023). With the focus of social policy on poverty reduction and support for households with children, they remain the most massive (about 80% or more[2]) group among poor households. To compare and identify the specifics of the situation of the target group, we also introduced a control group – households with no child support burden (households without children).

We surveyed households (with and without children) in two main ways.

1. Standard of living. The problem of standard of living is one of the actively studied segments of the research field. It is revealed in the aspect of studying inequality: theoretical and methodological foundations, tools, assessment of the level and dynamics, identification of factors, etc. (System..., 1986; Bobkov et al., 2007; Shevyakov, 2010; Ovcharova et al., 2016; Bobkov, Kolmakov, 2017; Jenkins, Micklewright, 2007; Milanovic, 2011; Atkinson, 2015; Solt, 2020; Wang, Jv, 2023; etc.). The standard of living in different strata of the population, distinguished on the basis of its various indicators, is studied (Avraamova et al., 2003;

[2] Socio-economic indicators of poverty in 2015–2021. Rosstat. Available at: https://rosstat.gov.ru/folder/11110/document/13293

Poverty ..., 2014; Maleva et al., 2015; Middle classes ..., 2018; Maleva et al, 2019; Deaton, 2005; Chen, Ravallion, 2013; etc.); specific features of living standards of different socio-demographic groups (Bobkov, Odintsova, 2023; etc.), including families with children as the most vulnerable category of the population (Family and children..., 2009; Pishniak, Popova, 2011; Bobkov, 2019; Korchagina, Prokofieva, 2023; etc.).

In this study, the standard of living is considered on the basis of monetary income and housing conditions. They represent two basic components of the formation of living standards, for which their criterion parameters that determine decent living conditions of households remain massively inaccessible (Monitoring..., 2022). At the same time, scientific and practical (for the purposes of state social policy) interest is in the classification (grouping) of households differing in living standards, for which research practice offers various solutions. When applied as a classifying criterion of money income, its boundaries can be established using different approaches, which identify groups with different living standards: an objective approach based on objective assessments (with the establishment of absolute and relative boundaries for assessment or their combination), and a subjective approach based on self-assessments of the population (Ovcharova, 2009; Bobkov, Kolmakov, 2017; Tikhonova et al., 2018; Monitoring..., 2022; Ravallion, 2016; etc.). When assessing housing conditions, studies elaborate a set of parameters determining them: safety of living conditions (emergency housing, etc.), livability of housing, dwelling area, number of living rooms, etc. (Puzanov et al., 2012; Maleva et al., 2015; Middle Classes..., 2018; Shneiderman et al., 2019; Monitoring..., 2022; etc.). Housing affordability (Minchenko, Nozdrina, 2017; Padley, Marshall, 2019; Kosareva, Polidi, 2021, etc.), self-assessments of housing conditions (Family and Children..., 2009; et al.), etc. are also taken into account.

To study the standard of living, we follow an objective approach, which is based on the original normative social standards that fix an increasing "scale" of normative characteristics of the components of the standard of living, the comparison of actual indicators with which allows identifying the standard of living in various projections (one- or two-dimensional, or multidimensional – taking into account the set of components of the standard of living) (Monitoring..., 2022; etc.).

In this study we distinguished the standard of living models formed by households *(Tab. 1)*, each of which is two-parameter – identified by the level of purchasing power of per capita cash income and the quality of housing conditions of households, which were determined using the relevant social standards *(Tab. 2)*. To realize the purpose of the

Table 1. Standard of living models defined on the basis of the level of per capita money income and quality of housing conditions

Standard of living model	Level of money income and quality of housing conditions, assessed on the b asis of social standards, determining the patterns of standard of living
High standard of living	*Money income and housing conditions are at or above high-level standards*, including: income at least at the high-level standard (at least 11 MW*) and good housing conditions (housing meets the requirements of the high-level standard**)
Average standard of living	*Money income and/or housing conditions at or above middle-income standards*, including: – income at least at the high level standard (at least 11 MW) and average housing conditions (housing meets the requirements of the medium level standard, but does not meet the requirements of the high level standard); – income meets the medium level standard (3.1–11 MW) and good housing conditions (housing meets the requirements of the high level standard); – income meets the medium level standard (3.1–11 MW) and average housing conditions (housing meets the medium level standard but does not meet the high level standard)

End of Table 1

Standard of living model	Level of money income and quality of housing conditions, assessed on the b asis of social standards, determining the patterns of standard of living
Below average standard of living	*Money income and/or housing conditions fall below median standards*, including: – income less than the middle level standard (2–3.1 MW) and housing conditions from average to good (housing meets the requirements of middle and high level standards); – income is not less than the middle level standard (3.1 MW or more) and below average housing conditions (housing meets the requirements of the socially acceptable standard, but does not meet the requirements of the middle level standard); – income less than the standard of average level (2–3.1 MW) and below average housing conditions (housing meets the requirements of socially acceptable standard, but does not meet the requirements of the standard of average level)
Low standard of living	*Money income and/or housing conditions fall below socially acceptable standards*, including: – income less than socially acceptable standard (1–2 MW) and housing conditions from below average to good (housing meets the requirements of socially acceptable and higher standards); – income not less than the socially acceptable standard (2 MW or more) and poor housing conditions (housing meets the requirements of the minimum standard, but does not meet the requirements of socially acceptable standard); – income less than the socially acceptable standard (1–2 MW) and poor housing conditions (housing meets the requirements of the minimum standard, but does not meet the requirements of socially acceptable standard)
The lowest standard of living	*Money income and/or housing conditions fall below minimum standards*, including: – income less than the minimum standard (less than 1 MW) and housing conditions from poor to good (housing meets the minimum and higher standards); – income not lower than the minimum standard (not less than 1 MW) and the worst housing conditions (housing does not meet the requirements of the minimum standard); – income less than the minimum standard (less than 1 MW) and the worst housing conditions (housing does not meet the minimum standard)

* MW – minimum wage.
** The requirements of housing provision standards are presented in Table 2.
Source: own compilation.

Table 2. Levels and requirements of social standards of per capita money income and housing security

Level of social standards	Normative limits of per capita money income	Regulatory requirements for housing characteristics
High level	At least 11 MW*	Size of dwelling area: total area not less than 40 m^2/people Comfortable dwelling and sanitary and hygienic living conditions, safety of living conditions: not lower than the requirements of the standard of the average level. Spaciousness of dwelling: number of habitable rooms (K) in a dwelling exceeds the number of occupants (n): K > n
Average level	At least 3,1 MW	Size of dwelling area: total area not less than 23 m^2/people Comfortable housing and sanitary and hygienic living conditions, safe living conditions: not lower than the requirements of the socially acceptable standard, as well as the availability of Internet access. Spaciousness of dwelling: number of habitable rooms (K) in a dwelling corresponds to a number of residents (n): K = n
Socially acceptable	At least 2 MW	Size of dwelling area: total area not less than 16 m^2/people Comfortable housing and sanitary and hygienic living conditions: not lower than the minimum standard requirements, as well as availability of central hot water supply (or from local (individual) water heaters**), floor stove (gas/electric), kitchen, shower/bath and toilet in the dwelling with individual accessibility***. Safety of living conditions: living not in an emergency residential apartment building; no danger of floods, floods, waterlogging, fire hazards for housing (individual house)
Minimal	At least 1 MW	Size of dwelling area: total area not less than 6 m^2/people Comfortable housing and sanitary and hygienic living conditions: availability of centralized power supply, sewerage, centralized water supply (or from an individual artesian well**), central heating (or from individual installations, boilers**)

* MW – minimum wage.
** The requirement applies to rural areas.
*** They are not located in a common area / detached structure / yard building.
Source: own compilation.

research, we used the standards of per capita cash income, substantiated in earlier works (see, for example, (Monitoring..., 2022)), and standards of housing security, developed by one of the authors, taking into account the differentiation of housing characteristics depending on the place of residence (urban/rural areas)[3].

2. Labor status of economically active population of households with different standard of living. We considered the standard of living of households in connection with the labor status of their members. We assessed labor status for persons living in households (with and without children) with different levels of per capita cash income, identified on the basis of compliance with the social standards used in the study. Thus, we studied its "contribution" to the provision of living standards, and determined the (under)utilization of opportunities to ensure certain standards of living. Labor status was considered for persons aged 15 years and older, i.e. for the economically active population of households, according to the following parameters.

2.1. Employment availability. The share of employed persons aged 15 and older was determined in general and by age groups: a) from 15 to 24 years (age corresponding to the period of education, which determines the objective circumstances of possible unemployment: school, university, etc.); b) from 25 years to retirement age (the main period of economic activity); c) retirement age (the period of economic activity associated with the presence of objective circumstances of possible unemployment: retirement, loss of ability to work, etc.).

Each of the selected age groups may have its own characteristics in terms of (non)participation in employment, which can be specified in a more detailed grouping by age (which can be the subject of further research). In this case, the authors chose an aggregated grouping by age, which makes it possible to trace changes in the three main stages of the life cycle associated with participation in employment: education and entry into the labor market, the main stage of labor activity and leaving employment. The age boundaries of the two "extreme" groups were chosen in order to emphasize the periods associated with objective reasons for possible unemployment – education and retirement.

2.2. The level of income from primary employment, which was assessed on the basis of standards linked to the standards of per capita cash income and determining the possibility of ensuring certain standards of living standards, taking into account the actual dependency burden on the employed[4].

2.3. Reasons for nonemployment. For unemployed persons from among those living in households with children, we identified the main reasons for nonemployment in relation to each of the age groups considered (15 to 24 years, 25 years to retirement age, retirement age), which made it possible to assess their objectivity.

In this paper, we focus on the selected parameters of the labor status of household members, leaving out of the study other possible socio-demographic and socio-economic factors affecting the situation of households: the number and age of children, labor potential of parents (health, education and qualifications, etc.), other sources of income besides income from employment, etc., which can be the subject of further research.

[3] Actualized standards of housing security were used for the first time to identify the features of property security of families with children in urban and rural areas. The results are presented in the paper published in the journal "AIC: Economics, Management" in 2023.

[4] We took into account the burden of supporting minor children. If the employed had no children, the following standard limits were applied in relation to the minimum subsistence level of the working-age population (MWemp): 1 MWemp, 2 MWemp, 3.1 MWemp and 11 MWemp. If the employed have children, the adjusted (higher) boundaries of standards of income from primary employment were applied, which, taking into account the number of children, the possibility of sharing the burden of their maintenance and savings on joint consumption, make it possible to reach the standards of per capita cash income (see Tab. 2)

The empirical base for the research was formed by: 1) microdata of the Comprehensive Observation of Living Conditions of Rosstat[5] (hereinafter – COLC) – data on households[6] and individuals[7] for 2022 (the main part of the empirical data); 2) data of the Russian Longitudinal Monitoring Survey of the National Research University Higher School of Economics[8] (hereinafter – RLMS-HSE) on individuals (additional and local part of the empirical data, required to compensate for the lack of data on income from employment in COLC, necessary for the objectives of the research[9]).

Thus, the study identified the situation in 2022 associated with the risks of deterioration of the situation of households (primarily with children) due to the consequences of the growing external sanctions pressure on Russia in the context of the aggravation of the geopolitical crisis, which continues to intensify at present.

Main research results

Households standard of living with and without children: common models taking into account the level of cash income and quality of housing conditions. According to the obtained estimates, the average and higher standard of living for households with children is practically unaffordable (about 1.0%, 2022; *Tab. 3*). Households without children are more often provided with incomes and housing conditions meeting higher standards: such a model of living standards was revealed among 13.7% of households without children, primarily it is associated with the achievement of average rather than high (0.1%) standards (13.6%). The model of below average standard of living among households

Table 3. Models of households' standard of living with and without children based on per capita money income and quality of housing conditions assessed on the basis of social standards, 2022, %

Standard of living model	Level of money income and quality of housing conditions, assessed on the basis of social standards, determining the patterns of standard of living	Households with children	Households without children
High standard of living	Money income and housing conditions not below high level standards	0.0*	0.1
Average standard of living	Money income and/or housing conditions at or above middle-income standards	1.0	13.6
Below average standard of living	Money income and/or housing conditions do not reach middle-income standards	11.5	29.2
Low standard of living	Money income and/or housing conditions do not reach socially acceptable standards	46.4	25.6
The lowest standard of living	Money income and/or housing conditions do not reach minimum standards	41.1	31.5

*0.0 – small value.
Source: own calculation based on the COLC data.

[5] Comprehensive observation of living conditions of the population 2022. Available at: https://gks.ru/free_doc/new_site/GKS_KOUZH_2022/index.html.

[6] The data were in demand for assessing the living standards of households. In 2022, the COLC was organized in all regions of Russia, covering 60.0 thousand households.

[7] The data were required to assess the labor status of the economically active population of households. Persons aged 15 and older (including age groups) living in households with different levels of per capita cash income were sampled. The sample amounted to 103.1 thousand people, sampling error ± 0.31% (at 95% confidence level).

[8] "Russian Longitudinal Monitoring Survey of the Higher School of Economics (RLMS-HSE)" conducted by the National Research University Higher School of Economics and Demoscope LLC with the participation of the Population Center of the University of North Carolina at Chapel Hill and the Institute of Sociology of the Federal Research Sociological Center of the Russian Academy of Sciences (RLMS-HSE survey websites: http://www.hse.ru/rlms and https://rlms-hse.cpc.unc.edu).

[9] In the RLMS-HSE database, data from the latest 30th wave (2021), the most relevant at the time of the study, were sought. The dataset included individuals aged 15 and older who were employed: 5,500 individuals. The sampling error is ± 1.32% (at 95% confidence level).

with children is not widespread (11.5%), while among households without children it is more than twice as common (29.2%).

The most typical for households with children are the models of low and lowest living standards. In 2022, the share of households with children with the corresponding patterns was 87.5%, which is one and a half times higher than for households without children (57.1% in total). A low standard of living, in which cash incomes and/or housing conditions do not reach socially acceptable standards, distinguishes 46.4% of households with children and 25.6% of households without children (1.8 times less). The lowest standard of living, in which cash incomes and/or housing conditions do not reach minimum standards, was found in 41.1% of households with children, while 31.5% of households without children (1.3 times less).

Among the households characterized by patterns of low and the lowest living standards, the most vulnerable situation can be called for those households that have per capita money incomes below the minimum or socially acceptable standards and at the same time live in the worst or poor housing conditions, as well as for those living in housing of higher quality with per capita incomes below the minimum standard. Among households with children the total share of such households (58.6%) is more than three times higher than among households without children (18.7%; *Tab. 4*). Including the share of households with the worst housing conditions (do not meet the requirements of the minimum standard) with the lowest per capita money income (less than 1 MW) among households with children (12.0%) exceeds their share among households without children (1.8%).

Table 4. Most vulnerable households with and without children with low and lowest living standard patterns identified based on social standards, 2022, %

Indicator	Households with children	Households without children
With per capita money income below the minimum standard (less than 1 MW*) and the worst housing conditions (housing does not meet the minimum standard)	12.0	1.8
With per capita money income below the minimum standard (less than 1 MW) and poor housing conditions (housing meets the requirements of the minimum standard, but does not meet the requirements of socially acceptable standard)	4.7	0.4
With per capita money income below the minimum standard (less than 1 MW) and housing conditions from below average to good (housing meets the requirements of socially acceptable and higher standards)	1.5	0.5
With per capita money incomes less than socially acceptable standard (1–2 MW) and the poorest housing conditions (housing does not meet the requirements of the minimum standard)	18.7	11.9
With per capita money income less than the socially acceptable standard (1–2 MW) and poor housing conditions (housing meets the requirements of the minimum standard, but does not meet the requirements of the socially acceptable standard)	21.7	4.1
Households most vulnerable in terms of living standards, total	**58.6**	**18.7**
For reference: Share of households with per capita money income below the minimum standard (less than 1 MW)	*18.1*	*2.6*
For reference: Share of households with poor and worst housing conditions	*71.1*	*46.2*
For reference: Share of households with per capita money incomes below the minimum or socially acceptable standard (less than 2 MW) in total number of households with poor and worst housing conditions	*80.3*	*39.3*

* MW – minimum wage.
Source: own calculation based on the COLC data.

The most vulnerable households characterized by poor quality housing conditions find it difficult to improve their housing conditions on their own due to low income levels. Such households, as follows from the data obtained, constitute the overwhelming majority (80.3%) among households with children living in poor or worst housing conditions (71.1%), while among households without children their share is twice lower (39.3% out of 46.2%). At the same time, the share of households with per capita income below the minimum standard (less than 1 MW) in households with children (18.1%) is almost seven times higher than their share among households without children (2.6%).

Let us consider what is the labor status of persons aged 15 and older living in such households in the conditions of per capita money income standards identified for households with and without children, which determine the formation of living standards patterns and the possibility of improving the quality of housing conditions.

Labor status of economically active population of households with and without children at different levels of per capita money income

The obtained data show that, in general, the share of the employed among persons aged 15 and older increases as the level of household income increases (*Tab. 5*). At the same time, in case of living in households with children, the share of the employed is higher compared to households without children. In case of households with average and above standard incomes, the shares of the employed practically do not differ: 76.8% for households with children and 76.4% for households without children (2022). At lower income standards, the differences in the share of the employed are more noticeable: from 15.8 p.p. at the lowest incomes (less than 1 MW) to 27.2 p.p. at below average incomes (2–3.1 MW).

Table 5. Employment of persons aged 15 and over in households with and without children at different levels of per capita household income, 2022, %

Indicator	Level of money income in households based on social standards			
	The lowest (up to 1 MW**)	Low (1–2 MW)	Below average (2–3.1 MW)	Average and above (3.1 MW and more)
Share of employment among persons aged 15 and older				
– among persons living in households with children*	52.6	68.0	76.7	76.8
– among persons living in households without children*	36.8	43.6	49.5	76.4
Share of employment among persons aged 15–24				
– among persons living in households with children*	11.6	11.2	14.5	6.6
– among persons living in households without children*	24.6	32.6	55.1	72.5
Share of employment among persons aged 25 and before retirement age				
– among persons living in households with children*	67.8	85.8	92.7	90.0
– among persons living in households without children*	50.8	78.2	93.3	97.1
Share of employment among persons of retirement age				
– among persons living in households with children*	8.0	14.1	16.8	40.1
– among persons living in households without children*	10.8	8.8	11.4	46.2

* In % of the number of persons of the relevant age group living in households with different income levels
** MW – minimum wage.
Source: own calculations based on the COLC data.

In the considered age groups in households with and without children, the highest involvement in employment is observed among persons from 25 to retirement age. In other age groups the share of the employed is noticeably lower. At the same time, among persons aged 15–24 living in households with children, the share of the employed is noticeably lower compared to their peers living in households without children, and these differences only increase as the level of household income increases.

In households with children, a lower (relative to peers in households without children) percentage of employed persons aged 15 to 24 may be due to the need for diversion to family responsibilities (if they are younger brothers/sisters, own children in young families). The higher percentage of those employed in households with children at lower per capita incomes may be due to the desire to enter the labor market faster to increase the overall level of household income. In better-off households with children there is no such need, and there is an opportunity to concentrate on education.

We should note that in the case of the lowest (less than 1 MW) and lower (1-2 PM) per capita incomes, the employment rate of persons from 25 to retirement age from households with children (67.8 and 85.8%) is higher than for their peers from households without children (50.8 and 78.2%). The situation is similar for persons of retirement age at low (1–2 MW) per capita incomes: 14.1 and 8.8%. At per capita incomes of 2 MW and above, the labor situation of households with children is characterized by an even higher share of employed persons from 25 years to retirement age (about 90.0% and above) and persons of retirement age (up to about 40.0%).

Consideration of the level of income provided by employment for positioning households in one or another stratum in terms of living standards has shown the following (*Tab. 6*). For more than half (54.5%, 2021) of the employed who have children, the income from the main employment, taking into account the actual dependency burden, does not allow their households to reach the socially acceptable and higher level of per capita money income. This situation is less frequent among the employed without children, who, due to the absence of dependency burden, have to meet lower normative limits in order to enter the same strata of the standard of living (40.2%). At the same time, the share of employed persons whose employment does not provide incomes sufficient to overcome the minimum standard of per capita money income differs almost three times between those with children (14.8%) and those without them (5.4%).

Table 6. Distribution of the employed by level of income from primary employment depending on the presence of minor children, 2021, %

Level of income from primary employment standardized	Share of the employed with the corresponding level of income from primary employment depending on the presence of minor children	
	Without children	With children
Ensure high standards of per capita money income in households	0.3	0.2
Provide average standards of per capita money income in households	27.6	17.0
Do not provide average standards of per capita money income in households	31.9	28.3
Do not provide socially acceptable standards of per capita money income in households	34.8	39.7
Do not provide minimum standards of per capita money income in households	5.4	14.8
Source: own calculation based on the RLMS-HSE data.		

Taking into account the actual dependency burden on the employed, if they have children in their households, it is more difficult for them to "break through" to the better-off strata – with average and higher standards of per capita money income. Among the employed with children (17.2%) the share of such is 1.6 times less than among the employed without children (27.9%).

Thus, higher employment rates for households with children are offset by small amounts of income from it, which, in conditions of actual dependency burden, in more than 50% of the employed is insufficient to take the households beyond the bottom two strata. In households without children, this indicator was lower (about 40%) with less involvement in employment.

In the course of consideration of the main reasons for unemployment of persons aged 15 and older from households with children (*Tab. 7*) we revealed the following things. The main reason for the unemployment of persons aged 15–24 is education, and the higher the income level in households, the higher the share of those studying. In the least well-off households with children, the unemployment of persons aged 15 to 24 is also due to other objective reasons (which are less relevant at other income levels), primarily unemployment (4.1%, 2022). Among them, unemployment is more likely to be related to family circumstances (household management, caring for children, including young children, etc.), as well as incapacity for work (temporary or long-term). All these

Table 7. Main causes of nonemployment of persons aged 15 and over from households with children with different levels of per capita money income, 2022, %

Main causes of unemployment	Level of money income in households based on social standards			
	The lowest (up to 1 MW**)	Low (1–2 MW)	Below average (2–3.1 MW)	Average and above (3.1 MW and more)
*Main causes of unemployment of persons aged 15 to 24 years**				
Education (learner, student)	86.3	93.5	97.3	96.8
Not working and looking for work (unemployed)	4.1	1.2	0.5	0.7
Housekeeping, caring for children or other persons	2.8	1.6	0.7	0.0
Pregnancy, childbirth, child care until a child reaches 1.5 (3) years old	2.0	1.5	0.4	0.4
Temporary or long-term disability	1.3	0.1	0.4	0.0
Not working or looking for work for other reasons	2.3	1.3	0.8	2.0
*Main reasons for unemployment of persons from 25 to retirement age**				
Housekeeping, caring for children or other persons	51.2	58.6	70.0	63.8
Not working and looking for work (unemployed)	19.6	12.9	6.0	7.0
Pregnancy, childbirth, child care until a child reaches 1.5 (3) years old	8.6	9.0	8.7	11.3
In retirement	9.0	10.4	5.6	3.3
Temporary or long-term disability	3.1	3.1	0.4	0.7
Not working or looking for work for other reasons	8.4	5.8	8.8	13.8
*Main causes of unemployment of persons of retirement age**				
In retirement	92.8	99.1	99.5	95.4
Housekeeping, caring for children or other persons	3.4	0.1	0.0	4.6

* In % of the number of persons of the relevant age group living in households with different income levels.
** MW – minimum wage.
Source: own calculation based on the COLC data.

objective circumstances may explain the low level of employment of persons of this age group from low-income households with children.

For those aged 25 to retirement age, the main reason for not being employed (more than 50%, 2022) is to run a household, care for children or other persons. The "weight" of this reason increases as the level of household income increases. In the case of the lowest (less than 1 MW) and low (1–2 MW) household incomes, unemployment is also the most important reason for the unemployment of persons in this age group: 19.6 and 12.9%, respectively. In better-off households with children, this cause of unemployment is less common. There are also other objective reasons for unemployment (pregnancy, childbirth, disability, etc.) of persons from 25 to retirement age: their total share for less well-off households (less than 2 MW) is more than 20%, for better-off households (2 MW and more) they are less common – about 15%.

For persons of retirement age from households with children, the main reason for nonemployment is expected to be retirement (more than 90%). At the same time, in households with children with the lowest incomes (less than 1 MW), as well as with incomes at least at the middle level (3.1 MW and more), pensioners more often than in households with other income levels explain their nonemployment by household management, childcare or care of other persons. Obviously, they strive to help their children with family responsibilities.

As follows from the obtained data, households with children have "reserves" for increasing the employment rate and, accordingly, the level of income. They are associated, first, with the employment of unemployed persons. The largest share of them was found for households with the lowest incomes (less than 1 MW) among the unemployed aged 25 to retirement age (about 20%) and aged 15 to 24 (about 4%). Second, the "pools" are related to the inclusion in employment of persons who are neither working nor looking for a job. Among non-working persons aged 15 to 24 years, their largest share was found for households with the lowest incomes (less than 1 MW); among non-working persons aged 25 years to retirement age, for households with average and higher incomes (3.1 MW or more): 13.8% with 8.4% for households with the lowest incomes (less than 1 MW).

Discussion of the results and suggestions on the results of the conducted study

The obtained results complement the conclusions of other studies that record the situation with the standard of living as a whole (Bobkov, Kolmakov, 2017; Monitoring..., 2022; etc.), specifying it for households with and without children. At the same time, the focus is not on separate strata by standard of living (for example, the poor or the middle-income (Poverty and the poor..., 2014; Middle classes..., 2018; Maleva et al., 2019; etc.)), but considers the "structure" by standard of living as a whole. The authors assess the standard of living not by individual components (Tikhonova et al., 2018; Family and children..., 2009; etc.), but on the basis of a joint analysis of its basic components (per capita cash income and housing security). Unlike other works, which also take into account these components of the standard of living (Avraamova et al., 2003; Maleva et al., 2015; etc.), the authors rely on social standards for its measurement. The use of housing standards updated for a more comprehensive identification of the quality of housing conditions (including taking into account the place of residence – urban/rural areas) compared to previous developments (Monitoring..., 2022; etc.), made it possible, supplementing them with per capita cash income standards, to obtain more accurate estimates of the standard of living of households with children compared to households without children.

The study has revealed that households with children are in a less favorable situation compared to households without children, and the majority

(about 60.0%, 2022) of them are characterized by the most vulnerable situation in terms of living standards, the parameters of which do not reach the minimum and socially acceptable standards. These households need priority attention from the state. Improvement of their situation requires a targeted approach with the use of policy measures in the sphere of income and housing security.

When implementing the state policy in the field of improving the housing security of Russians, in our opinion, priority should be given to households living in the worst and most poor housing conditions. This problem is the most acute for households with children (71.1%, with 46.2% for households without children, 2022). At the same time, for the majority (about 80.0%) of such households with children, due to low income levels (less than 1 or 2 MW), it is hardly possible to improve housing conditions without support from the state (through social rent, social rent, subsidies, etc.). Taking into account the goals in the field of demographic development, the priority attention of the state in providing housing for this group of households should be given to households with children.

In implementing the income policy, it is relevant, first of all, to increase income from employment. The survey data show that employment cannot provide a significant part of the working population with minimum or socially acceptable standards of per capita money income in their households, while the majority of the employed have average or higher standards. The obtained results correspond with the data of official statistics on the size of accrued wages. According to Rosstat data, about half (47.5% in 2021 and 45.4% in 2023[10]) of salaried employees of organizations (more than 80.0% of the employed[11]) have wages of less than 3 MWemp, i.e. its size does not allow to ensure average and higher income standards in their households even in the absence of dependency burden. As the study has shown, households with children, compared to households without children, given the actual dependency burden on the employed, have higher risks of localization in the lower strata of the standard of living due to insufficient income from employment.

As a consequence of low income from employment, which does not "insure" against the risks of monetary poverty, in order to overcome the difficult situation in households with children it is necessary to "connect" measures of targeted social support. According to the survey results, 18.1% (2022) of households with children had per capita money incomes below the minimum standard (less than 1 MW). For households without children, this problem was not so acute and practically solved (2.6%, 2022). Increasing incomes in households with children in money poverty is possible both through the development of existing measures of targeted social payments (increasing the size of benefits, etc.) and the introduction of new support measures. One of such measures could be the increase of per capita income to the guaranteed minimum income (GMI)[12] not lower than the regional subsistence minimum. The introduction of the GMI mechanism can be linked to: 1) high dependency burden in households with children (large families, single-parent families, families with disabled persons, including disabled children);

[10] Estimation based on Rosstat data: Decent work indicators, distribution of the number of employees of organizations by size of accrued wages (in terms of the minimum subsistence level of the able-bodied population) by type of economic activity. Rosstat. Available at: https://rosstat.gov.ru/folder/13723

[11] Estimation based on Rosstat data: Results of the sample labor force survey. 2022. Rosstat. Available at: https://rosstat.gov.ru/folder/11110/document/13265

[12] Guaranteed minimum income (GMI) is the per capita income of low-income households, not lower than the regional subsistence minimum. It is provided by the introduction of an additional social payment (ASP) to a poor household in case the existing measures of targeted social support do not allow it to overcome absolute monetary poverty (to increase per capita income to the regional subsistence minimum or other established value of the GMI) (Bobkov, 2019).

2) assessment of the labor status of the economically active population of households with children (presence/absence of employment, objective reasons for nonemployment).

The obtained results complement the conclusions of other authors (Korchagina, Prokofieva, 2023; etc.) in terms of comparing the situation in households with and without children belonging to different strata in terms of living standards and taking into account the involvement in employment of household members of different age groups. The survey has shown that in households with children, where minimum income standards are not ensured (less than 1 MW), the employment rate is noticeably lower than in better-off households with children. In most cases, this is due to objective circumstances. The proposed GMI as a support mechanism for households with children should be established for those of them, where the opportunities for increasing the level of income from employment have been exhausted (or temporarily limited by objective reasons). The feasibility and effectiveness of such support measures to overcome the problem of money poverty of families with children are confirmed by practical results (Bobkov, 2019; Universal..., 2022; etc.).

For households that have "reserves" for increasing the employment rate, the increase in the level of income can be realized through employment promotion, including through the mechanisms of social contract with obligations related to employment, improvement of labor potential (qualifications, etc.). As the study has shown, in households with children with the lowest incomes (less than 1 MW), the realization of their "reserves" is primarily related to the employment of unemployed persons and to the involvement in employment of persons who are not working and not looking for work.

An increase in scholarships for students of higher and secondary vocational education programs can also contribute to the increase in household incomes. At this stage, scholarships do not provide a minimum level of current consumption[13]. According to the data received, about 90% of unemployed persons aged 15 to 24 are not employed due to education, including vocational education. Increasing the level of scholarships at least to the subsistence minimum (in connection with the results of education) would reduce the dependency burden on the budget of households with children, which have non-working students, to compensate at a minimum level labor costs associated with vocational education.

In the context of the risks of a decline in the standard of living of households with children due to the socio-economic effects of increased external sanctions pressure on Russia (2022–2023), we consider it advisable to conduct regular monitoring of the well-being of families with children. There is experience in conducting such monitoring. In accordance with Resolution of the Government of the Russian Federation 1376, dated December 14, 1994, the Monitoring of the Socio-Economic Potential of Families was conducted, which provided for "the study, analysis and generalization of the dynamics of living standards of various types of families, taking into account the ability to work, educational and professional potential of family members, its composition and dependency burden, welfare factors, and opportunities for adaptation to changing socio-economic conditions[14]. At the new stage of the country's development, we believe it would be advisable to return to this experience. Monitoring of the well-being of families with children should include the study of the situation

[13] According to official statistics, their amounts as of January 1, 2023 were 9.5 and 3.4% of the subsistence minimum, respectively. See: Amounts of basic social guarantees established by the legislation of the Russian Federation in relation to the subsistence minimum level. Rosstat. Available at: https://rosstat.gov.ru/folder/13397

[14] On monitoring the socio-economic potential of families: Resolution Decree 1376, dated December 14, 1994. Available at: http://pravo.gov.ru/proxy/ips/?doc_itself=&nd=102033443&page=1&rdk=0&link_id=11#I0

of families with children, including taking into account different types of households (single-parent families, large families, etc.), the labor status of household members of different age groups, in order to specify the risks of lowering their standard of living. Original indicators characterizing the labor situation and living standards of families with children, monitored on the basis of microdata from Rosstat and RLMS-HSE, could form the indicator base for monitoring. The results of monitoring could be taken into account when promptly adjusting existing and, if necessary, introducing new program-targeted mechanisms to support families with children.

Conclusion

The research results have shown that households with children, unlike households without children, are more often characterized by the most vulnerable position in terms of standard of living due to the low level of purchasing power of per capita money income and the quality of housing conditions. Higher risks of decline in the standard of living of households are accompanied by lower involvement in employment of persons from the economically active population of households, insufficient level of income from employment of working persons in households, as well as unrealized "reserves" for increasing the employment rate in households.

The research results are the following: a) to demonstrate the priority of improving the standard of living of households with children for the implementation of domestic public policy; b) to confirm the relevance of the development of public policy measures in the paradigm of the relationship between employment and standard of living, the importance of increasing the level and quality of employment.

The research we have conducted by us supplements the experience of studying the standard of living in the aspect of methodological and practical developments on the basis of modeling, taking into account the indicators achieved by the basic components (monetary income and housing conditions), identifying different levels of satisfaction of needs and reproduction of life of households with children, and the role of employment and its quality.

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Motives of Youth Migration to the Arctic Zone of the Russian Federation at the Present Stage

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Abstract. The relevance of the study is that migration plays a significant role in the population decline and changes in the socio-demographic structures of the Arctic zone of the Russian Federation. Taking into account the negative demographic trends that hinder real opportunities to natural reproduction of the population, it is necessary to consider the existing potential for youth migration to the Arctic zone and to study the motives for migration substantively. The main idea of the study lies in the fact that motives for youth migration to the Arctic zone of the Russian Federation have place-specific characteristics, and studying the motives for migration will potentially strengthen the motivational tools for population attraction. The aim of the work is to identify the motives for youth migration to the Russian Arctic in the context of the relationship between the meaning of migration for a person and the specifics of the territory. The scientific novelty of the study lies in the identification of the features of motives for migration behavior of young people who have experience of migration to the Russian Arctic from non-Arctic constituent entities of the Russian Federation. The revealed and substantiated features of the motives for youth migration to the Russian Arctic have practical and epistemological significance in the development of motivational tools for attracting qualified young people to the Arctic zone within the framework of demographic and employment policy. The main methods are statistical analysis, in-depth interview method, thematic analysis. Further research can be aimed at specifying and detailing the motives for migration in terms of gender aspect; features of return skilled

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migration of young people who left the Arctic zone of the Russian Federation to receive education; and supplemented by expert interviews on the problems of organizing the system of attracting qualified personnel from non-Arctic territories to the region.

Key words: interregional migration, migration motives, in-depth interview, thematic analysis, Arctic zone of the Russian Federation.

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Introduction

Preservation and reproduction of Russia's population is a key priority of state policy in the sphere of national security. The task of population preservation is relevant in the context of socio-economic development of the geopolitically and economically significant Arctic zone of the Russian Federation (AZ RF), where population decline is declared to be one of the main threats to national security[1]. At the same time, *positive migration balance*, which is one of the factors contributing to demographic well-being in the region, is named among the targets of the "Strategy for socio-economic development of the Arctic zone of the Russian Federation through to 2025" (Ryazantsev et al., 2022). Achieving positive migration balance is especially important given the current negative demographic trends in the Russian Arctic (Shelomentsev, 2020; Sushko, Plastinin, 2021). Today in the AZ RF outgoing migration is not compensated by "incoming" migration *(Tab. 1)*.

Despite the positive migration balance in youth ages, the share of the youth cohort in the age demographic structure of the AZ RF population is significantly decreasing *(Fig. 1)*.

Moreover, this process is faster in the AZ RF than in Russia as a whole *(Fig. 2)*. The share of young people in the Murmansk and Arkhangelsk oblasts (the population of these regions accounts

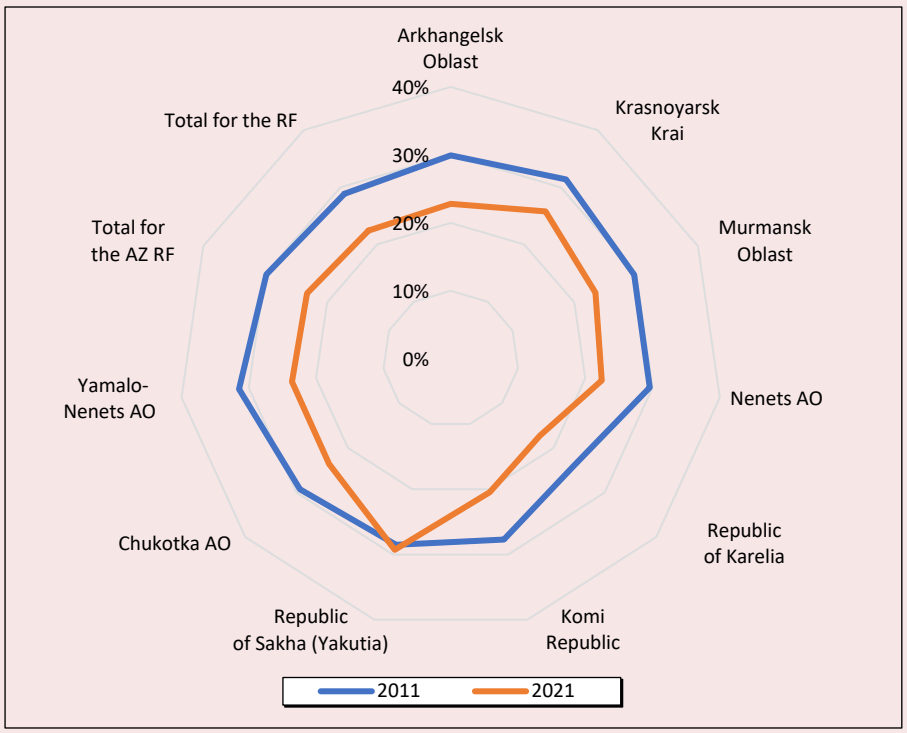
Table 1. Age structure of interregional migration in the Arctic territories of the constituent entities of the AZ RF in 2021

Age	Migration increase rate per 10,000 people*	Relative migration balance, %	Incoming, %	Outgoing, %
0–4	**11.3**	**106.4**	4.4	3.5
5–9	-25.5	89.2	5.8	5.5
10–14	-36.2	80.2	4.3	4.5
15–19	-173.9	57.2	6.0	8.8
20–24	**187.1**	**145.6**	**13.6**	7.9
25–29	**23.6**	**105.8**	**10.6**	8.5
30–34	-19.8	94.6	11.5	10.3
35+	-66.5	72.9	43.9	51.0
Total	**-42.0**	**84.7**	100.0	100.0

* For Murmansk Oblast in the municipal statistics for 2021, population data are presented by the same ages (so the total is incomplete).
Source: own compilation according to Database of municipalities. Available at: https://rosstat.gov.ru/storage/mediabank/Munst.htm (accessed: December 20, 2022).

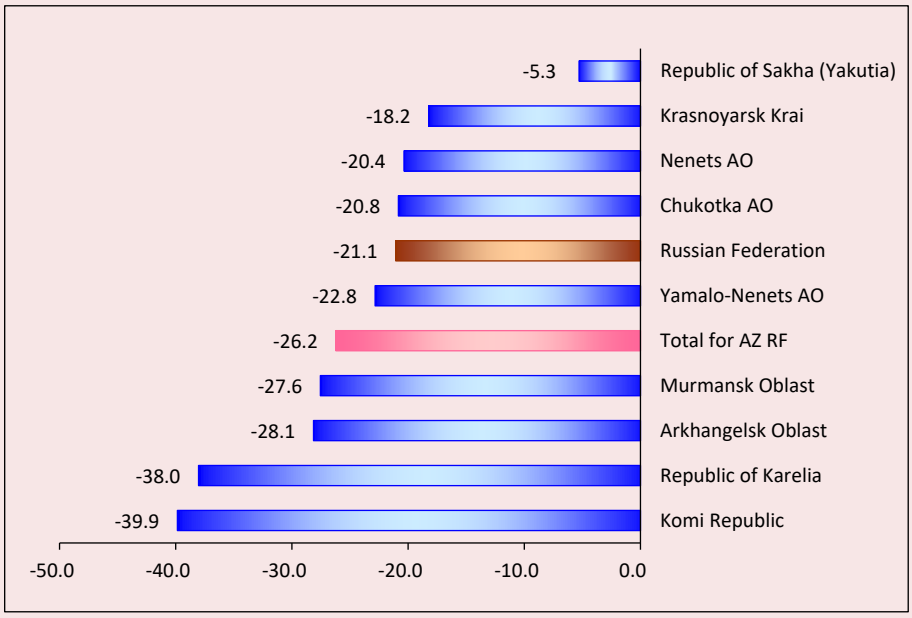
[1] Principles of the State Policy of the Russian Federation in the Arctic through to 2035.

Figure 1. The share of young people (aged 16–34 years) in the total population of the Arctic territories of the constituent entities of the AZ RF in 2011 and 2021, %



Source: own compilation according to Database of municipalities. Available at: https://rosstat.gov.ru/storage/mediabank/Munst.htm (accessed: December 20, 2022).

Figure 2. Change in the number of young people aged 16–34 years in the AZ RF, 2021 vs 2011, %



Source: own compilation according to Database of municipalities. Available at: https://rosstat.gov.ru/storage/mediabank/Munst.htm (accessed: December 20, 2022).

for 53% of the total population of the AZ RF) is decreasing more intensively than on a nationwide scale, causing the risk of worsening demographic trends for the Russian Arctic.

Population migration plays a significant role in the decrease in the AZ RF population and changes in the socio-demographic structures of the Russian North along with natural decline (Fauzer et al., 2018). According to V.A. Fauzer and colleagues, migration restrains population aging and is one of the leading drivers of population growth in the northern territories. However, the components of the population dynamics of the AZ RF from 2014 to 2021, showing that negative migration balance significantly exceeded the natural increase until 2019, together caused a decline in the population of the AZ RF, and the share of young people among those who left the region in 2021 amounted to 38.6% (retired people – 22.7%) (Khoteeva, Stepus', 2023). In the foreign Arctic, however, the situation is different: in the North American Arctic, the northern territories of Canada, the Norwegian Arctic regions, and Iceland, the population has grown, so studies of internal and rural-to-urban migration are more relevant (Heleniak et al., 2020).

Given the above, it is relevant to study the ways of attracting young people to the Arctic region, which requires determining the features of migration motives. The studies analyze socio-economic, climatic and personal-family motives for migration to the AZ RF in combination with assessments of the attractiveness of the territory (Nedoseka, Karbainov, 2020; Nedoseka, Sharova, 2020; Simakova, 2019; Ljovkin et al., 2020; Osipova, Maklashova, 2016; Rozanova-Smith, 2021). Sociological studies concerning migration plans and strategies in the context of the standard of living and quality of life, identification of vulnerabilities of economic and social development of regions, also reveal public opinion on the causes of migration outflow (Ivanova, Klyukina, 2019; Potravnaya, Tishkova, 2022; Simakova et al., 2022; Pitukhina et al., 2021).

One of the approaches to the study of migration intentions is represented by the axiological aspect of student youth's attitude to the Arctic as part of territorial (Arctic) identity (Filippova, 2022). The generational approach has a high explanatory value in analyzing the dynamics of migration attitudes and motives of population mobility, which describes the relationship between migration motives and age cohorts and reveals the specifics of migration drivers for different age groups. Within the framework of qualitative analysis, V.I. Il'in shows how generational specificity stimulates youth migration through the development of global virtual reality, consumer society, and transformation of forms of employment (Il'in, 2022). Another approach to the study of interregional migration motives, including through the interview method, is revealed in the relationship between migration and life course events (life plans: education, employment, family formation, etc.) (Kartseva et al., 2021).

Experts examine the reasons for outgoing migration from the Arctic territories. Sociological studies related to the topic of moving to the AZ RF are not so widely represented in the scientific field. For example, one of the works reveals personal-family, economic and psychological motives for moving to the Murmansk Oblast using the biographical method (Suleimanova, 2020). Demographic researchers N.V. Mkrtchyan and Yu.F. Florinskaya used qualitative methods to study migration motivation related to places of origin and settlement (Mkrtchyan, Florinskaya, 2020). Sociologists explain such motives of the young people outflow as unattractiveness of territories and low level of opportunities for self-realization on the basis of expert interviews and observation (Nedoseka, Sharova, 2020).

According to the results of the literature review, a research gap is the lack of knowledge about what motivates individuals to migrate to the AZ RF. We can identify the following reasons for the insufficient study of migration motives in the AZ RF: 1) due to the dominance of questionnaire

methods, the migration motives are too generalized and presented in the context of migration outflow from the regions of the Russian Arctic; 2) it is insufficiently reflected how the motives for migration in the direction of the Russian Arctic are related to reasons for residence and implementation of life plans in the Russian Arctic; 3) the use of the interview method to identify the characteristics and contexts of migration motivation is not widespread. Given this, the aim of the study is to determine the features of the motives of youth migration to the Russian Arctic in the context of the interrelation between the meaning of migration for a person and the specifics of the territory of the AZ RF. The goal setting is conditioned by the specifics of Arctic territories development, reflected in the works of specialists in Arctic studies (Zamyatina, Pilyasov, 2018). We conducted the research on the materials of interviews with migrants.

We set the following objectives to achieve the goal: 1) to determine the methodological, theoretical and methodical framework of the study; 2) in the course of analyzing the conducted interviews to substantiate the features of motivation of youth migration in the AZ RF; 3) to determine the areas of work and social institutions in the AZ RF, within which one can use the obtained results of the study on the features of motivation of youth when moving to the AZ RF.

Scientific novelty is determined by the lack of knowledge about the motives of young people moving to the Russian Arctic and lies in the identification of the features of motives for moving to the Russian Arctic from non-Arctic regions. The specification of migration motives is of scientific importance in the development of motivational tools for attracting qualified young people to the AZ RF and, in general, in the improvement of demographic policy in terms of improving the potential for movement to the Arctic territories.

Methodology and methods of research

The focus is on interregional migration (from non-Arctic territories to the Arctic territories of the constituent entities of the AZ RF) with a period of residence in the AZ RF of more than a year. It is explained through the drivers and causes of migration as well as the motives of individuals. According to L.L. Rybakovskii, migration drivers are "certain components of objective conditions" and "factors-conditions" that act as determinants (driving force) of migration (Rybakovskii, 2017). Factors as components of objective conditions are confirmed in the actual works related to the study of the AZ RF and were initially built-in in the research methodology. The cause of migration lies at the intersection of objective and subjective factors. To concretize the concepts of the subjective side of migration determination, let us turn to the categories of "value", "value orientation" and "motive". M. Weber, the founder of "understanding" sociology within the interpretive paradigm, determined that a value subjectively significant for an individual acts as a motive for activity. The development of this idea in the works of T. Parsons led to the introduction of the category of "value orientation", which is a criterion for making key life decisions (Evdokimova, 2018). Value orientations to achieve goals that determine the main content of life represent the meaning of life plans of an individual (Toshchenko, 2016) and are based on needs. Thus, migration from the point of view of the individual has a motivated character, conditioned by the needs and values of the individual, and in terms of meaning correlates with the social and economic specifics of the society of the place of settlement or departure. The migration motive should be understood as a combination of need and value orientation of an individual, the insufficient degree of realization of which in the place of residence induces the individual to change the place of residence and is associated with the expectations of life in the place of settlement.

The features of migration motives are aspects that show the interrelation between an individual's life plans and objective socio-economic territorial factors related to the place of arrival (as a territory for the realization of life plans) in the context of the interrelation between the meaning of migration for a person and the specifics of the territory.

The theoretical framework for the study of migration motives is also determined by the sectoral sociology of migration, aimed at explaining "factors that determine the motivations behind migrants' decisions to move and choice of destination" (Yudina, 2002). One of the basic theories of migration sociology is the pull-push theory (E. Lee), which structures the variety of motives for migration through the conditional attractiveness/unattractiveness of a place of residence. The synthetic theory of migration (D. Massey) provides an understanding of the motives for migration through social interactions of individuals within social groups and communities, as well as belonging to them (family, friends, professional community, etc.) (Blinova, 2009).

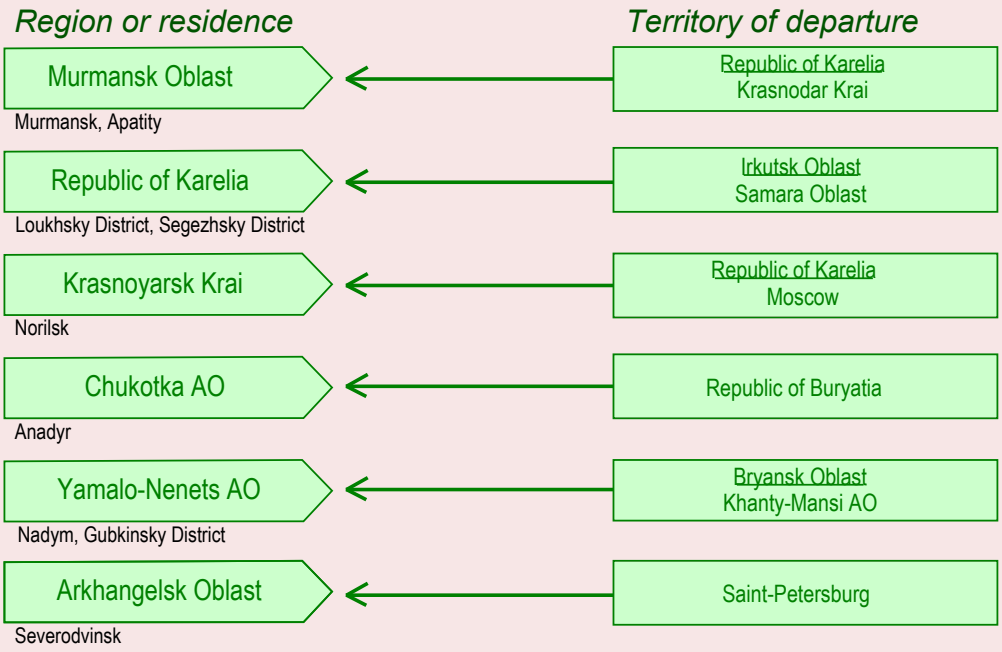
The main research method is a semi-structured in-depth interview with representatives of young people who moved to the AZ RF for permanent residence. The interview guide is designed to take into account the operationalization of motive and the outlined theories on the motives for migration. Due to the less directive nature of the researcher, it allows directing the conversation in favor of those topics, "vulnerable" or "inspirational" moments and attitudes that the informant thinks about and that trigger reflection on the "points" of attachment to the place of residence (the Russian Arctic) as part of territorial identity; and the experience of migration to the Russian Arctic as a meaningful life plan. Covering issues of personal tangible and intangible motivations for migration, projection of life plans in relation to the Arctic region, social well-being and generational commitment, the interview guide provides an opportunity for a comprehensive study of the motives for migration.

We conducted the research on the territories of the constituent entities that are fully or partially included in the Arctic zone of the Russian Federation. The terms "Arctic zone of the Russian Federation" and "Russian Arctic" are identical. The terms "North" and "Extreme North" are also used to refer to the northern part of the Russian Federation, which has climatic and economic features in relation to other (central, southern and eastern) territories of Russia. During the field stage, the author conducted 10 in-depth interviews with representatives of young people aged 18 to 35 years who had experience of migration to the Arctic zone of the Russian Federation for permanent residence in the range from 1 to 7 years. We selected informants based on the results of a survey of young people carried out by Internet survey method in the AZ RF in November – December 2022, covering 8.5 thousand people, in the course of which the respondents independently indicated their willingness to participate in the interview. Interviews, ranging in length from 40 to 80 minutes, were conducted via Zoom videoconference or by telephone. Industrial workers (3 people), social sector workers (3 people), self-employed (1 person), municipal employees (2 people), student (1 person) participated in the interviews by type of employment. The geography of the survey is presented in *Figure 3*.

We analyze the qualitative data using a thematic analysis procedure that allows reducing the data set to compact semantic themes[2] to identify unifying trends in individual biographies. We derive themes through inductive-deductive analysis directly from empirical data, analyze and combine

[2] Polukhina E.V. (Ed.). (2023). *Praktiki analiza kachestvennykh dannykh v sotsial'nykh naukakh: ucheb. posobie* [Practices of Qualitative Data Analysis in the Social Sciences: Textbook]. Moscow: Izd. dom Vysshei shkoly ekonomiki.

Figure 3. Geography of in-depth interviews with youth representatives with migration experience in the AZ RF



Source: own compilation based on the results of the field stage of sociological research.

them as characteristics of migration motivation. Each defined theme is a dominant compact semantic generalization through the analysis of the subjective experiences of people who provide their understanding and explanation of the motive for moving to the Arctic. Ultimately, the study identifies the importance of living in the Arctic from the perspective of individuals. By revealing and substantiating these positions, the potential for displacement to the Russian Arctic can be strengthened.

Findings

In accordance with the objective determinants of migration, based on the analysis of interviews we formulated the themes that clarify and explain the features of migration motivation of young people regarding moving to the AZ RF for permanent residence *(Tab. 2)*. The themes show how the meaning invested by the recipients in migration in the territory of the AZ RF is clarified and explained.

The financial incentive of arrival in the AZ RF, which is one of the most basic in the structure of migration motives and retains its dominance along with other meanings of migration, is revealed most fully through the identified themes. An in-depth look at the money motive show that earning finances "in the North" is often not an end in itself, but a necessity to make major purchases (real estate: buying an apartment, "paying off" a mortgage, building a house, etc.). Usually forced migration is considered force majeure when there is a threat to life, but in the stories of informants who moved to the Russian Arctic there is a characteristic of *"forced"* migration due to the inability to achieve the desired standard of living in the previous place of residence.

*"It is **a forced measure to stay** because of a strong need, a large debt. I haven't met many who would choose to stay if it weren't for the money issue. Some claim there is a romance in the north, they*

Table 2. Structure of topics that clarify and explain the motivation of youth migration to the AZ RF

Objective factors in the AZ RF as a territory of arrival	Themes derived from in-depth interview narratives
High indicators of average accrued wages in the constituent entities of the AZ RF	• Income in the Arctic as a solution to the acute problem of financial shortages • Earning money in the North is not an end in itself, but a means of solving the problem of lack of finances for large purchases, most often real estate (buying an apartment, "paying off" a mortgage, building a house). • Financial opportunities to earn money in the North: compensation not only for material, but also for emotional and stressful difficulties • Agreements in the family about the timeframe of migration: migration to the Arctic as one of the life stages to achieve certain goals
Labor deficit of the economy and urbanization of the Arctic territories of the constituent entities of the AZ RF	Arctic cities – an alternative to megacities (comfort of life rhythm and stress minimization)
Specifics of the economy of the constituent entities of the AZ RF; dominance of the industrial complex and military infrastructure	Unique professional experience in the Arctic as an opportunity for professional and career development
Employers provide assistance in obtaining housing upon employment in the AZ RF	Provision of housing as an opportunity to separate from parents and have "own" accommodation
Availability of educational organizations	The effect of educational migration: living arrangements during adulthood and separation from the family
High rates of migration intensity	• Circulation of migrants – economic and social norm for the Arctic • Return skilled migration: background for starting (continuing) labor activity in the Arctic (influence of reference environment)
Stereotypes about the North	• The character of northerners: "the world of real people", responsiveness, sincerity • Romanticized perception of the features of life in the Arctic zone of the Russian Federation through their uniqueness, unusualness – "not to be in the trend"
Source: own compilation based on the materials of in-depth interviews of the sociological survey.	

are drawn to the north, but I think it's purely financial. Perhaps a few individuals feel a spiritual connection to Chukotka and don't want to move, but this is likely uncommon" (Chukotka AO, male, 29 years old).

Wages are perceived as a means of compensating for the difficulties one faces living and working in the Arctic regions. Wages compensate not only for the high cost of living, but also for the emotional and stressful difficulties imposed by the harshness of the climate on physical and emotional health, including the longing for family and friends who remain in another region. We should note *"delayed life syndrome", "fear of missing out",* which can lead to serious emotional distress and burnout.

"It feels like while I'm here, ***life's going on somewhere else.*** *It's just all about relationships and connections. It's all about socialization, dynamic life, and it's difficult here because of the harsh weather and polar night" (Chukotka AO, male, 29 years old).*

"I feel sorry for parents who still say: "I will save up now, put money aside, the working year will be over". The whole older generation says (the informant quotes parents' statements): "Do the same thing: ***now save money****, work for a while,* ***then just leave, you don't need it.*** *We are the generation that came to build"* (Yamalo-Nenets AO, female, 21 years old).

The phrase *"wages keep me here"* has become common and widespread when explaining the habitability of the population in the Arctic. Certainly, working in the Arctic presents a challenging goal for attaining high income compared to many other regions, particularly those from which one has relocated.

"Here you ***get into the mood, you feel the money and you want more and more. I came here to pay back the loan, the mortgage.*** *Well, for 5 years, roughly speaking, it all depends on whether you get good position and higher earnings, and you won't want to come back. People who live here for a long time, get a good salary, and when they leave for the mainland, they come back because they can't get used to the standard of living on the mainland, it's different there than in Anadyr. It's a common occurrence"* (Chukotka AO, male, 29 years old).

To determine the main "points" of attraction of young people to the Arctic, let us turn to the statistical data on the municipal entities of the AZ RF, reflecting the changes in population size, the intensity of migration increase and the level of wages *(Tab. 3)*. The population is growing most massively in those settlements of the AZ RF, the economic impetus of development of which is based on the oil and gas producing sectors of the economy. In fact, the popularity of this destination among incoming migration flows and positive population growth are explained by the higher than average wage level in the AZ RF.

The financial factor, being the strong point of the attractiveness of working in the Arctic, in combination with the urbanized environment has the potential to make the Arctic cities *an alternative to large agglomerations-megacities* that traditionally attract young people due to the diversity of socio-cultural infrastructure, high level of development of professional and business environment. At the same time, the advantage of Arctic cities over megacities is a more balanced rhythm of life, a lower level of social race and competition.

"I think it's nice in our north, ***the salary level is the same****, but there are no traffic jams, well, to each their own. I enjoy visiting Saint Petersburg, its theaters, cinemas, and Nevsky Prospect. I also like going to Moscow, to visit the Bolshoi and other theaters, dine at restaurants. I have such an opportunity and I like it better,* ***to go out and relax, but I am not drawn to live there"*** (Murmansk Oblast, female, 31 years old).

"My income tripled, ***I started to work in a more stable and balanced way,*** *not the way I was working before.* ***Roughly speaking, I started living.*** *Living in a big city you spend a lot of time in traffic, you don't sleep much, and here everything is near and there is everything you need, just on a different scale"* (Krasnoyarsk Krai, male, 31 years old).

Table 3. Leaders among municipalities in the AZ RF in terms of population and migration increase within the framework of interregional migration, indicating the share of young people in the total number of arrivals and average accrued wages (AAW), 2021

Municipal district	Population, people	Population change from 2011 to 2021, people	Migration increase rate per 10,000 people	Share of youth in total arrivals in 2021	AAW, rubles	AAW/LW*
Labytnangi	32,586	6,014	27	37.1%	95,931	5.6
Gubkinsky	38,336	12,488	19	40.4%	120,924	7.1
Purovsky District	42,693	-9,109	69	40.8%	121,660	7.1
Salekhard	52,272	7,639	27	38.6%	125,666	7.4
Nadymsky District	67,273	-1,054	129	40.4%	145,196	8.5
Novy Urengoy	118,667	6,475	-48	35.6%	127,031	7.5
Norilsk	184,645	6,506	-35	44.3%	122,922	9.2
AZ RF	***2,473,086***	***-127,839***	***-41***	***41.7%***	***86,180***	***4.9***

* LW – living wage (the whole population), 2021.
Source: own compilation according to the database of municipalities. Available at: https://rosstat.gov.ru/storage/mediabank/Munst.htm (accessed: December 20, 2022).

"I've noticed that ***there is even no competition here, and people are very relaxed****. If people go to the mainland, they return. Perhaps the reason is tough competition, with 100 applicants per job there, and here the number of applicants is negative"* (Chukotka AO, male, 29 years old).

Thus, one of the basic meanings of moving to the AZ RF is the possibility of high earnings on its territory, which allows solving significant financial problems for migrants who were unable to earn money for large purchases in their previous place of residence. At the same time, earnings "in the North" are perceived as a compensation for experiences and difficulties caused by the feeling of isolation of northerners and other difficulties of living in harsh conditions.

Combined with the financial component, confirmed during the research and provided with context, another motive to stay in the Arctic for the long term emerges – the opportunity for *unique professional experience and development in the profession and career.* The economic orientation of the AZ RF and the high science intensity of the Russian Arctic economy allow developing professionally with major employers and gaining unique and competitive experience.

"Having got here, I realized that there was a ***unique opportunity to participate in scientific activities****, in the elimination of a major environmental disaster in Russia – it was a unique opportunity to apply all my knowledge, experience, skills and abilities in real life. It was* ***a very big boost to my professional growth***" (Krasnoyarsk Krai, male, 31 years old).

"I have an acquaintance who studies whales and people. ***This work inspires him and he gets a kick out of it****. It might be* ***interesting on the research side****, but nothing more than that"* (Chukotka AO, male, 29 years old).

"In fact, my husband, if I probably didn't push him all the time, he would have stayed here another year, maybe another year and a half. Because ***he's doing what he likes*** *– emergency volunteer development, basic military training. He likes all this stuff"* (Yamalo-Nenets AO, female, 26 years old).

Given this motive, we can conclude that the opportunities for professional development are determined, on the one hand, by the economic characteristics of the macroregion, which is the basis of its crucial importance and noteworthy emphasis in management practice. On the other hand, the biggest vertically-focused companies of the extracting complex and manufacturing industry operate in the Arctic territories, which provide opportunities for building a professional career through the system of personnel recruitment. The mentioned professionalization and earnings form the basis of informants' rational motivation to migrate.

The study shows that there is also a specific irrational motive that romanticizes life in the AZ RF through its uniqueness, originality and complexity: life is perceived through the attitude *"not to be in the trend", "to overcome oneself".*

"I was drawn to the chance to call myself a polar explorer, a northerner. The ***contrast of the region is appealing*** *because* ***most individuals prefer the south****, but here I wanted to* ***preserve my uniqueness****. It's* ***a distinctive philosophy*** *and approach that requires* ***love*** *and dedication. A different type of character, it is shaped here in a different way"* (Krasnoyarsk Krai, male, 31 years old).

"They say that Chukotka is a world of real people due to the distinct identity and values found here. ***Trust*** *and* ***morality*** *are highly emphasized. Living here requires good moral character as not everyone can adapt to this lifestyle.* ***Providing assistance to those in need is a norm*** *and people here value kindness and things that are often disregarded on the mainland"* (Chukotka AO, male, 29 years old).

"These thrilling snowmobile and fishing trips are activities for real men. I mean, 'I am a real man, I live here in the north, in such a harsh region', and this is their attitude to the north, to the self. Only those with strong spirits can survive and thrive here. If you are strong in spirit, then living in the north is the perfect place for you" (Krasnoyarsk Krai, female, 33 years old).

Working in challenging climates can be a personal ambition that tests one's resilience, competitiveness, and strength. It presents a "challenge to oneself" that, once overcome, leads to personal growth and development. This formula resembles the idealized message of the Soviet era, when young people went to "build" northern cities for future generations, stood at the origins of the development of hard-to-reach and climatically complex territories. The romantic message of today takes on a new meaning of "not being in the trend", not living "like everyone else", not being in the stream of "fashion trends", but being unique and special in some way. Living and working in the Arctic provides a unique and special experience, which builds human and social capital and holds a favorable position as an advantage for Arctic residents.

We should note that the gender context is evident in the romanticized meaning of life and stay in the AZ RF, as reflected in the informants' statements. In male migration, the predominant motive is the aspiration for professional development and resolving financial and material tasks. This is viewed as improving the overall standard of living for the family. Women's motivation is often rooted in following their male partner or spouse, guided by their desire for relational growth, support for their partner, and the arrangements of family life. It is clear from the interviews that professional fulfillment increases the chances that men will stay in the AZ RF. Women tend to compare cities in terms of aesthetics. Industrial northern cities "lose" in this comparison and are described with such epithets as *"gray", "provincial", "dark"*.

"When I think of a provincial town, I have a picture in my mind of such a ***small, dreary*** *town. I think of towns in the Sverdlovsk Oblast, where I used to live. They had a lot of heavy industry, and* ***were usually built around factories and industries*** *of some kind. That's why I still think of provincial Ural towns as being industrial and gray,* ***without much effort to develop or beautify*** *them. Nadym felt like one of those kinds of towns to me"* (Yamalo-Nenets AO, female, 26 years old).

Despite the unique urban conditions in northern regions, migration to the urbanized Arctic serves as a social ladder for inhabitants of non-Arctic rural settlements and small towns, who were previously unable to secure well-paying jobs in their previous place of residence. It offers the opportunity to gain higher wages, along with fully or partially paid housing provided by the employer as a job perk, as well as social security and broader financial prospects for vacations, loan payments and major purchases (real estate, cars, etc.).

"Moving to an unfamiliar place can be frightening. But ***we didn't have our own apartment*** *there, we lived with our parents, and now we have the apartment provided with the job"* (Republic of Karelia, female, 34 years old).

Educational migration for young people from non-Arctic rural areas plays a similar function as separation and social ladder.

"What made me feel confident was that I didn't want to go to Petrozavodsk because it's nearby. I ***wanted to go somewhere further for a new experience*** *since many people I know went to Petrozavodsk. Basically, I got what I wanted. The university is amazing, with engaging classes and extracurricular activities"* (Murmansk Oblast, female, 19 years old).

Migration, in a sociological context, involves enhancing living standards through increased earnings, improved housing, and the ability to make significant purchases. It also fulfills the need for

professional development and recognition through professionalization. Migration also offers individuals an opportunity to obtain autonomy, independence, and separation. Additionally, it can lead to family formation and change in social status.

The motives for migration are confirmed by the synthetic theory of migration and lie in the context of maintaining certain social ties (following a husband, parents or relatives; following the experience of friends, etc.), the essential traits of a certain social group. Social networks play a crucial role in the process of migration: "family and friends effect", "chain reaction", and "migration capital". It is important that decisions to migrate are influenced by reference groups (parents, relatives, friends, colleagues), and the motives for migration are correlated with the goal of improving the well-being of families.

Thus, we can summarize what are the features of motivation to migrate in the AZ RF.

1) The motivation for migrating to the AZ RF among individuals who are dissatisfied with the high levels of competition and fast-paced lifestyles of megacities is driven by the desire to earn money. Arctic offers the opportunity to make money while avoiding the stress of social race, competition, and busy schedules. It is more difficult for migrants from regions with not very high economic potential to succeed in large agglomerations, while the labor-deficient regions of the Arctic offer job prospects and scope for growth.

2) For some representatives of the young generation, development in the harsh North, rather than in a large metropolis, is determined by the motive to get a unique experience – "not to be in the trend" and to test themselves for "strength", to strengthen their skills, to "harden" their character; as a way to be successful. Young people are attracted to the differences in lifestyle between the northern regions and large cities (contrasts in leisure activities, climate, rhythm of life). Simply residing in the North is indicative of strong and determined character.

3) The Arctic's romanticization reflects young people's longing for moral virtues like kindness, helpfulness, and trust. The close social ties in Arctic cities offer an escape from the "loneliness of large urban areas".

4) When looking for a job or education opportunities in the Arctic, young people are motivated by the desire for novelty, the opportunity to establish new social connections, and the prospect of experiencing something different. Concurrently, the recruitment practices of companies operating in the Arctic zone of the Russian Federation, including remote interview options, housing provisions, and accessible transportation, facilitate migration, especially from rural locations.

In the statements of some informants there is a rational connection between the reason for migration and the ultimate goal of staying in the Arctic, which confirms the so-called phenomenon *of the temporary worker* in the North (Burtseva et al., 2020) – the stigmatization of a person with a delayed life syndrome for the sake of material purpose and benefit. This is the reason for the generational turnover in the Arctic, called *commuting* (Zamyatina, Pilyasov, 2018), which is the social and economic norm for the Arctic macroregion.

> "***There is such a movement of people*** *in our region. Young people from the province, small towns, and rural areas move here to work, to settle down, and the elderly who have accumulated wealth, tend to relocate to warmer regions, often closer to their family. When we were looking for housing in Severodvinsk, the real estate agent asked 'why we chose to move there when many others are leaving?'"* (Arkhangelsk Oblast, female, 35 years old).

Table 4. Areas of scientific and managerial work in the AZ RF and the activities of social institutions, in which the findings on the features of young people's motives for moving to the AZ RF can be used

Themes clarifying and explaining migration to the AZ RF revealed through in-depth interviews	Areas of scientific and managerial work	Social institutions
The effect of educational migration: living arrangements during adulthood and separation from the family	Assessment of educational migration opportunities for young people in the AZ RF	Enrollment campaign of vocational education organizations in the AZ RF; career guidance institute
Return skilled migration: background for starting (continuing) labor activity in the Arctic (influence of reference environment)	Ensuring return skilled migration to the AZ RF	Territorial bodies of the employment service in the AZ RF
Unique professional experience in the Arctic as an opportunity for development in profession and career; income in the Arctic as a solution to the acute problem of financial shortages	Highlighting the benefits of employment with the AZ RF employers	Personnel recruiting system of employers of the AZ RF; career guidance institute
Nature of northerners: "the world of real people", responsiveness, sincerity; romanticizing the features of life in the AZ RF as unique, unusual – "not to be in the trend"	Positioning information about life and employment opportunities in the romanticized context of the Arctic lifestyle	Formation of an attractive image of the AZ RF and branding of territories
Housing provision as an opportunity to separate from parents and have "own" accommodation	Comprehensive development of the housing market in the AZ RF; increased demand for the services of construction companies in the AZ RF	Promotion and expansion of the "Arctic mortgage"
Arctic cities – an alternative to megacities (comfort of life rhythm and stress minimization)	Using urban technologies to improve the socio-cultural infrastructure of Arctic cities; development of research in the field of environmental sociology	Formation of positive image and branding of territories
Source: own compilation based on the materials of in-depth interviews of the sociological survey.		

Commuting actualizes the purpose of the study and raises the main question of attracting migrants and stimulating migration inflows to the Arctic. The opinion of one of the informants, aimed at long-term residence in one of the Arctic constituent entities, very accurately complements the significance of the topic of migration motives: *"The problems of the Russian Arctic are not from cold and climate, but from economic and social infrastructure"*. A deep dive into the reasons for migration reveals additional contexts of motives, sharpened by both tangible and intangible components, the consideration of which will allow forming a more positive image of the AZ RF to attract young people (Zamyatina, 2016). Based on the formulated themes that clarify and explain the motivation of migration in the AZ RF, we identify the following areas of work and social institutions in which the findings can be used *(Tab. 4)*.

Discussion and directions for further research

In general, we can conclude that the features of the motives of youth migration to the Russian Arctic through the search for the interrelation of life purposes and the specifics of living in the Russian Arctic have the potential for scaling up in terms of strengthening the attractiveness of the Russian Arctic. However, researchers speak of "mythologizing the well-being of the North, tightening structures of inequality and extensive use of infrastructure, which is reflected in the decline in the standard of living and quality of life of northerners. Only a small part of them receive high incomes, but even they no longer compensate for the costs associated with working in harsh climatic conditions and expensive living in the North" (Lytkina, Smirnov, 2019).

Avoiding the stress of large megacities can be replaced by stress and burnout from living in remote

northern territories. Experiences are conditioned by climatic inconveniences, feeling of isolation, specificity of industrial northern cities. All this is consistent with the so-called "topophobia affecting the population of the cities of the Kola North" (Burtseva et al., 2020). "Topophobia" weakens the connection with cities due to indifference and negative perception of climate, environmental situation, etc.

Arctic cities may find it difficult to compete with megacities due to "the formation of a mature virtual reality, <…> radically changing the space of comparison of models of self-actualization" and "the emergence in Russia (especially in the capital and large cities) of developed centers of consumer society that form powerful fields of attraction for the hinterland" (Il'in, 2022).

We see the prospect of further analysis of the results taking into account the gender aspect, aimed at identifying the features of migration behavior of male and female population. We also plan to expand the research in terms of forming expert opinion on the mechanisms of organizing interregional labor migration to study the ways of attracting population to the region and introducing knowledge about the migration behavior of young people. The issue of return skilled migration is also of scientific and applied interest: weather young people, adapted from childhood to life in the Arctic, after receiving education outside the AZ RF, return to their native northern regions to work.

The results of the study on the structure and interrelations of the features of motives for moving to the AZ RF have high practical and epistemological significance in the development of a more accurate and detailed motivational toolkit for attracting the population to the Arctic zone within the framework of demographic and human resource policy of the macroregion.

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Rural Areas Population' Migration Factors in the European Part of the Russian Arctic

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Abstract. The study of migration remains relevant, despite the presence of a wide range of papers by authors from Russia and other countries on the subject. The features of migration processes, in particular migration factors, in rural areas of the Arctic zone of the Russian Federation are of the greatest interest due to the current accumulation of sufficient amount of data for analysis. The article considers seven municipalities of the European part of the Russian Arctic and empirically determines statistically significant migration factors through correlation analysis. Data on 15 indicators were collected from 2008 to 2021. We reveal that the most significant migration factors are the development of education, the situation regarding transport links, food and financial security of the population, and housing provision. At the same time, the combination of statistically significant factors is unique for each individual municipal entity. The thesis, widespread in the migration theory, about the greater influence of economic factors on the dynamics of migration was only partially confirmed in the case of the rural areas under consideration. It was found that individual indicators, such as agricultural production and employment, generally do not affect migration decline (increase), and the established relationship with such an indicator as wage level cannot be interpreted unambiguously. With the growth of labor incomes, the outflow of rural residents from their native areas reduces, but does not disappear completely. In turn, the increase in nominal wages is to a large extent a reflection of the inflationary effect; therefore, it cannot be an effective mechanism for retaining the rural population.

Key words: human migration, migration factors, Arctic zone of the Russian Federation, municipality, rural area.

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Introduction

Migration issues have always occupied a central place in the system of managing the region's human potential. Thus, in 2018, the Concept of State Migration Policy of the Russian Federation for 2019–2025[1] was approved to define the foundations and guidelines in this area, where migration growth is considered as one of the tools to compensate for natural loss and "a source of labor resources". Economic and social factors are emphasized as the main migration factors, which determines the policy toward migrants. Moreover, the document "Fundamentals of the State Policy of Regional Development of the Russian Federation until 2025"[2] highlights the improvement of regulatory mechanisms through the stimulation of interregional migration in accordance with the needs of each region and the preservation of labor resources in the country as one of the objectives of the proclaimed course. Thus, the study of migration processes in general and migration of labor resources in particular remains relevant in the context of labor

[1] On the Concept of State Migration Policy of the Russian Federation for 2019–2025: Presidential Decree 622, dated October 31, 2018. Collection of Legislation of the Russian Federation 45, Art. 6917, dated November 5, 2018.

[2] On Approval of the Fundamentals of the State Policy of Regional Development of the Russian Federation until 2025: Presidential Decree 13, dated January 16, 2017. *Official Internet portal of legal information*. Available at: http://publication.pravo.gov.ru/Document/View/0001201701160039 (accessed: July 13, 2023).

force retention in a particular territory. This issue is most acute for municipalities within the Arctic zone of the Russian Federation (hereinafter – AZRF), where population outflow has been observed over the previous 20 years (Fauzer, Smirnov, 2020). Moreover, the process of leaving AZFR is seen as feature of municipalities, especially their rural part (Nefedova, Mkrtchyan, 2017). All these facts allow asserting that population outflow from the AZRF rural areas has the most pronounced and critical importance in the process of their development.

In this article we analyze the relationship between net migration growth / loss and various parameters reflecting the dynamics of socio-economic condition of a number of rural municipal districts[3] belonging to the territories of the European part of the AZRF. These districts are part of three neighboring constitute entities of Russia: 1) Arkhangelsk Oblast – Leshukonsky, Mezensky, Onezhsky, Pinezhsky, and Primorsky districts; 2) Nenets Autonomous Okrug – Zapolyarny District; 3) Komi Republic – Ust-Tsilemsky District[4].

The share of rural population *(Fig. 1)* in the selected municipalities ranges from 30 to 100%, and the average in the aggregate is 77%, with a slight decrease in the share of rural population in Onezhsky Municipal District[5] and an increase in Mezensky Municipal District[6].

In most of the municipalities under consideration (except Primorsky District), population is decreasing due to natural causes and migration loss *(Fig. 2)*.

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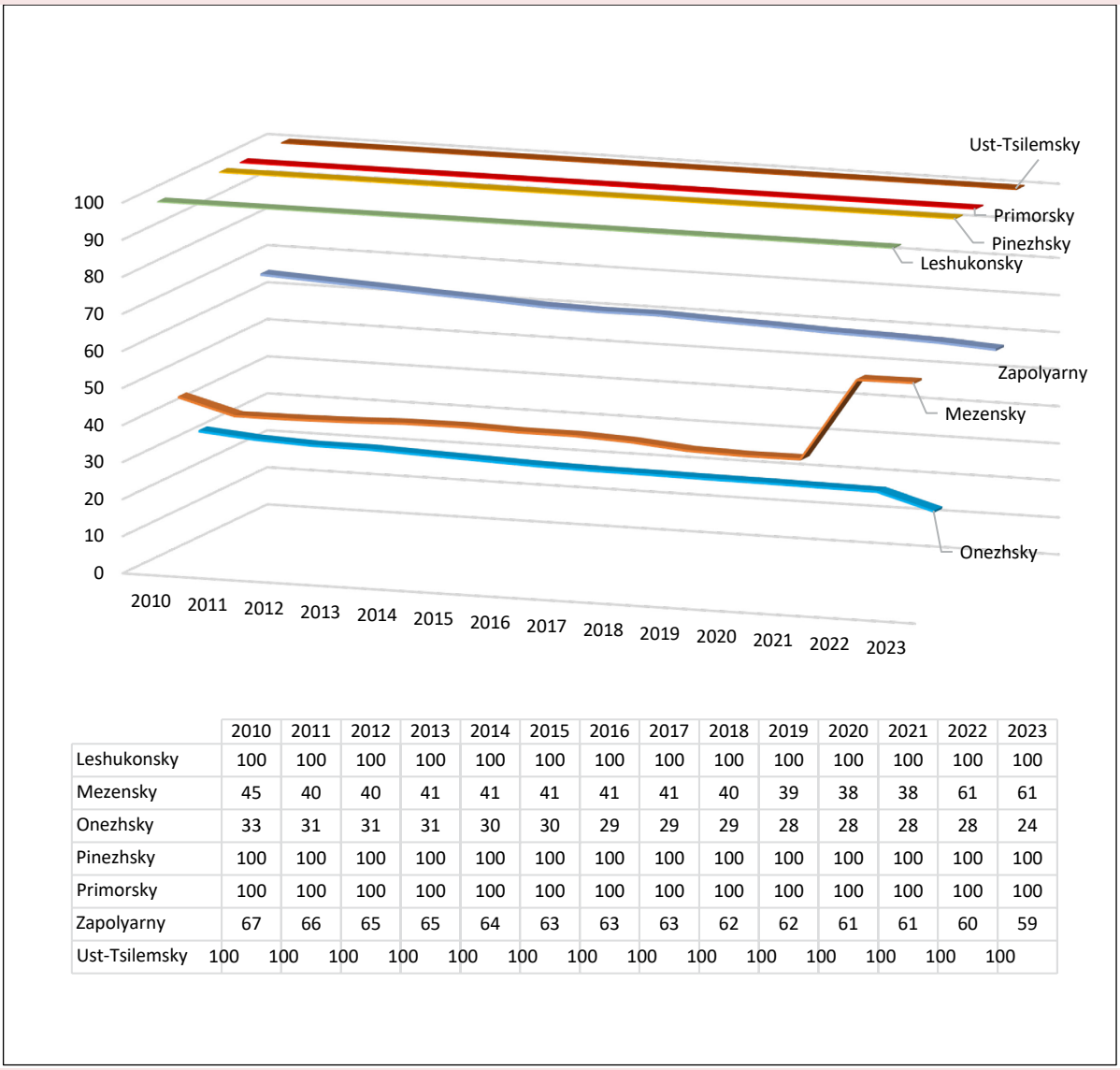
[3] Some municipal districts were transformed into municipal okrugs, but the change of their status does not affect the study. Moreover, the dynamic series are presented only for municipal districts, so the term "municipal district" or "district" will be used, implying also the territory within the boundaries of the current municipal okrug.

[4] The choice of such geographical frameworks of the study, rather than all rural areas of the European part of the AZRF, is conditioned by the following circumstances: 1) the development of these territories took place within approximately the same chronological limits and according to similar models, which distinguishes it from similar processes in the north of Karelia and the Murmansk Oblast; 2) institutionally, Nenets Autonomous Okrug (NAO) is a part of the Arkhangelsk Oblast, and both regions have close relations in the financial and economic, cultural, educational and socio-political spheres; 3) at the same time, Nenets Autonomous Okrug and the Arctic part of the Komi Republic have a similar sectoral profile, which today (against the backdrop of the declining role of the coal industry in the north of the Komi Republic) is based on the oil and gas sector; the spread of reindeer herding is also common; 4) three regions have an extensive land border and most of the border municipalities belong to the AZRF; the Arkhangelsk Oblast is connected with the Komi Republic by the Northern Railway and motor roads, and the construction of a highway linking Usinsk and Naryan-Mar is underway. Thus, the municipal districts selected for analysis form a single macroregion by historical and economic parameters.

[5] Although the urban-rural population ratio in Onega Region formally requires to classify it as a highly urbanized municipality, almost the entire urban population is concentrated in Onega (another urban settlement of the region – Maloshuiskoye – is a small working settlement of railway workers and several adjoining villages). Onega is a district center and at the same time a city of regional significance (the smallest in the region in terms of population), is a typical single-industry town with the town-forming enterprise Onega Sawmills, the production activity of which depends entirely on local forest resources. The presence of the only full-fledged single-industry town with a vast territory with more than a hundred settlements located on it makes Onezhsky District de facto largely rural in terms of the lifestyle of its population. This is also reflected in migration trends, which are the same both for Onega and for the purely rural part of the District: over the period from 2011 to 2022, the migration balance for Onega was consistently negative, with the population decreasing by 22%. According to: Passport of the municipality "Onezhskoye". Database of indicators of municipal entities of the Arkhangelsk Oblast. Federal State Statistics Service. Available at: https://www.gks.ru/scripts/db_inet2/passport/pass.aspx?base=munst11&r=11646101 (accessed: July 13, 2023).

[6] A sharp increase in the share of rural population in Mezensky District is associated with the change in the status of the urban-type settlement Kamenka into Kamenskoye Rural Settlement (share in the population of the region as of January 1, 2022 ≈ 23%). According to: Database of indicators of municipal entities of the Arkhangelsk Oblast. Federal State Statistics Service. Available at: https://www.gks.ru/scripts/db_inet2/passport/munr.aspx?base=munst11 (accessed: July 13, 2023).

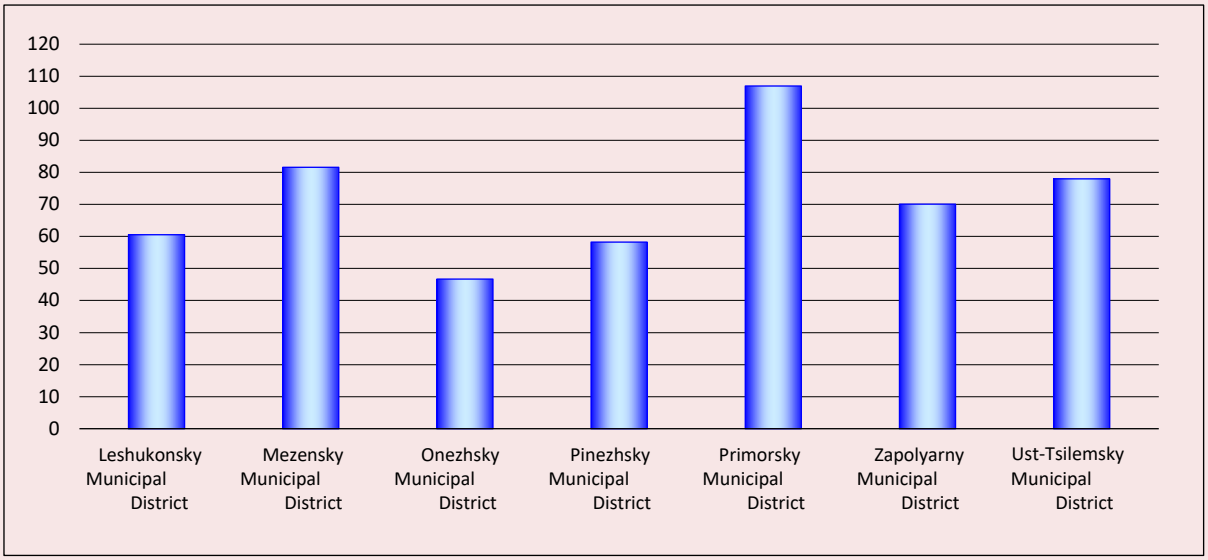
Figure 1. Share of rural population in the total number of inhabitants of municipalities of the European part of the AZRF from 2010 to 2023 (as of January 1), %



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Leshukonsky	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Mezensky	45	40	40	41	41	41	41	41	40	39	38	38	61	61
Onezhsky	33	31	31	31	30	30	29	29	29	28	28	28	28	24
Pinezhsky	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Primorsky	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Zapolyarny	67	66	65	65	64	63	63	63	62	62	61	61	60	59
Ust-Tsilemsky	100	100	100	100	100	100	100	100	100	100	100	100	100	100

According to: Database of indicators of municipal entities of the Arkhangelsk Oblast. Federal State Statistics Service. Available at: https://www.gks.ru/scripts/db_inet2/passport/munr.aspx?base=munst11 (accessed: July 13, 2023); Passport of the municipal formation "Ust-Tsilemsky Municipal District". Database of indicators of municipal entities of the Komi Republic. Federal State Statistics Service. Available at: https://www.gks.ru/scripts/db_inet2/passport/pass.aspx?base=munst87&r=87652000 (accessed: July 13, 2023).

Figure 2. Population decrease (growth) rates in the municipalities of the European part of the AZRF from 2010 to 2023, %



According to: Database of indicators of municipal entities of the Arkhangelsk Oblast. Federal State Statistics Service. Available at: https://www.gks.ru/scripts/db_inet2/passport/munr.aspx?base=munst11 (accessed: July 13, 2023); Passport of the municipal formation "Ust-Tsilemsky Municipal District". Database of indicators of municipal entities of the Komi Republic. Federal State Statistics Service. Available at: https://www.gks.ru/scripts/db_inet2/passport/pass.aspx?base=munst87&r=87652000 (accessed: July 13, 2023).

At the same time, migration movement in the AZRF rural areas can be influenced by both economic factors, such as wages and the availability of jobs, and other factors: the state of social infrastructure, cultural and recreational sphere, transportation accessibility, etc. The aim of our research is to determine the statistical relationship between factors of migration in the mentioned rural areas and to identify the specifics of this relationship for specific municipalities.

Theoretical review

In existing studies, the topic of migration is presented quite widely. The works of the previous decade cover fundamental aspects of migration theory (Vishnevskii, 2017; Rybakovskiy, 2017a; Rybakovsky, 2017b; Logan, Shin Hyoung, 2012; Borjas, 2021), migration behavior (Ambrazhevich, 2014), migration of working-age population (Bezborodova, 2010; Komarovskii, 2022), the specifics of internal and external migration (Nefedova, Mkrtchyan, 2017; Mkrtchyan, 2019; Makhrova, 2020; Champion, 2018), the specifics of female migration (Florinskaya, 2022; Tyuryukanova, 2005), attitudes toward migrants in host communities (Burundukova et al., 2017) and many other aspects.

Another block of theoretical developments within the framework of the object under consideration covers the development of rural settlements, in particular the problems and specifics of their development specifically in the European part of the AZRF (Dmitrieva, Buryan, 2011; Ivanov,

Lazhentsev, 2014; Popova, 2014; Konovalova et al., 2022). The authors of the studies come to a general conclusion about the deteriorating demographic situation in the municipalities, insufficient labor resources in the social sphere and a wide variation in the socio-economic profiles of municipalities, which requires an individual approach in the analysis. It is noted that data limitations make it difficult to identify long-term trends for rural settlements. The socio-economic characteristics of the AZRF regions are considered in detail, but the issue of migration and its factors is only superficially discussed.

In this regard, the main focus of our research is aimed at studying the factors of migration processes. Back in the second half of the 20th century, it was shown that migration attitudes in any society are differentiated, since individuals consider migration instrumentally – as a potential way to meet their specific needs determined by their social status (Khomra, 1979). At present, the basic factors of migration include the level of average/median wages, income distribution, inflation rate and other parameters of a particular territorial system, which can act as effective economic incentives for individuals (Ambrazhevich, 2014). Noneconomic migration drivers of persons over 14 years old leaving the Arctic or, on the contrary, coming to its territories were identified by V.V. Fauzer. These include personal and family reasons, as well as university enrollment. It is noteworthy that environmental well-being and natural and climatic conditions practically do not affect the migration process (Fauzer, 2013).

The study of the specifics of migration processes taking place in the northern and Arctic territories in different countries of the world is devoted to the works of many foreign researchers. For instance, general migration trends in the Arctic are studied in the work of T. Heleniak (Heleniak, 2014); P. Bevelander and R. Pendakur dealt with cross-border labor migration in the Arctic countries (Bevelander, Pendakur, 2014); L. Jungsberg, A. Kopusa and their colleagues studied migration trends in connection with the features of labor markets in the raw material regions of the Arctic (Jungsberg et al., 2018). Russia also has a rich experience in studying this issue (works by V.V. Fauzer, A.G. Shelomentsev, E.V. Smirennikova, etc.).

A.G. Shelomentsev with co-authors, based on correlation analysis, revealed the existence of a relationship between migration and such factors as the level of wages, employment, cost and quality of housing, age, and economic activity in the AZRF regions. As a result, the lowest level of influence of these factors was recorded in the Murmansk Oblast, and the highest – in the Republic of Karelia and the Arkhangelsk Oblast. It is important to note that the employment rate affects migration processes depending on the prevailing type of economic activity. In particular, its influence was found in those municipalities where population was employed in manufacturing and construction. Moreover, the authors found a direct relationship between migration and the number of working-age persons (Shelomentsev et al., 2018).

L.V. Voronina and U.E. Yakusheva continued research in this direction and determined the relationship between the outflow of population and the number of those registered with respiratory, endocrine and blood diseases. The current situation indicates that the population with better health is leaving the AZRF predominantly. The correlation was absent only for Chukotka Autonomous Okrug, which is explained by its remoteness from large Russian cities (Voronina, Yakusheva, 2019).

V.V. Fauzer and A.V. Smirnov, based on statistical and cartographic analysis, have identified the main directions of migration of citizens living in the AZRF regions, having drawn up a scheme of population movement. A distinctive but obvious feature is migration to large cities, primarily cities of federal significance. In this case, the migration process goes in stages: from a rural settlement to an urban district, then to a larger city in terms of population and, eventually, to Moscow (Fauzer, Smirnov, 2020).

To a lesser extent, researchers analyze the migration movement in the AZRF at the level of municipalities. E.A. Korchak, considering the Murmansk Oblast, shows that almost half of intraregional migration affects the administrative center – Murmansk, and connects it with the presence of a large number of labor vacancies in it. He also notes that in Apatity, whose population is largely formed by internal migration, only a quarter of high school students, according to the survey results, plan to stay in their hometown, despite the availability of a significant number of jobs in the mining industry. In rural settlements migration trends are characterized by the fact that every second resident moves to a larger municipality (Korchak, 2019). One of the reasons may be the lack of identity with the place of residence: according to the results of surveys, every fourth connects himself with the Murmansk Oblast, while 70% of respondents note the identity with Russia. In this case, the factor of regional/local identity in migration attitudes is practically absent, which indicates equal opportunities for both intra- and interregional migration (Nedoseka, Zhigunova, 2019).

More detailed migration attitudes, but for the applicants of municipalities of the Republic of Karelia, are revealed in the work of A.V. Simakova and I.S. Stepus'. The research shows that in the Arctic regions of the republic young people with a high level of education or experience of living in another region are more inclined to emigrate for education. Moreover, 72% of respondents plan to continue their studies after graduation, and the main reference point is educational organizations of Moscow and Saint Petersburg. The authors explain such attitudes through the "expectation of a better life" (Simakova, Stepus', 2023, p. 258). We should note that the propensity of young population to migrate to other areas is one of the characteristic features of this age period and is observed all over the world (Smith, Sage, 2014; Jiboku, Jiboku, 2022).

D.N. Mokrenskii continued studying the features of migration processes in the AZRF municipalities. The author conducted a comparative analysis of the Arkhangelsk Oblast with the Kostroma and Vologda oblasts, dividing the municipalities into four types depending on the dynamics of migration and changes in natural movement. Most of them were categorized as having negative dynamics of natural population movement. It is noteworthy that municipalities in the Arkhangelsk Oblast are represented in all four types, while in the Vologda Oblast – in three, and in the Kostroma Oblast – in two. This situation indicates the optimal balance of migration processes within the Arkhangelsk Oblast as an integral system (Mokrenskii, Nikolaeva, 2022).

The conclusions of Russian demographers and economists are partly supported by the results of sociological studies based on survey methods. If we look at the most frequently mentioned in recent years reasons that encourage people to move, then the respondents living in the AZRF territories

(and having pronounced migration attitudes), such reasons are high cost of living, low incomes, unsettled areas of residence, poor transport infrastructure, unfavorable climatic conditions and environmental situation (Blinskaya et al., 2020; Gushchina et al., 2019; Fauzer, Lytkina, 2017).

At the same time, not only the scale of the real migration movement may differ greatly from the level of migration attitudes, but also respondents' assessments of certain socio-economic parameters of their place of residence and their relative importance for motivation to move bear the imprint of subjective perceptions, stereotypes of perception and cognitive distortions. That is why the data obtained in the course of sociological surveys have limited potential for determining the key factors of migration and require verification by another method, such as correlation analysis of migration and socio-economic statistics (Shelomentsev et al., 2018).

Despite the attention to migration issues in the Arctic by foreign authors, who are more focused on cross-country comparison and consider the processes from a global perspective, and Russian researchers, the issue of the specifics of migration processes in the AZRF rural areas and their inherent factors promoting influence on migration outflow/growth in the context of municipalities remains unexplored. We join the existing discussion on the factors of migration movement of population, but we focus on the AZRF rural areas. At the same time, the article will additionally verify the opinion widespread among migration specialists that it is economic factors in the narrow sense of the term (economic incentives) that determine the migration movement to the greatest extent, and will reveal whether this thesis is confirmed at the level of local territorial systems.

Research methods

The conducted research includes two stages: 1) analysis of socio-economic indicators of the AZRF rural areas and 2) identification of statistically significant factors affecting rural population migration. Statistical analysis is based on the consideration of time series of average accrued wages, employment of the population as a whole and by type of activity for 2022, migration growth (loss) for the seven previously designated municipal districts in order to identify the main trends for 2010–2021. The analysis period is justified by the availability of data within the selected territorial units. The second stage of the study assessed the impact of various factors on the migration movement in the selected municipalities.

The migration balance was chosen as an indicator reflecting the migratory movement because it results in multidirectional migration flows (growth and loss) and from this point of view is the most comprehensive indicator (Rybakovskiy, 2017a). We also proceed from the fact that this or that indicator of socio-economic development, if it is a factor of migratory movement in a particular area, other things being equal, affects the migration behavior of individuals in the same way – it acts as either an incentive to leave or an incentive to stay (come). Thus, the migration balance takes into account the effect of the studied factor on both the inflow and outflow from the territory at the same time, which makes it a convenient indicator for searching for correlations between population migration and the dynamics of socio-economic parameters of a particular territorial system.

Figure 3 presents the system of migration factors (their groupings) and indicators reflecting them. We selected the factors and indicators reflecting them based on the availability of data for a period of 10 years or more to obtain reliable

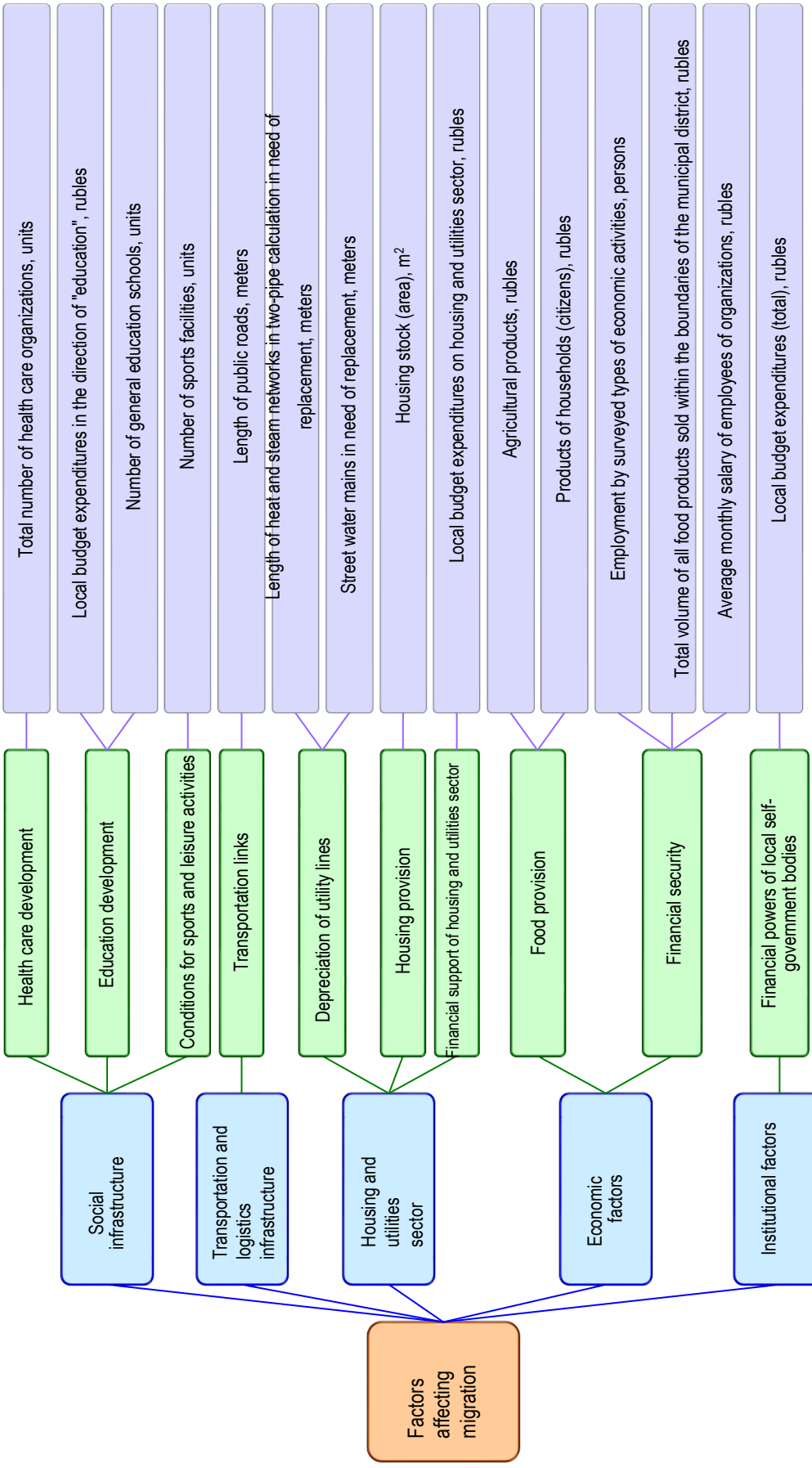


Figure 3. System of groups of migration movement factors in the AZRF municipalities

Source: own compilation based on (Ambrazhevich, 2014; Rybakovskii, 2017a; Rybakovskii, 2017b; Fauzer, 2013; Shelomentsev et al., 2018).

results, as well as taking into account their relevance to conventional ideas in the theory of migration factors. As a result, we selected 15 indicators for 10 factors, categorized into 5 groups:

1) local budget expenditures (in total) reflect the factor of financial powers of local self-government bodies, which along with local legislation (which as a migration factor cannot be quantified and therefore is not applicable in statistical analysis) is the institutional framework of "life activity" of rural territories;

2) total number of health care organizations is an indicator of the "health care development" factor;

3) number of general education schools is an indicator of the "education development" factor; local budget expenditures in the "education" direction also reflect education development, but with an emphasis on management impact; often, with the participation of the head of the municipality, a cooperation agreement is concluded between the municipality and a private company, under which the budget receives financial resources to address social problems;

4) number of sports facilities reflects the factor of conditions for sports leisure (simultaneously fulfills several socially significant functions – maintenance of healthy lifestyle, familiarization with norms of physical culture, active recreation);

5) length of public roads characterizes the "transport communication" factor (refusal to take into account railway, water and air communication is due to the fact that there are no quantitative data on them that are systematically collected and unified for different municipalities in the public domain);

6) length of heat and steam networks in two-pipe calculation in need of replacement and the street water supply network in need of replacement reveal the factor of wear and tear of utilities;

7) housing stock (area) characterizes the factor of housing provision;

8) local budget expenditures in the direction of "housing and utilities sector" – a factor of financial support of housing and utilities sector: municipality's participation in various projects, state programs, receipt of targeted revenues to the budget is the authorities' activity result in relation to the solution of any problem, reflects their interest in the development of housing and utilities sector;

9) agricultural products and production of households (citizens) represent a factor of food security;

10) employment in the surveyed types of economic activities, average monthly wages of employees of organizations and the total volume of all food products sold within the boundaries of the municipal area are three related indicators reflecting the factor of financial security. Factors 9 and 10 are referred to the group of "Economic factors".

We carry out the search for the strength and direction of the relationship between migration loss and the indicators presented above by means of correlation analysis. The analysis period for the indicators of Leshukonsky, Mezensky, Pinezhsky, Primorsky districts is from 2008 to 2021, except for the indicators "Employment by the surveyed types of economic activities", "Average monthly wages of employees of organizations" and "Total volume of all food products" – from 2009 to 2021. For Ust-Tsilemsky District, all data are taken from 2008 to 2021, except for the indicator "Total volume of all food products" (2009–2021). For Onezhsky District, the assessment was made from 2010 to 2021. For Zapolyarny District, the time period from 2010 to 2021 was also used, except for the

Table 1. Chaddock scale

Correlation index value	Characteristics of bond strength
0.1–0.3	Weak
0.3–0.5	Moderate
0.5–0.7	Notable
0.7–0.9	High (strong)
0.9–0.99	Rather high (rather strong)
Source: own compilation based on (Chaddock, 1925).	

indicators "Agricultural products" and "Household (citizens) products", for which the data were taken from 2012 to 2021. The sources of information were the databases of indicators of municipal entities of the Federal State Statistics Service of the Arkhangelsk Oblast and Nenets Autonomous Okrug and the Komi Republic Department[7], reports of the heads of municipal entities' administrations on the performance and activities of the municipal entity administration, reports of municipal entities' heads on the achieved values of indicators to assess the performance of local self-government bodies of urban districts and municipalities.

We used the Spearman correlation coefficient to assess the presence of a relationship, its strength and direction, due to the small number of values in our sample (less than 30). The null hypothesis, H0: there is no relationship between the variable "Migration balance" and the variables presented in Figure 3. The significance level is $p \leq 0.05$. To assess the strength of the relationship, we use the Chaddock scale *(Tab. 1)*.

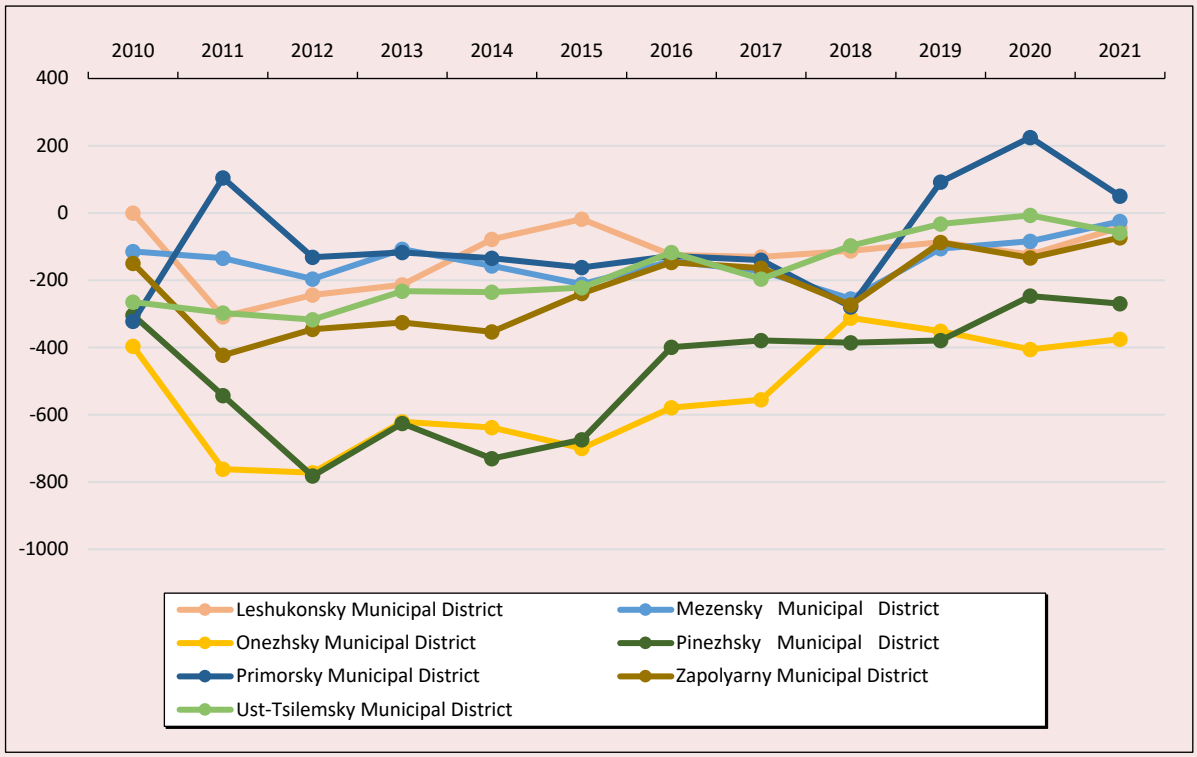
We categorized the obtained correlation coefficients within the framework of ABC-analysis into three groups depending on the frequency of occurrence and strength: characteristic for the whole territory (there are 80% of coincidences between municipalities within the selected indicator), widespread (from 79 to 30% of coincidences), specific (there are less than 29% of coincidences).

Results and discussion

In the course of analysis of a number of indicators characterizing the socio-economic situation in the surveyed municipal districts (Annex), we identified the following main trends: the absence of noticeable employment dynamics in almost all districts (except for Mezensky District); upward dynamics of nominal wages due to the impact of inflation; the structure of employment in various districts differs markedly, but the common feature is the predominance of employment in different types of budgetary institutions (from almost half of all employed and above); in the nonbudgetary sector, the main employers are organizations providing transportation, storage and communication services, resource generating and resource supplying organizations (in the public utilities system), as well as agricultural and forestry enterprises (especially many employed in these sectors in Pinezhsky District); Onezhsky District is the only one with a high number of employed in these sectors.

[7] Database of indicators of municipal entities of the Arkhangelsk Oblast. Federal State Statistics Service. Available at: https://www.gks.ru/scripts/db_inet2/passport/munr.aspx?base=munst11 (accessed: July 13, 2023); Passport of the municipal formation "Ust-Tsilemsky Municipal District". Database of indicators of municipal entities of the Komi Republic. Federal State Statistics Service. Available at: https://www.gks.ru/scripts/db_inet2/passport/pass.aspx?base=munst87&r=87652000 (accessed: July 13, 2023).

Figure 4. Dynamics of migration balance (in the context of the AZRF municipalities), 2010–2021, people



According to: Database of indicators of municipal entities of the Arkhangelsk Oblast. Federal State Statistics Service. Available at: https://www.gks.ru/scripts/db_inet2/passport/munr.aspx?base=munst11 (accessed: July 13, 2023); Passport of the municipal formation "Ust-Tsilemsky Municipal District". Database of indicators of municipal entities of the Komi Republic. Federal State Statistics Service. Available at: https://www.gks.ru/scripts/db_inet2/passport/pass.aspx?base=munst87&r=87652000 (accessed: July 13, 2023).

We should separately note the results of the analysis of migration movement as the most fully reflecting the ongoing changes in the object of research. The analysis of dynamic series *(Fig. 4)* revealed that practically all municipal districts are experiencing migration loss. The exception is Primorsky District, where population growth is recorded in 2019–2021. Among the remaining municipalities, there are clear anti-leaders in terms of population outflow: Onezhsky and Pinezhsky districts have the highest annual migration attrition rates for the entire period under review. High values of the population attrition rate were also observed in the first half of the 2010s in Zapolyarny District of Nenets Autonomous Okrug. The data eloquently testify to the trend toward the "shrinking" of settlements and the low degree of viability of rural areas in the European part of the AZRF.

The conducted correlation analysis showed that the factors of influence on migration vary quite a lot depending on the municipality *(Tab. 2)*, which confirms the conclusions of L.V. Konovalova and her colleagues regarding the general analysis of socio-economic indicators (Konovalova et al., 2022). For instance, in Leshukonsky District, the migration movement is influenced to a greater extent by the provision of housing and health care services.

Table 2. Correlations between migration balance and independent variables (at $p \leq 0.05$ – highlighted in color)

Indicator	Coefficients	Municipal district						
		Leshukonsky	Mezensky	Onezhsky	Pinezhsky	Primorsky	Zapolyarny	Ust-Tsilemsky
Number of sports facilities	Spearman correlation	0.467	-0.471	0.669	-0.157	0.126	0.686	0.792
	Significance (2-sided)	0.093	0.089	0.017	0.593	0.669	0.014	0.001
Total number of health care organizations	Spearman correlation	-0.607	-0.405	0.509	-0.098	-0.060	0.100	0.274
	Significance (2-sided)	0.021	0.151	0.091	0.739	0.838	0.757	0.344
Length of public roads	Spearman correlation	0.580	-0.172	0.168	-0.071	-.029	-0.655	0.860
	Significance (2-sided)	0.030	0.557	0.602	0.809	0.923	0.021	0.000
Number of general education schools	Spearman correlation	.	-0.045	-0.553	-0.043	-0.280	-0.658	-0.833
	Significance (2-sided)	.	0.879	0.062	0.885	0.332	0.020	0.000
Agricultural products	Spearman correlation	0.341	-0.442	-0.762	0.031	-0.116	0.612	-0.125
	Significance (2-sided)	0.233	0.114	0.004	0.917	0.692	0.060	0.670
Products of households (citizens)	Spearman correlation	0.385	-0.534	-0.748	0.055	0.125	0.612	-0.653
	Significance (2-sided)	0.175	0.049	0.005	0.852	0.670	0.060	0.011
Length of heat and steam networks in two-pipe calculation in need of replacement	Spearman correlation	0.144	-0.046	-0.594	0.565	0.143	-0.336	-0.499
	Significance (2-sided)	0.623	0.875	0.042	0.035	0.626	0.286	0.069
Street water mains in need of replacement	Spearman correlation	- 0.230	0.086	-0.368	0.473	0.231	-0.481	-0.116
	Significance (2-sided)	0.429	0.771	0.240	0.088	0.427	0.113	0.692

End of Table 2

Indicator	Coefficients	Municipal district						
		Leshukonsky	Mezensky	Onezhsky	Pinezhsky	Primorsky	Zapolyarny	Ust-Tsilemsky
All housing stock (area)	Spearman correlation	-0.777	-0.205	0.718	-0.873	0.182	0.769	0.881
	Significance (2-sided)	0.001	0.482	0.009	0.000	0.533	0.003	0.000
Local budget expenditures, total	Spearman correlation	0.473	0.196	0.483	-0.011	0.244	-0.580	0.758
	Significance (2-sided)	0.088	0.503	0.112	0.970	0.401	0.048	0.003
Local budget expenditures in the housing and utilities sector	Spearman correlation	-0.297	0.288	-0.713	-0.191	-0.029	-0.329	-0.020
	Significance (2-sided)	0.303	0.318	0.009	0.512	0.923	0.297	0.946
Local budget expenditures in the direction of "education"	Spearman correlation	0.596	0.116	0.601	0.007	-0.200	-0.790	0.754
	Significance (2-sided)	0.000	0.692	0.039	0.982	0.493	0.002	0.002
Employment by surveyed types of economic activity	Spearman correlation	-0.231	-0.456	-0.035	0.253	0.121	-0.357	-0.837
	Significance (2-sided)	0.448	0.117	0.914	0.404	0.694	0.255	0.000
Average monthly salary of employees of organizations	Spearman correlation	0.654	0.242	0.636	0.363	0.242	0.692	0.908
	Significance (2-sided)	0.015	0.426	0.026	0.223	0.426	0.013	0.000
Total volume of all food products sold within the boundaries of the municipal district	Spearman correlation	0.654	0.242	0.636	0.363	0.258	0.713	0.500
	Significance (2-sided)	0.015	0.426	0.026	0.223	0.394	0.009	0.082

Source: own compilation.

In Mezensky District, there is a negative correlation between the migration balance and the volume of agricultural products produced by households – the decrease in the outflow of population by the end of the 2010s, after its relatively high values throughout most of the decade, was accompanied by a decrease in the production of household farms. The reason for this seemingly paradoxical fact lies in the accumulated effect of the loss of working-age population: for many years, the district residents who could be actively engaged in homestead farming left, which ultimately affected the gross output, and a noticeable decrease in the scale of emigration in recent years could not compensate for these losses (population of the district continues declining, although not at such a significant rate).

The above is also true for Onezhsky District, however, in this district the migration movement, in addition to its connection with the dynamics of agricultural production, has a strong statistically significant relationship with the state of housing and communal services: the slowdown in migration loss is positively correlated with the growth of the housing stock and negatively – with budget expenditures on housing and utilities sector. In the latter case, the decrease in budget expenditures indicates the absence of critical problems in this sphere, which would require an increase in monetary "injections". In such a situation, the state of housing and communal services ceases to be a factor "pushing" the population out of the district.

For Ust-Tsilemsky District, the factors shaping the migration outflow or increase were financial and food security, "development" of education (the process of school closures accompanying the decrease in the number of school-age children) and changes in the length of the road network (positive correlation). T.E. Dmitrieva and M.S. Bur'yan singled out the factor of transportation as one of the most important in the formation of the health care system of the Komi Republic, as it predetermines the waiting time for medical care in particular and the ability to provide a certain level of quality of life in general (Dmitrieva, Bur'yan, 2011).

It is noteworthy that for Primorsky District there is no significant correlation between the migration balance and any other indicator under consideration. The explanation for this is the proximity of most rural areas of the district to the urban agglomeration – the regional center (Arkhangelsk) and large cities located near it (Severodvinsk and Novodvinsk). A part of the residents refuses to move to a large city within the region for permanent residence (contrary to the opinion of V.V. Fauzer and A.V. Smirnov outlined the pattern of migration behavior), and stay in the region due to the availability of organized fast transport communication with this city. Moreover, during the COVID-19 pandemic, migration growth was observed in rural municipalities within the district, which are relatively close to the Arkhangelsk agglomeration and are connected with it by developed transport communications. This is a sign of the emerging process of ruralization (desurbanization), especially if we take into account that a number of rural areas within the district (municipalities "Katuninskoye", "Uemskoye", "Primorskoye", "Lisestrovskoye", Talagi settlement, etc.) are actually becoming a kind of "suburbia" of the regional center.

In general, the results of correlation analysis allow asserting that the significant factors of rural population migration movement represent a unique combination in each individual municipality.

Further analysis was aimed at finding regularities based on the assumption that the characteristics of the districts, such as geographical location relative to the regional center and neighboring RF

constituent entities, as well as transport connectivity with other municipalities, the state and features of the local economy, and the general demographic situation, should determine the dependence of migration attitudes on quite specific environmental factors (socio-economic, infrastructural, and institutional), and thus the number and composition of migrant workers and their families.

Accordingly, we can distinguish, first, Primorsky District of the Arkhangelsk Oblast, which is contrasting to all the others: compact settlement in the mouth and upper reaches of the Northern Dvina river, the density of settlement increases as rural areas approach the agglomeration, generally developed transport and logistics infrastructure, relatively high standard of living and close economic ties with the regional center. We have noted above that due to these features a) migration balance in Primorsky District does not correlate with any of our selected indicators, b) migration outflow from the district to the city is generally low, in some years there was a slight increase.

Second, our sample includes a group of rural districts that can be labeled as peripheral or border districts: Leshukonsky, Mezensky, Onezhsky, Pinezhsky and Ust-Tsilemsky. They are located far away from the key transport routes of their region, border (or are close to) the territories of neighboring regions, are characterized by low population density[8] and low population concentration, local economy is based on the exploitation of extensive forest resources and, to a lesser extent, traditional branches of agriculture[9]. However, there is no homogeneity in the number and composition of factors influencing the migration movement of population in this group: Pinezhsky and Mezensky districts demonstrate statistically significant correlations with two and one indicator respectively (weak influence of environmental factors), for Leshukonsky District their number is six (medium influence), and in the case of Onezhsky and Ust-Tsilemsky districts we have nine indicators correlating with migration loss in them (strong influence). At the same time, it is impossible to identify indicators common for all districts and well correlated with the migration balance. Despite their mutual geographical remoteness, Onezhsky and Ust-Tsilemsky districts have quite a lot in common: five out of nine correlations coincide (see Tab. 2). Three of them are related to the indicators mentioned above as the most frequently occurring ones in the whole sample and, therefore, do not characterize the specifics of these two districts. Among the really interesting correspondences we can point out that the slowdown in the outflow from Onezhsky and Ust-Tsilemsky districts in the late 2010s – early 2020s, which is also confirmed by the findings on the growth of the share of working-age population in Ust-Tsilemsky municipality (Popova, 2014), is equally accompanied by a decrease in household agricultural production. As we have noted above, this is due to the cumulative effect of gradual growth in the number of retired working-age residents over several previous years. This feature brings these two districts closer to Mezensky District.

Finally, Zapolyarny District of Nenets Autonomous Okrug, which actually covers the entire territory of Okrug minus the territory of the city of Naryan-Mar, stands apart. The district is characterized by a large territory, low population density, poor transport connectivity both with neighboring territories and internally; harsh

[8] Onezhsky District is an exception due to the town of Onega, population of which is twice as large as the rest of the region's population. However, if we limit ourselves to rural settlements of Onezhsky District, the total number of their residents is comparable to the population of other regions in this group.

[9] In Mezensky District there is diamond mining and a mining and processing plant, but those employed in this production work on a rotational basis, live locally and do not influence the migration pattern in the district.

climate, lack of arable land and forest resources. The number of indicators that have a significant correlation with the migration balance is eight. Seven of them coincide with Ust-Tsilemsky District. However, differences in the strength and direction of correlation for most of them do not allow drawing a conclusion about the real proximity of the composition of the factors of migration movement for these two districts, although there are certainly some similarities.

In the context of the conducted correlation analysis, the factors of migration movement for the whole set of municipal entities under consideration are grouped by ABC-analysis as follows:

– neighborhood-specific factors: none identified;

– common factors: development of education, state of transportation, food and financial security, housing;

– specific factors: health care development, state of utilities and financial powers of municipal authorities.

At the same time, it is worth noting that in the group of "common factors" the following indicators are most often associated with the migration balance: changes in the area of housing stock, dynamics of municipal expenditures on education and average monthly salaries. At the same time, the role of housing provision as a factor affecting migration movement has a different impact: from one district to another, the migration balance increases when the total area of housing increases or decreases. Similar conclusions about the impact of housing provision on migration were obtained by the authors' team headed by A.G. Shelomentsev, but the trend of interrelation among all the regions included in the AZRF was highlighted only for the Arkhangelsk Oblast (Shelomentsev et al., 2018). However, the weak correlation between the factor "wear and tear of utility lines" and the migration balance revealed by us suggests its insignificance when making a decision by an individual, which contradicts the thesis put forward by L.V. Konovalova about the direct connection between migration outflow and uncomfortable living conditions (Konovalova et al., 2022).

The direct correlation between wages and migration balance is explained by the fact that the remaining residents are employed in acceptably paid positions (the minimum wage among all districts for 2021 was 48 thousand rubles), and population with lower incomes migrates mainly, which is also confirmed by the results of socio-economic analysis of the Komi Republic (Popova, 2014). And the positive correlation between the migration outflow and the growth of budget expenditures on education is explained by inflation and the delayed effect of attracting financial resources due to long decision-making.

Conclusion

The study analyzed the dynamics of the migration movement in seven rural municipal districts that make up the territory of the AZRF for the period from 2010 to 2022. Correlation analysis revealed statistically significant above-average relationship between the dynamics of the migration balance in the studied districts and individual indicators from among those we used for the empirical determination of migration factors. In particular, the most significant factors were the development of education, the state of transportation, food and financial security, and housing. However, none of the listed factors demonstrated action in all seven districts.

At the same time, the research results show that the number and composition of statistically significant factors are rather unique for each individual municipality, reflecting its feature, and

any convincing typology of rural areas based on the factors of migration movement (at least within our sample) is difficult.

The thesis put forward at the beginning of the article about the greater influence of economic factors (employment, wages, retail prices, household production, etc.) on the dynamics of migration compared to the factors of the social sphere, transport infrastructure and public utilities in the case of the surveyed rural areas was only partially confirmed. Moreover, it turned out that some indicators, such as agricultural production and employment in general, have no impact on migration loss (growth), while such a significant indicator as the level of wages in more than half of the districts shows a positive correlation with the migration balance: as wages increase, the outflow of population decreases. One should not rule out the explanation of this relationship as a reaction of people to the rising cost of living – nominal wages increase following inflation, while their real purchasing power may lag behind, which "pushes" the most mobile part of local residents out of their native district. As a result, the indicators considered by the authors were divided into "typical for all districts", "common factors", and "specific factors" according to the frequency of their manifestation.

The obtained results of the research on the influence of certain factors on the migration movement within the municipalities of the European part of the AZRF can be used in the adjustment of both regional and municipal policies, in particular through socio-economic strategies, regional projects "Demography", municipal programs such as "Integrated development of rural areas", "Municipal finance management" and others.

The limitation of the study was the small sample size for the analyzed indicators due to the incompleteness of data from open sources caused by the features of statistical accounting at the municipal level. The effect of this limitation, as well as the small number of districts selected for the research, is the impossibility to generalize the results obtained. The conclusions presented in the article are valid for the local cases considered, but some regularities, which are in good agreement with certain conventional provisions in modern migration theory, can serve as a point of reference for larger-scale research projects.

The authors consider the accumulation and analytical generalization of the results of local studies of rural migration in the Arctic conducted earlier by other scientists and the expansion of the research geography of the migration movement at the level of municipal districts and counties to be a promising direction for further scientific research.

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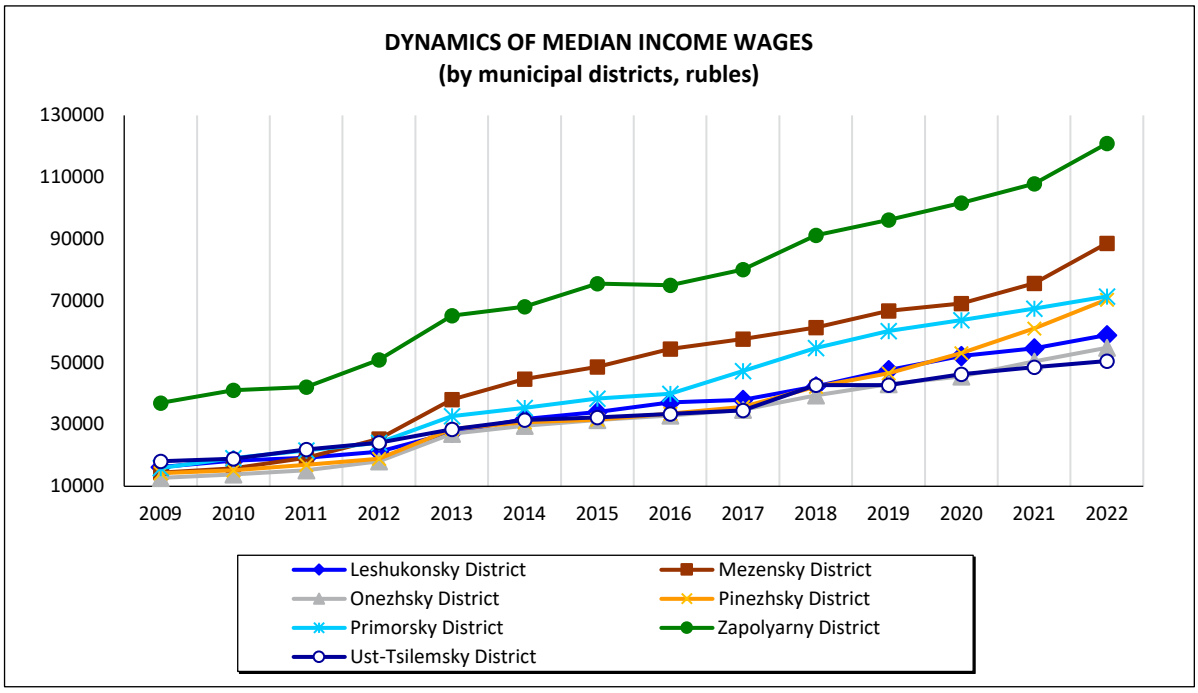
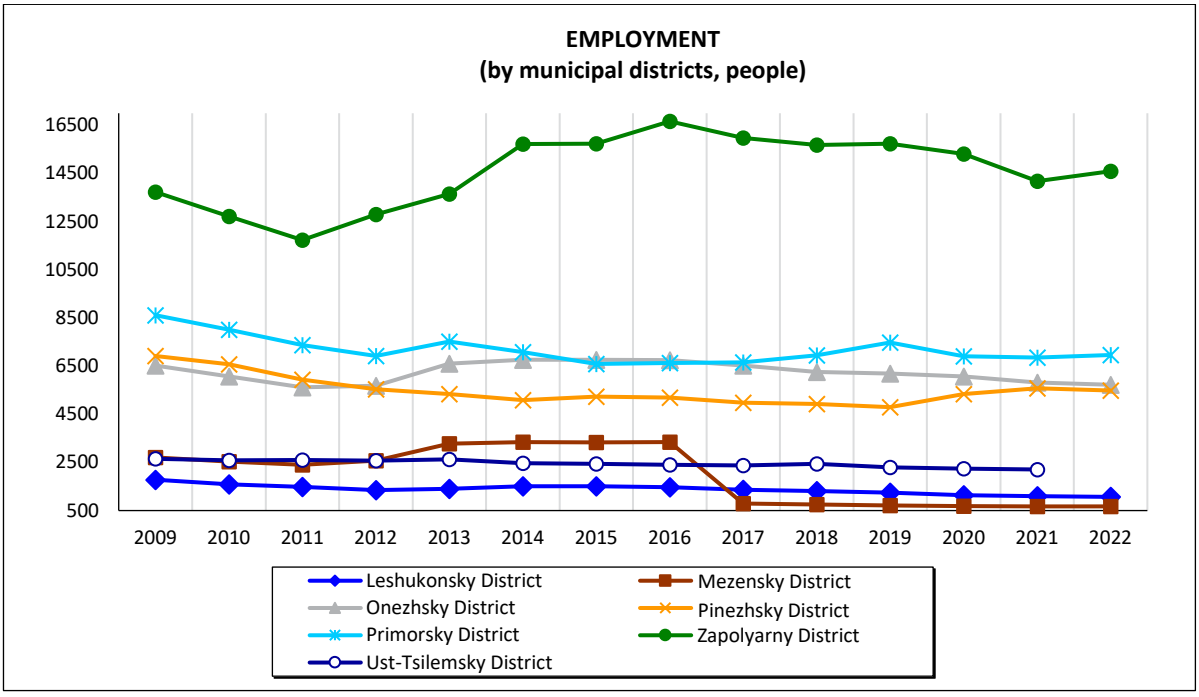
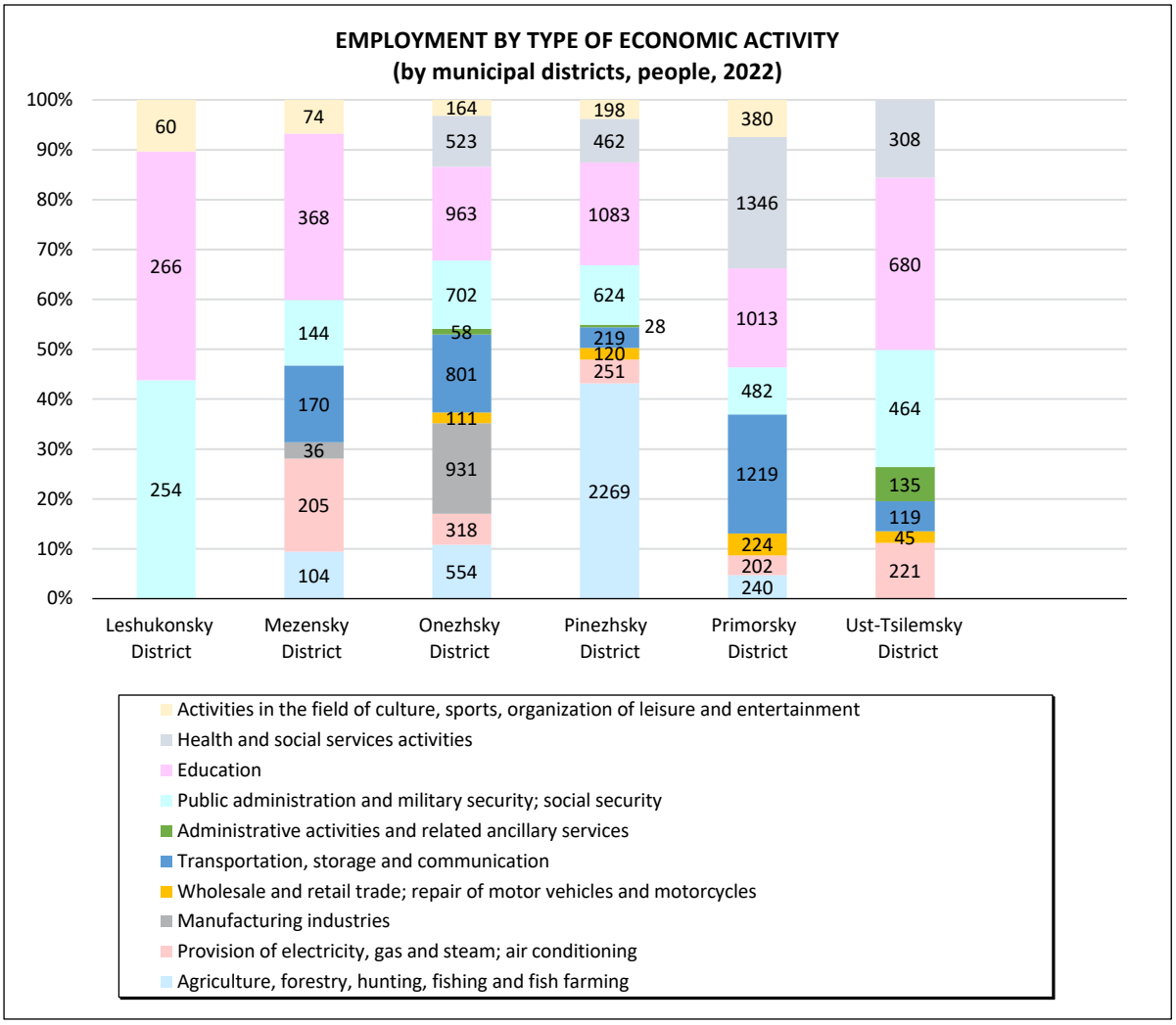
Appendix

Indicators of the socio-economic situation in rural settlements in the European part of the AZRF







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The Role of Local Communities in the Development of Small Territories

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Abstract. The paper studies the participation of local communities in the development of small territories and the conditions that increase public involvement in the processes of spatial development at the local level. We apply a socio-spatial approach to study local communities combined with an action-activist concept to spatial development. In the theoretical part, we consider the main approaches to the study of local communities and their role in the territories' development. We define the basic characteristics of the local community: social community; a common space, place; common interests, living conditions; ties, interaction. We provide the mechanisms of local community's participation in the development of territories. The empirical part of the study is based on data from the opinion poll, conducted in two large cities and five small ones of the Vologda Oblast in 2021 (N=1550). We consider the average values for large and small cities and compare the indicators of the local community's participation in the development of territories to reveal the features of this process. According to subjective estimates, we find that the main actors of territorial changes are the governing bodies and the local community, while business is practically not responsible for the development of the territories in which it operates. In small cities, compared to large cities, the local community is more focused on the development of territories and is aware of its responsibility. The local community shows a higher potential and level of participation in initiatives. In almost all practices, the share of participants in small cities is higher than in large cities. We determine that a lack of teamwork experience hinders community engagement in spatial development issues. As promising areas, we consider institutionalized mechanisms of local community participation in territories' development, such as participatory budgeting and project activities as part of the work of non-profit organizations.

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Key words: local communities, small territories, large city, development, social issues, participatory budgeting, non-profit organizations.

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Introduction

The present and future of the country is largely determined by the socio-economic development of the territories, which is noted in the "Strategy of spatial development of the Russian Federation through to 2025", in which the leading role in the economy is assigned to megacities and large agglomerations. At the same time, the policy of spatial development should not lead to the desolation of small territories (Bukhval'd, Kol'chugina, 2019) – settlements with population of up to 50 thousand people, which include small and single-industry cities, urban-type settlements and rural settlements.

An important factor for the development of small territories is the administrative transformations aimed at the consolidation of municipalities. In recent years, there has been a trend to transform municipal districts into urban and municipal okrugs with the elimination of the settlement level of administration, which, according to research, does not show real significant economic and budgetary effects (Voroshilov, 2021). However, this process causes contradictory and skeptical assessments on the part of the population. This is due to the fact that the new administration is focused exclusively on the development of the central territory and does not communicate with small municipalities, which creates difficulties in interacting with local governments for residents when solving issues of local importance in various spheres (Pozarenko, 2015).

Meanwhile, 50% of the country's population lives in small territories, as evidenced by statistical data. In Russia, the number of small cities exceeds the number of large cities. As of 2021, there were 240 large cities and 801 small cities in the country, the largest group, which accounts for 71% of the total number of administrative-territorial entities. Small cities are home to 16.6 million people, and large cities to 24.4 million people. There are 16,332 rural settlements with a population of 29.2 million people[1].

Small territories have significant socio-cultural development potential, which consist in the special role of small cities and rural settlements in preserving cultural heritage and traditions (Aksenova, 2015; Titarenko, 2020; Khalii, 2008). At the same time, small settlements have favorable environmental conditions, natural resources and territories to expand economic activity, and develop industries related to tourism and health care (Kuznetsov, Chernysheva, 2012). Small territories ensure the food and national security of the state. Experts note, "small cities are real pillars of Russia on its vast territory; it is small and medium cities, primarily district centers, that provide a diverse connection between the territory and the state, form the territorial frame of governance on the scale of the constituent entities of the Russian Federation"[2].

[1] Population of the Russian Federation by Municipality. *FSSS*. Available at: https://rosstat.gov.ru/compendium/document/13282

[2] The importance and ways of development of small cities in the Spatial Development Program of Russia. The Union of Small Cities and Towns of the Russian Federation. Available at: https://smgrf.ru/znachenie-i-puti-razvitiya-malyh-nebolshih-gorodov-v-programme-prostranstvennogo-razvitiya-rossii/?ysclid=lh10s4l2uy921541170

Despite of the socio-cultural and economic potential, small territories have a set of problems that are considered in research, proved by statistical data and sociological surveys. Development trends indicate a decrease in the population of small cities and rural areas, including labor migration due to the lack of jobs and leasure facilities, a weakening of economic potential (Chernysh et al., 2020). There are acute problems of providing financial resources, the shortage of own income to address issues of socio-economic development (Bukhval'd, Pechenskaya, 2017), maintaining the necessary level of social infrastructure, the quality of life of the population and a comfortable living environment, the improvement of public space (Sekushina, 2020).

The above problems of small territories taking into account their advantages require the search for resources for their development with the help of the following actors: representatives of authority, business community, associations, trade unions, NPOs, state institutions, solidarity groups and individual citizens (Markin et al., 2019), who are part of the structure of the local community or are stakeholders of spatial transformation (Ukhanova, 2023). Research shows that development planning at the local level requires a bottom-up approach that increases the effectiveness of actions (Moallemi et al., 2021). It is important when the initiative comes from "below", residents are ready to take responsibility for the future fate of the territory or an object (Smoleva, 2021). The effectiveness of the elements of this approach is due to the fact that local actors and the population are closely connected with their territory, aware of the main problems that require the development of local solutions (Manzo, Perkins, 2006).

Thus, the aim of the work is to generalize the theoretical and methodological foundations of the study of local communities and to identify the features of their participation in the development of small territories.

Theoretical and methodological framework for the study

There are several basic approaches to the study of local communities and their role in territories' development in the scientific literature. The theoretical review is organized in the following sequence: first, we consider the scientific approaches that define basic characteristics (features) of the local communities ("consolidated territory", "social capital" "citizen participation"). Second, the analysis perspective includes concepts that discuss the management component, planning and results of the functioning of local communities in the development of territories ("Theory of Change", concept of local self-government).

1. In classic theory, local communities are interpreted from point of view of a "consolidated territory". It refers to a place characterized by a homogeneous social structure where most people have the same opportunities and standard of living (Tykanova, Khokhlova, 2014; McKnight, 2016). This definition is close to the communitarian approach to (local) communities (Etzioni, 1995). Studies also determine that communities are formed in certain paces (within the boundaries of territories of various ranks). Living in a common location is a connecting factor for representatives of the community (Sharygin, Osorgin, 2018). Representatives of the Chicago School of Sociology (R. Park, L. Wirth) followed a similar approach; they considered urban communities as a spatial configuration with a certain urbanized lifestyle of the population (Park, Nikolaev, 2006).

2. One can consider the functioning of local communities from the perspective of the concept of social capital, which examines the characteristics of social life – a network based on trust and norms. It contains the premise that people are "embedded" in a network of social relationships that influence decisions and actions (Putnam, 2000). In this context, social capital is interpreted as a predictor that forms additional opportunities for

the development of local communities based on the ideas of cooperation, solidarization and trust (Rogach, 2020; Leping, Hon, 2019).

3. The Theory of Citizen Participation addresses the issue of the development of local communities. Citizen participation is seen as a tool for community development (Staples, 2012). This theory suggests that efforts to change at the community level are most achievable with the cooperation of local residents and their involvement in the process of solving problems in various forms, both formal (nonprofit organizations, public councils, territorial public self-government, etc.) and informal (initiatives groups, activists, online communities and others). There is a common criterion in the research of supporters of citizen participation – this is a socially significant result from the participation of the local community, and as a consequence, a common interest among community members (Ukhanova, 2022).

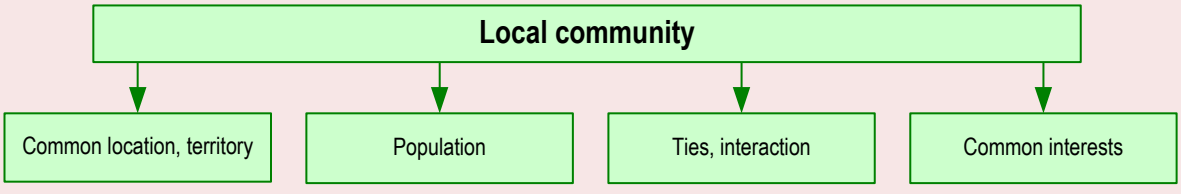
4. In managerial discourse, the local community is considered as the basis for territorial self-organization and self-government (Pyasetskaya, 2015, Maikova, Simonova, 2021). The management concept can be adapted to the issues of government relations with local communities based on determining the range of issues to be solved jointly, including management methods. The research notes that "local self-government bodies with the participation of local communities are able to solve such tasks for which the state does not have enough time. Effective local self-government frees public authorities from many "small" cases and allow them to focus on solving strategic problems (Babun, 2017).

5. Noteworthy is Theory of Change – a tool for managing activities and results in local communities. It is based on a project and program approach to change and actions. The theory is used to plan and evaluate social outcomes (Funnell, Rogers, 2011; Msila, 2013).

In this discussion of theoretical approaches to local communities, we provide several of the most common conceptualizations of the phenomenon. In a loose sense, "local community" means a group of interacting people living in a common location. Therefore, the basic characteristics of a local community are shared identity (population); common location or place; common interests, standard of living; ties, interaction or communication. Although these crossing elements do not cover all possible characteristics of a community, they provide a starting point for examining the issues inherent in this phenomenon *(Fig. 1)*.

A number of scientific works focus on the study of forms and mechanisms of participation of local communities in the development of territories. Foreign sources pay attention to such mechanisms as participatory budgeting (Sintomer et al., 2008; Zhang, Liao, 2011), community foundations (Azevedo et al., 2022), and online initiatives (Paricio-Esteban et al, 2020). Russian researcher A.A. Chernega singles out the following

Figure 1. Basic characteristics of a local community



Source: own compilation.

mechanisms: citizens' meetings, public discussions; participatory budgeting; crowdfunding; project activities through the implementation of grants; creation of nonprofit organizations (NPOs); information networks; constructions of tourist attractions; social investment (Chernega, 2020). M.L. Shagalov and A.Yu. Rubin consider territorial public self-government as a way to develop territories (Shagalov, Rubin, 2019).

The analysis of literature shows that there are many mechanisms of local community participation in the development of small territories. Nevertheless, it is necessary to identify the main mechanisms that are most frequently encountered in the Russian reality, studied in scientific circles, and enshrined in legal and regulatory sources, including the key law "On general principles of organization of local self-government in the Russian Federation" *(Tab. 1)*.

Based on the involvement of the local community, the presented mechanisms can be divided into active and passive forms. Active forms are distinguished by the direct participation of the local community in the implementation of projects, activities, actions for the development of residential areas, improving the quality of life, labor participation, monetary contribution. Passive forms

Table 1. Mechanisms of local community participation in territorial development

	Mechanism	Content	Source
Active forms of mechanisms (direct)	Participatory budgeting	A set of practices involving citizens in the budget process, united by the ideology of citizen participation, as well as the sphere of state and municipal regulation of public involvement in identifying and selecting projects to be financed from the funds of the respective budgets and subsequent control over the implementation of selected projects by citizens.	Methodological recommendations for the preparation and implementation of participatory budgeting practices in the Russian Federation (approved by the Ministry of Finance of the Russian Federation), amended December 22, 2021
	Projection	Activities related to project initiation, preparation, implementation (including monitoring and changes to projects) and completion. Project – a set of interrelated activities aimed at obtaining unique results under time and resource constraints.	RF Government Resolution 1288, dated October 31, 2018 (amended March 1, 2023) "On organization of project activities in the government of the Russian Federation"
	Territorial public self-government	Self-organization of citizens at their place of residence on a part of the territory of a settlement, intra-urban territory of a city of federal significance, municipal district, urban district, intra-urban district, as well as in settlements located on the inter-settlement territory (or on a part of their territory) for independent and on their own responsibility implementation of their own initiatives on issues of local significance.	Federal Law 131-FZ, dated October 6, 2003 (revisions dated May 29, 2023, amended May 30, 2023) "On general principles of organization of local self-government in the Russian Federation"
Passive forms of mechanisms (indirect)	Public hearings and discussions	A variety of the form of citizens' participation in the implementation of municipal governance, which provides the possibility of taking into account the opinion of the population of the municipality when solving issues at the local level.	
	Citizens' meetings	A form of collective resolution of local issues.	
	Opinion polls	It is carried out on the entire territory or part of the territory of the urban okrug to identify the opinion of the population and take it into account when making decisions.	

Source: own compilation based on regulatory and legal sources.

are the involvement of citizens in the processes of initiation, discussion and control, which do not involve the investment of physical or financial resources from a person.

Thus, the undertaken review of the scientific literature shows that certain aspects of the study of local communities' participation in the development of territories receive sufficient coverage in both foreign and Russian publications. At the same time, integrating the theoretical knowledge obtained, this study relies on a socio-spatial approach to the study of local communities in combination with an activity-activist concept for the development of territories.

Materials and methods

We choose the Vologda Oblast for the analysis because small territories with a small population prevail there. The administrative-territorial structure of the Vologda Oblast includes only two large cities with population of more than 100 thousand people – Vologda and Cherepovets (an industrial center), 13 small cities with the population of less than 50 thousand people, 21 urban settlements and 158 rural settlements (as of January 1, 2022)[3]. In the Russian context, small territories are understood broadly as a socio-economic, natural and historical-cultural complex, that includes urban and rural population (up to 50 thousand people), as well as the territory within the official boundaries of the municipality.

The collection and analysis of the material took place in two stages, depending on the tasks set. At the first stage of the study, we assessed the main problems of small territories and studied the level of citizen participation based on the data from a sociological survey conducted on the territory of the Vologda Oblast in two large cities (Vologda, Cherepovets) and five small ones (Nikolsk, Sokol, Veliky Ustyug, Gryazovets, Sheksna) in 2021. The sample totaled 1,550 respondents. We considered average values for the types of cities included in the survey, as well as compared large and small cities in terms of indicators of local community participation in the development of the territory to identify the characteristics of this process. The choice of territories, in particular cities, rather than rural settlements, is due to the availability of the necessary data.

At the second stage, we analyzed the mechanisms of participation of the local community in the development of territories based on regulatory and legal sources, reports of federal authorities, public structures at the regional and local levels, open data of the Presidential Grants Fund, which supports nonprofit nongovernmental organizations involved in the development of civil society institutions and implementing social projects on a competitive basis.

The empirical base, depending on sources and indicators, covers the period 2017–2022.

Findings and discussion

Subjective assessments of the territories' main problems and assessments of the local community's participation (the Vologda Oblast)

First of all, to choose the directions of small territories' development involving the local community, it is essential to outline the problems that are the most acute for the residents of these territories and require solutions. It is possible to reveal these problems using the materials of official statistics and reports of the authorities[4], which are reflected in many studies. However, from the perspective of the research goal, subjective assessments of residents as a local community are of interest. Sociological data show that the priority problem for the population is a low standard of living and a constant increase in prices (62–56%),

[3] The Vologda Oblast in Figures. 2021: Brief Stat. Coll. (2022). Vologdastat. Vologda. P. 130.

[4] For example, the Consolidated Report of the Vologda Oblast on the results of monitoring the effectiveness of local self-government bodies of urban okrugs and municipal districts by the end of 2021. Official portal of the Vologda Oblast Government. Available at: https://vologda-oblast.ru/dokumenty/mestnoe_samoupravlenie/

Table 2. Distribution of answers to the question "What problems of modern life do you consider the most acute for your locality?", %

Respond option	Large cities*	Small cities**
Low standard of living, constant price growth	62	56
Poor quality of medical services	35	47
Poor quality of educational services	14	29
Low housing affordability	30	25
Stratification of the population into "poor" and "rich"	29	23
Ecology, environmental pollution	34	22
Absence (lack) of conditions for recreation, leisure activities	12	20
The need to master digital technologies	13	19
Unfavorable conditions for small business development, lack of state support	18	16
Violation of civil rights	17	12
Excessive strengthening of executive power	17	11
High crime rate	8	3

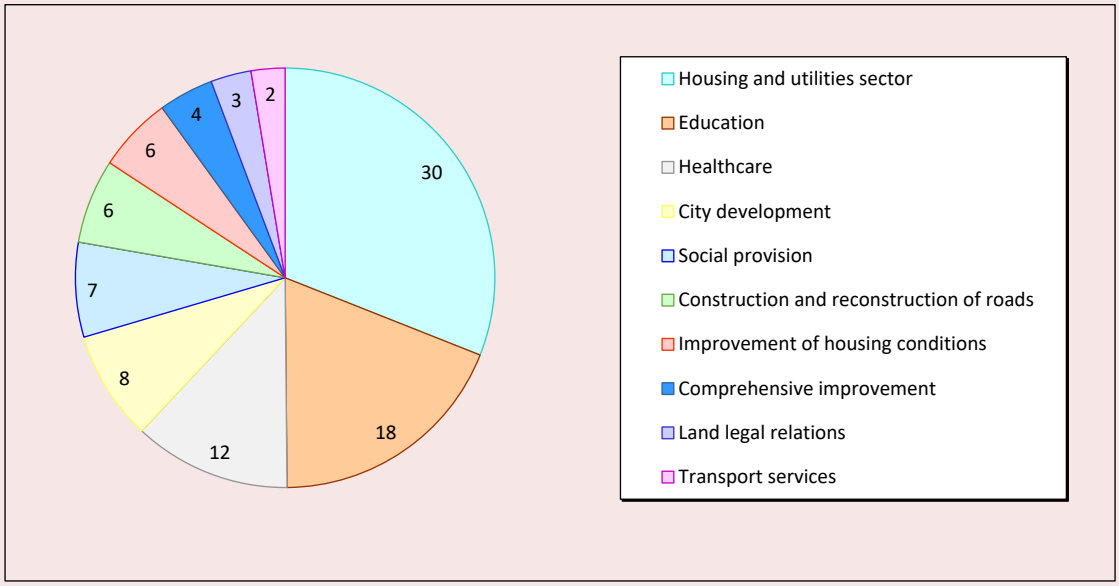
* Vologda and Cherepovets
**Nikolsk, Sokol, Veliky Ustyug, Gryazovets, Sheksna (here and further in the tables and figures on the opinion poll, the average values for large and small cities are presented).
Ranked according to the indicators for small cities.
Source: opinion poll, Vologda Oblast, 2021, N=1,550.

while in the estimates of residents of small cities, this problem is felt less acutely than in large ones. The low quality of medical and educational services is of the greatest concern to the local community of small cities, at the same time, the issue of low housing affordability is more significant for the population of large cities in the oblast. Among the problems noted by the population, social inequality occupies a high place in the rating, but the local community of small cities is less sharply stratified into "poor" and "rich" than in large municipalities. There is a different attitude toward environmental problems. The most acute state of the environment is assessed by residents of large cities of the Vologda Oblast (33%) than small ones (22%). It should be noted that for small territories, the issue of creating conditions for recreation and leisure activities is relevant *(Tab. 2)*.

In addition to opinion polls, problems that concern the local community can be identified based on such a data source as citizens' appeals. According to the Department of Domestic Policy of the Vologda Oblast, which monitors the consideration of citizens' appeals, in 2021 the population of the oblast sent 44.2 thousand appeals to local self-government bodies. The received requests are considered taking into account the subject matter of the issues raised in the appeals. So, in 2021, citizens most often applied about problems in housing and communal services (30% of the total), education (18%), healthcare (12%). The next groups of issues of concern for the local community are urban planning, social security and the condition of roads *(Fig. 2)*.

Thus, there is a request from the local community of small territories to solve problems in the social sphere that serves the basic needs of the population. At the same time, by the nature of the impact on the noted problems, their solution mainly belongs to the prerogative of the authorities of the federal center, region or local self-government. This raises the question of the readiness of the population to be involved in the process of improving the living space, and the identification of those problems and gaps which the local community could deal with. The study shows that among the main problems that can be successfully solved by the joint efforts of people, the population of both large and small cities includes poor ecology, environmental pollution (23–25%) and a low standard of living (22%).

Figure 2. The subject of citizens' appeals received in 2021, in %



Source: Information on the consideration of citizens' appeals received by the Government of the Vologda Oblast and local self-government of the oblast in 2021

An important indicator that determines the involvement of the local community in the development of the place of residence is the awareness of responsibility, which includes the definition of the main subjects of the process of territorial transformation. The analysis of the data obtained shows that in large cities, in comparison with small ones, the proportion of those who assign responsibility for development to federal, regional and local authorities is noticeably higher (61–44%). At the same time, 34% of respondents in large cities of the oblast feel their own responsibility for the state of affairs. On the contrary, in small cities, the local community is more focused on the development of territories and is aware of its responsibility (52%). The role of the federal, regional authorities and the head of the municipality in the development of the territory in the views of residents of small territories is less than the potential contribution of the local community. We should note that in the estimates of the population, business is practically not responsible for the development of both small and large cities *(Tab. 3)*.

Table 3. Assessment of responsibility for the development of the place of residence*, %

Respond option	Large cities	Small cities
Local self-government bodies	61	53
Residents	34	52
State authorities of the oblast	59	41
The head of the municipality	37	40
Federal authorities	44	39
Private business	11	11
Public organizations	13	9
Ranked according to indicators for small cities. Source: opinion poll, Vologda Oblast, 2021, N=1,550.		

Based on the data obtained, we can conclude that according to subjective estimates of the population, two main actors of territorial changes are identified – these are government bodies and the local community. At the same time, residents of small cities are aware of their own subjectivity in setting up a favorable environment in their place of residence. The distribution by territories revealed a high level of responsibility for the development of their locality of residents of small cities, which may be explained by their positive attitude to the place of residence and local identity. It is significant, in this regard, that more than a third (35%) of respondents in small cities answer "I am glad that I live here", in large cities only 23% hold this opinion, residents of large cities express indifference to the place of residence more than small ones *(Fig. 3.)*.

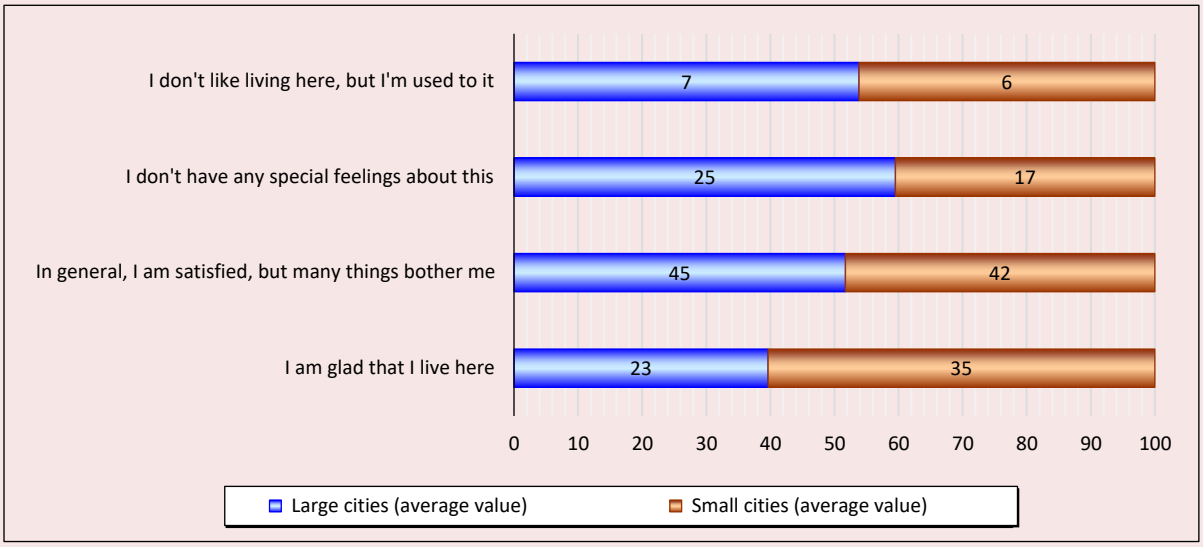
According to the results of the study, residents in small cities show a greater potential readiness for collective action (public involvement) to solve problems in their place of residence. When asked about personal interest (individual involvement) in joint activities to solve common issues, 62% of the population of small territories noted that

Table 4. The potential of the involvement of the local community in the development of territories and the solution of common issues*, %

*The potential of public involvement (assessment of others)**			*Potential of individual involvement (personal assessment)***		
Respond option	Large cities	Small cities	Respond option	Large cities	Small cities
Yes	12	16	Of course, I am with those who are ready to unite	10	16
Rather yes	42	41	I am rather ready to unite	37	46
Rather no	31	30	I am rather not ready to unite	39	30
No	15	13	I am absolutely not ready to unite	13	9

*Distribution of answers to the question "Do you think the surrounding people are ready to unite to solve problems in the place of residence?";
**Distribution of answers to the question "There are people who are ready to unite with others for joint actions to solve common issues, and there are those who prefer not to unite with others. What would you consider yourself to be?"
Source: opinion poll, Vologda Oblast, 2021, N=1,550.

Figure 3. Attitude of the population of large and small cities of the Vologda Oblast toward their place of residence, %



Source: opinion poll, Vologda Oblast, 2021, N=1,550.

"Of course, I am with those who are ready to unite" and "I am rather ready to unite", and only a small proportion (9%) exclude the option of inclusion in general practices of the development of territories by the local community. In large cities, the potential for unification and civic participation among the local community is much smaller *(Tab. 4)*.

Most people do not take part in public life events whatever their location. The average data for Russia shows that one third of the country's residents are involved in pubic initiatives and the activities of nonprofit organizations[5]. Regional measurements showed a higher level of participation in local community initiatives in small territories. Inclusion of citizens in self-organization practices was 18% for large cities and 23% for small cities. Almost for all practices, the share of those participating in small cities is higher than in large cities. Moreover, out of the proposed 13 practices of public participation of small cities' residents, the most demanded were charitable actions, activities aimed at improving the territories where they live and activities aimed at interaction with the authorities. Institutionalized forms of participation within the framework of nonprofit organizations and territorial public self-government are somewhat less frequently noted *(Tab. 5)*.

Thus, an empirical study reveals a rather significant contradiction. Despite the high potential readiness of small cities' residents to participate in the solution of common issues, the level of actual participation is estimated as rather low. This is confirmed by the studies carried out at the all-Russian level in the context of small cities (Chernysh et al., 2020) and in the author's analytical works directly on the Vologda Oblast and Northwestern Federal District regions (Ukhanova, 2021). The problem of participation of local communities in the formation of a favorable environment for the development of the economy and social sphere is much less often considered in the context of comparing small and large cities, which is of interest from the perspective of identifying territorial features.

Table 5. Participation of local community in public life events*, %

Respond option	Large cities	Small cities
Charity events (including cash donations to those in need)	38	41
Community work at the place of residence (litter picking, residential and public landscaping, meeting of residents, etc.)	41	35
Signing of appeals, petitions to the authorities	19	25
Public hearings, reports of local authorities	10	23
Participation in self-management of the house, entrance	29	23
Public discussion of socially significant issues (in a team, at a meeting, etc.)	13	22
Participation/support of the environmental movement (separate garbage collection, conservation of green spaces, animal protection, etc.)	26	20
Volunteer work	17	19
Public actions on important nonpolitical issues (for example, deforestation, construction of parking lots, spot development, etc.)	12	18
Elimination of the consequences of natural disasters	9	18
Keeping the peace (citizen patrol, etc.)	9	18
Activities of a nonprofit (public) organization	7	17
Territorial public self-government	6	17
Level of participation (average value by practice)	***18***	***23***
Source: opinion poll, Vologda Oblast, 2021, N=1,550.		

[5] "To trust and participate: What do citizens know about NPOs?". Monitoring the State of Civil Society of the Center for Civil Society and Nonprofit Sector Research of the National Research University Higher School of Economics. Available at: https://www.hse.ru/monitoring/mcs/presentations

For a clearer understanding of the obstacles to self-organization at the level of local communities, respondents were asked the appropriate question. Uniting people with each other to solve a common problem in the large cities of the region is primarily hindered by disbelief in the possibility of changing something. The second and third places in the rating of obstacles are occupied by the answer options – the disunity of people and individual human qualities. In small cities, the distribution of reasons for nonparticipation looks different. Among the proposed list of obstacles to joint actions aimed at achieving the common good, the leading option is the lack of experience in working together, and the following obstacles are uncertainty in the results of their activities and insufficient resources to solve a particular problem. At the same time, the least significant obstacles were the absence of community members with whom one would like to unite *(Tab. 6)*.

In our opinion, the data obtained can be interpreted as follows. First, the population of small settlements, for the most part, does not actually participate in finding solutions to problems on their territory of residence and does not use the practices of participation formed at the local level, despite the awareness of problems affecting the individual space of everyday life. However, the population is aware of its own responsibility for the development of territories. Another positive point is that there is a relatively high potential and attitudes toward the need for cooperation to solve common problems in small cities in relation to the same indicator in large cities.

Second, the prerequisite for increasing the involvement of the local community in the formation of a favorable environment for living is that the main obstacle in small cities is the lack of collective work experience. When forming the necessary institutional conditions for obtaining such experience, taking into account the above positive aspects, we can expect an increase in the level of self-organization of citizens to implement their own initiatives on issues of local importance. In this regard, the formation of institutional conditions for the collective activity of local communities becomes important, which include the practices of participatory budgeting and project activities enshrined in the Russian regulatory framework, which is noted in the theoretical and methodological part of the study when systematizing the mechanisms of participation of the local community in the development of territories.

Mechanisms of participation of the local community in the development of territories: participatory budgeting (1) and project activities within the framework of the work of nonprofit organizations (2)

Table 6. Rating of obstacles to uniting people to solve a problem that concerns them*, %

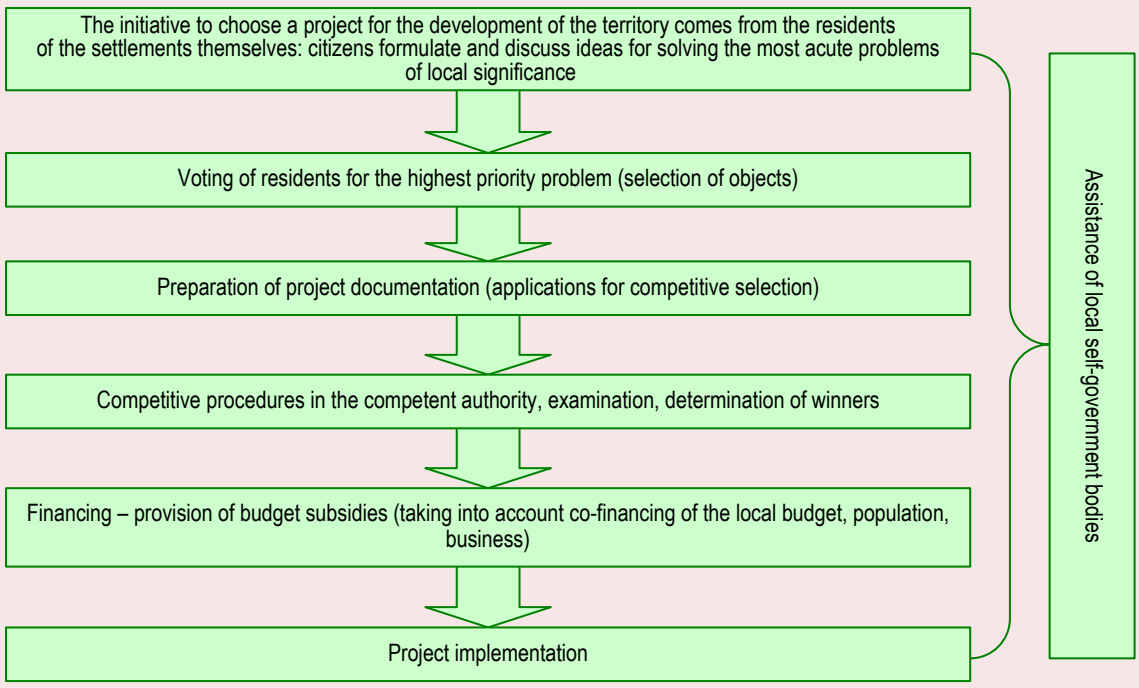
Respond option	Large cities	Small cities
Lack of teamwork experience	40	48
Disbelief in the possibility of changing something	66	47
Lack of resources (including financial ones) to solve a particular problem	36	44
Human qualities (laziness, selfishness, etc.)	44	41
Disunity of people, everyone is busy with their own affairs	47	36
People just don't want to do something for others	23	32
Lack of support from regional and local authorities	38	29
The absence of leaders in the locality who are able to lead	32	27
The opportunity to take advantage of what others have done	14	26
Lack of information about someone's success (in other cities)	17	20
Fears of being in opposition to the local government	24	16
There are no people with whom I would like to unite	11	10
Source: opinion poll, Vologda Oblast, 2021, N=1,550.		

When considering the issues of participation of the local community in the development of territories, the issue of citizens' involvement in the budget process within the framework of participatory budgeting projects deserves special attention – a mechanism for attracting additional financial resources aimed at solving issues of local importance with the direct participation of the population of a particular territory. As A.N. Didenko and I.V. Babichev note, "solving problems of local importance in participatory budgeting is accompanied by a number of additional economic, managerial, and social effects" (Didenko, Babichev, 2023). Thus, the managerial effect is to create comfortable conditions for interaction between local self-government bodies and the local community, and to increase the efficiency of municipal finance management by involving the population and business in decision-making processes on their use. The economic effect is to attract financial resources for the development of territories. The social effect is the willingness to invest personal resources that are converted into other socially significant processes such as the increase of social capital in the local community, the growth of civic culture, solidarity and local identity.

In Russia, the mechanism of participatory budgeting is applied at the federal (for example, the national project "Housing and urban environment" and its federal project "Formation of a comfortable urban environment"; the state program "Integrated rural development"), regional ("People's budget" in the Vologda Oblast) and local levels.

The implementation of participatory budgeting, depending on the legal regulation in the constituent entity of the Russian Federation, is somewhat modified. However, the general features are that the procedure takes place in most cases on a competitive basis with the participation of residents and in general the algorithm includes the following actions reflected in the diagram *(Fig. 4)*.

Figure 4. Participatory budgeting algorithm



Source: own compilation based on the analysis of the provisions on the procedures of participatory budgeting.

According to the Ministry of Finance of the Russian Federation, based on the analysis of data received from 75 regions, there is a significant increase in the number of practices of participatory budgeting from 212 in 2020 to 323 in 2021. The total number of applied practices involving citizens' participation in budget decisions has grown from 290 to 406. We should note that the group of municipal practices demonstrates the best dynamics: from 2018 to 2021, their number increased more than three times (from 91 to 274). In 2021, the Vologda Oblast became one of the constituent entities of the Russian Federation leading in the Northwestern Federal District in financial support of participatory budgeting projects, depending on the indicators: the share of funds allocated to projects in the regional budget of the constituent entity of the Russian Federation and budget support per inhabitant *(Tab. 7)*.

In the Vologda Oblast, the practice of participatory budgeting is carried out within the framework of the "People's budget" project, which has been operating in the region since 2015 and is part of the state program "Regional Finance Management of the Vologda Oblast for 2021–2025" (Subprogram 2 "Maintaining the sustainable execution of local budgets and improving the quality of municipal finance management"). This project provides for the selection of initiatives of residents on the condition of co-financing: from donations of citizens in the amount of at least 5% of the project cost; 25% from the local budget of municipalities or business funds; 70% – a subsidy from the regional budget. The main directions of the projects are the improvement of territories, the organization of mass sports, leisure and cultural life, the solution of problems in the field of housing and communal services, communications and public order[6]. According to S.G. Zhestyannikov, "minimal co-financing from the population is more correctly regarded as an engaging mechanism that promotes immersion in the process of discussing and implementing the project, and then using its results" (Zhestyannikov, 2021).

The analysis of the indicators of initiatives of local communities within the framework of the "People's budget" project indicates a significant increase in the volume of subsidies from the regional budget from 2017 to 2022 (more than 8 times) to support the project ideas of residents to improve living conditions in small territories. Perhaps this is due to the fact that initially subsidizing initiatives of

Table 7. Regions-leaders in the Northwestern Federal District in financial support of participatory budgeting projects in 2021

Constituent entity of the Northwestern Federal District	Number of participatory budgeting practices	Share of funds for participatory budgeting in the RF constituent entity, %	Budget support of information security for one person, rubles
Republic of Karelia	3	0.65	711.95
Komi Republic	1	0.25	316.25
Vologda Oblast	1	0.27	256.86
Kaliningrad Oblast	3	0.42	479.84
Novgorod Oblast	6	0.88	721.32
Source: Report on the best practices of development of participatory budgeting in the constituent entities of the Russian Federation and municipalities for 2022. Ministry of Finance of the Russian Federation. Available at: https://minfin.gov.ru/common/upload/library/2022/09/main/0512_Doklad_2022_V4.pdf			

[6] Consolidated annual report on the progress of implementation and assessment of the effectiveness of the Vologda Oblast state programs for 2022. Available at: https://kgzisb.gov35.ru/gosudarstvennaya-sluzhba

Table 8. Dynamics of indicators of local communities' initiatives within the framework of the "People's Budget" project in the Vologda Oblast

Indicator	2017	2018	2019	2020	2021	2022	2022 to 2017, times
Amount of subsidies provided in the regional budget for the implementation of the project, million rubles	48.8	59.6	88.7	156.5	305.8	405.8	8.3
Number of settlements participating in the competition	124	128	168	163	175	171	1.4
Number of municipal districts and okrugs participating in the competition	25	25	26	25	22	24	1.0
Number of winning projects	373	458	818	976	1,472	1,335	3.6
Share of residents of the oblast directly involved in the process of solving issues of local importance of the municipalities of the oblast within the framework of the implementation of the "People's budget" project, %	8.2	11.0	11.0	11.5	11.5	12.0	1.5
Source: data of the Vologda Oblast Department of Finance "Budget for Citizens"; Consolidated annual report on the progress of implementation and on the assessment of the effectiveness of state programs of the Vologda Oblast for 2017–2022.							

the population at the expense of the regional budget was 50%, starting in 2020 it increased to 70% of the total cost of the project. From the point of view of the development of small territories, the revealed trend of growth in the number of municipalities participating in the competition by 1.4 times (2017 to 2022) is positive, settlements have become especially actively involved in the project since 2019. In 2022, 171 settlements out of 179 formed by the administrative-territorial division of the region applied for the competition, i.e. the project covers almost the full volume of urban and rural settlements that belong to small territories of the oblast. The "People's budget" project involved 12% of the oblast's residents in the process of solving local issues of municipalities within the framework of implementation, an increase in the indicator for 2017–2022 is 1.5 times *(Tab. 8)*.

Despite the positive dynamics of the regional project "People's budget", independent practices of participatory budgeting in the Vologda Oblast have not been widely spread in municipalities. This allows concluding that it is necessary to form a comprehensive approach to the development of this mechanism in the oblast, including the introduction of municipal practices of organizing participatory budgeting with financing from local budgets with the relevant regulatory and legal tools for involving citizens. As a practical case, we can cite the experience of Vologodsky Municipal Okrug as the first emerging practice of municipal participatory budgeting in the oblast. Since 2022, the local project "People's decision" has been operating in the okrug. By the end of 2022, more than 9 million rubles were allocated from the municipal budget for the implementation of people's initiatives. The project involves initiatives of residents mainly on improvement of territories, which were not selected at the regional level[7].

A mechanism of direct community participation in stimulating new activities and attracting resources to the territory is the formation of non-governmental nonprofit organizations by active groups[8] (Chernega, 2020). A characteristic feature of the formation of nonprofit organizations is that they are created on the initiative of citizens and

[7] Public participation as a resource for development: Experience and prospects for the implementation of initiative budgeting projects in Vologodsky Municipal Okrug of the Vologda Oblast. Materials of the round table, dated March 23, 2023. State Duma of the Russian Federation. Available at: http://komitet4.km.duma.gov.ru/upload/site28/12._ZhESTYaNNIKOV_SG.pdf

[8] Public associations, public organizations, social movements, foundations and other organizational and legal forms of nonprofit organizations.

Table 9. Number of nonprofit organizations in the context of municipalities, 2020–2022, units

Type of territory	2020	2021	2022	2022 to 2020, %
Large cities	1,148	1,153	1,189	3.6
Small territories	484	475	455	-6.0
Source: own compilation based on: Priyatelev V.V., Voskresenskaya O.V. (2022). Report on the state and development of civil society institutions in the Vologda Oblast in 2022. Public Chamber of the Vologda Oblast, Resource Center of the NPO "Initiative". Vologda, 2022. P. 118.				

assume their integration to solve social problems and obtain public goods. However, the dynamics of the number of NPOs in the provincial territories of the Vologda Oblast shows a negative trend. Thus, the growth in the number of NPOs is typical for large cities in the region (+4%). On the contrary, in districts (okrugs) and small territories, there is a gradual decrease in the number of NPOs, from 2020 to 2022 it amounted to 6% *(Tab. 9)*. Detailed breakdown by municipal districts and okrugs shows that there is a decrease in NPOs in 16 out of 26 municipal districts and okrugs. There is a positive trend in only 5 territories of municipalities[9].

Thus, the analysis revealed one of the factors affecting the development of NPOs and, consequently, local community initiatives: the concentration of nonprofit organizations in large economically attractive centers and a decrease in their number in small cities and municipalities. We identify a high level of territorial differentiation of nonprofit sector representation within the same region.

Nevertheless, NPOs are an active actor in the territory and act as a tool for attracting grant funds and an aggregator of nonfinancial resources, a channel for articulating the interests (needs) of the local community. These organizations attract federal funds for the development of small territories and solving problems in the social sphere, which is proved by the open information of the Presidential Grants Fund, which supports nonprofit nongovernmental organizations implementing social projects on a competitive basis. In the course of the study, we find that a limited number of NPOs operate in small territories, in this regard, there is a significant gap in the amount of funds raised, the number of projects in the spatial distribution of "large city–small territories". The total volume of support provided for social projects in 2017–2022 in large cities of the oblast amounted to 432.4 million rubles, in small territories – 129.2 million rubles. However, there are insignificant differences in the average amount per supported project, which indicates the implementation of resource-intensive initiatives of the local community in small settlements within the framework of the activities of nonprofit organizations. A detailed analysis of the initiative projects that have received financial support from the Fund, in the context of small territories of the Vologda Oblast, allows identifying a leader in the funds raised. The nonprofit sector of Totemsky Municipal Okrug implemented 27 projects totaling 69.7 million rubles at the expense of federal competitive financing in 2017–2022. In 2022, the volume of funds raised in the okrug amounted to 26.9 million rubles. During the period under review, positive changes are recorded for both small and large cities. At the same time, despite the positive trends and growth, there is some instability in the dynamics of indicators *(Tab. 10)*.

The financial support of NPOs is implemented by the Presidential Grants Fund in several directions, the list of which gives reason to believe

[9] Priyatelev V.V., Voskresenskaya O.V. (2022). Report on the state and development of civil society institutions in the Vologda Oblast in 2022. Public Chamber of the Vologda Oblast, Resource Center of the NPO "Initiative". Vologda, 2022. P. 118.

Table 10. Dynamics of indicators of participation of nonprofit organizations of large cities and small territories of the Vologda Oblast in the social and project activities of the Presidential Grants Fund 2017–2022

Indicator	2017	2018	2019	2020	2021	2022
Large cities*						
Amount of funds raised, million rubles	56.8	51.8	98.0	97.9	44.4	83.5
Number of supported projects, units	40	43	80	75	40	50
Average amount per project, million rubles	1.4	1.2	1.2	1.3	1.1	1.7
Small territories**						
Amount of funds raised, million rubles	6.9	17.2	31.6	22.7	14.2	36.6
Number of supported projects, units	8	15	17	21	12	15
Average amount per project, million rubles	0.9	1.2	1.9	1.1	1.2	2.4

* Vologda and Cherepovets
** Okrugs and municipal districts of the Vologda Oblast.
Winning projects were selected according to the following filters: region, municipality, date – January–December of the respective year.
Source: own compilation based on the data of the Presidential Grants Fund (available at: президентскиегранты.рф) according to all competitions held by the Presidential Grants Fund since the start of its work on April 3, 2017.

Table 11. Directions of supported projects of nongovernmental nonprofit organizations of the Vologda Oblast (Presidential Grants Fund 2017–2022), %

Direction	Large cities	Small territories
Strengthening interethnic and interreligious harmony	0.3	1.6
Preservation of historical memory	16.4	18.1
Protection of citizens' health, promotion of a healthy lifestyle	16.7	11.0
Support of projects in the field of culture and art	4.9	10.2
Support for family, motherhood, fatherhood and childhood	15.1	4.7
Environmental and animal protection	5.9	13.4
Support for youth projects	1.9	14.2
Development of public diplomacy and support of compatriots	0.9	0.0
Social services, social support and protection of citizens	20.7	19.7
Support of projects in the field of science, education, enlightenment	9.9	3.1
Development of civil society institutions	4.9	3.1
Protection of human and civil rights and freedoms, including protection of prisoners' rights	2.5	0.8
Total:	100.0%	100.0%

Source: own compilation based on the data of the Presidential Grants Fund. Available at: президентскиегранты.рф.

that these organizations have the capacity to solve a wide range of socio-economic problems of territories and improve the quality of life of the population. In small territories, the largest number of supported projects under federal funding is aimed at preserving historical memory and social support for citizens. In large cities, with the exception of those noted, the solution of problems in the sphere of citizens' health is a priority *(Tab. 11)*.

We should note that the list of areas in which the Fund supports nonprofit organizations does not include landscaping and creating a comfortable living environment. However, a meaningful analysis of the projects shows that initiatives to improve and create tourist attractiveness of small territories are being implemented within the framework of the most supported direction – the preservation of historical memory.

Thus, the mechanism of socio-cultural design within the framework of the activities of nonprofit organizations is aimed at involving the active part of the local community in practices for the development of small territories. It is noteworthy that the study revealed a decrease in the number of NPOs and their small number in small territories, as well as an insignificant level of participation of the population as a whole. We assume that with the progressive and sustainable development of the nonprofit sector, the share of socially significant projects involving inactive groups of the local community and their contribution to solving the problems of the social sphere of the territories that were identified at the first stage of this study will increase.

Conclusion

The results obtained indicate the importance of the development of small territories and the participation of the local community in this process, especially in the context of limited budgetary opportunities and resources to solve social problems and meet the needs of the population.

In accordance with the aim of the study, we identify the characteristics of the local community of small cities by comparing them with large settlements based on an array of data provided by the opinion poll. In small cities, the local community is more focused on the development of territories and is aware of its responsibility than in large cities of the oblast. We reveal a higher potential and level of participation in initiatives in the local community of small territories. In almost all practices, the share of participants in small cities is higher than in large ones. We determine that a significant barrier to the involvement of the population in the processes of solving the problems of the place of residence is the lack of collective work experience. Subjective assessments show that the main actors of territorial changes are the governing bodies and the local community, and business is practically not responsible for the development of territories.

Institutionalized mechanisms of participation of the local community in the development of territories are considered as promising directions in overcoming these barriers: participatory budgeting and project activities within the framework of the work of nonprofit organizations.

The implementation of the "People's budget" project for participatory budgeting in the Vologda Oblast shows positive dynamics of indicators: the project covers almost all major issues of local importance at the settlement level, but the priority remains for the improvement of territories; the number of participating settlements and projects that have received support increases; there is an increase in the amount of subsidies from the regional budget; the share of residents of the Vologda Oblast increases, involved in the process.

We establish that there is a certain disproportion within the oblast regarding the representation of nonprofit organizations that act as a unifying channel for the activities of the local community in the direction of territorial development: concentration in large cities and a decrease in their representation in small cities and municipalities. However, we have found that the mechanism of project activities of NPOs is an additional opportunity to attract financial resources on an extra-budgetary basis to the social sphere of small territories with the participation of the local community and the effect of such activities will allow closing part of the problems of development of these territories. The potential social effect of such a mechanism is the involvement of a wide range of local residents in projects to create a favorable environment and comfortable living conditions.

The further research plan includes an in-depth analysis of factors, barriers and prospects for the participation of the local community in overcoming

social contradictions and the development of their small territories, as well as the development of a methodology for typologizing small cities and rural settlements, depending on the presence of social problems there and the degree of development of social potential.

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Attracting Educational Migrants to Universities: An Overview of Institutional Resources

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Abstract. The paper presents an overview of key institutional resources for attracting educational migrants, including compatriots, to Russian universities. The theoretical base includes Russian and foreign works on the theory of educational migration and adaptation of foreign students. It is revealed that there are not enough studies evaluating institutional resources to attract educational migrants to universities. It is mainly due to the fact that the work with foreign students in universities is embedded in the concept of "soft power". The novelty of the study consists in our attempt to fill this gap, review institutional resources for attracting educational migrants to universities, and systematize the data of theoretical and empirical studies. The practical side of the problem is reflected as well: statistical indicators from various Russian sources on educational migration and voluntary resettlement of compatriots to Russia are presented in fragments, which makes it difficult to compare them. We use qualitative analysis of documents in the public domain to obtain the data that made it possible to review the main institutional resources of

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Russian universities to attract educational migrants, including compatriots. We consider which resources of Russian universities in working with foreign students can be interpreted as "attracting" factors; whether there are special tools for working with foreign students from CIS countries and/or compatriots. We draw conclusions that Russian universities do not have well-elaborated strategies to encourage young compatriots (Russophones) to participate in educational migration. Universities do not consider this category of applicants as a separate group, which would help optimize management decisions focused on the development of migration, demographic and educational policies. These circumstances bring to the fore the need to optimize institutional resources and management decisions regarding the attraction of Russophones to Russian universities.

Key words: educational migration, compatriots, Russophones, university, demographic policy, migration policy.

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Introduction

Demographic evolution of Russia currently depends not only on the Russians' reproductive behavior and government support measures for families, but also on migration policy. According to the Rosstat data (recalculated data considering the results of 2020 Russian census, given without statistics on the Donetsk People's Republic (DPR), Lugansk People's Republic (LPR), Zaporozhye Oblast and Kherson Oblast)[1], the country's population of January 1, 2022 was 147.0 million people and of January 1, 2023 – 146.4 million people. Changes in the population for 2022 – 2023 are due to negative rate of natural increase (-594,557 people) and positive migration balance (61,920 people). We differentiate the state migration policy depending on migration flows and develop special tools to regulate and reduce social risks in each case (external, internal, return (Ryazantsev et al., 2015), labor, education migration, etc.).

In the context of demographic evolution, a promising direction of state policy is to encourage voluntary resettlement of compatriots to Russia, especially Russian-speaking (Russophones), as the language barrier will not hinder adaptation in the host community. Federal Law 99-FZ, dated May 24, 1999 "On the state policy of the Russian Federation concerning compatriots living abroad"[2] and Presidential Decree 637, dated June 22, 2006 "On measures to assist voluntary resettlement of compatriots living abroad to the Russian Federation"[3] define the concept of "compatriots". All persons born in the Russian State, the Russian Republic, the Russian Soviet Federative Socialist Republic, the USSR and the Russian Federation, as well as their descendants, have the right to obtain Russian citizenship, since these categories are culturally and historically close to Russians.

The largest number of compatriots live in the CIS countries (Republic of Azerbaijan, Republic of Armenia, Republic of Belarus, Kyrgyz Republic, Republic of Moldova, Republic of Kazakhstan, Republic of Tajikistan, Turkmenistan, Republic of Uzbekistan, Ukraine), but the share of Russophones among them varies and depends on the status of the

[1] Available at: https://rosstat.gov.ru/folder/12781; OkPopul_Comp_2023_Site

[2] Available at: http://www.kremlin.ru/acts/bank/13875

[3] Available at: http://www.kremlin.ru/acts/bank/23937

Russian language in the country. G.I. Osadchaya, O.A. Volkova, T.N. Yudina, A.A. Kocherbaeva (Osadchaya et al., 2023) suggest classifying the degree of adaptation of migrants (in the case of Kyrgyz women) in Russian society: steadily adapted; unsteadily adapted; unsteadily deadapted; steadily deadapted. The researchers' findings are of interest – the higher the degree of adaptation, the more migrants would like to stay to live in Russia.

We will base our interpretation of the concept of "adaptation" on the approach of W. Searle, C. Ward (Searle, Ward, 1990), who point out that intercultural studies are associated with the clarification of the terms "accommodation", "acculturation", "adjustment" and "adaptation". As a result, it was the term "adaptation" that became widely used to study people's intercultural experiences. Adaptation in a cross-cultural environment is behavioral and cognitive learning in the process of social and cultural interaction of a person with a new environment, resulting in psychological well-being and sociocultural competence as opposed to depression, social difficulties that may occur if the quantity and quality of social communications are reduced and the social distance between actors is increased.

Creating conditions is necessary to increase the adaptability of migrants, which is easiest to accomplish using the resources of educational migration, since during the period of study in higher education, the integration of actors into the host community proceeds more gently (this is due to the age of students and the active work of higher education institutions with foreign students). Long-term residence of foreign students from among compatriots in Russian cities can contribute to making an informed decision on acquiring Russian citizenship. It is necessary to comprehensively address the problems that may arise among foreign students in Russian universities, to improve programs of inclusion in society. We consider educational migration of foreign students from among compatriots as a resource for demographic evolution of Russia.

The aim of the work is to review the main resources of Russian universities to attract educational migrants, including compatriots. The object of the study is educational migration. The subject of the study is institutional resources of Russian universities used to attract educational migrants, including Russian-speaking compatriots (Russophones). In the context of demographic evolution, it is important to identify what institutional resources are formed and contribute to the decision of foreign applicants to make educational migration to Russia, since it is the knowledge of what hinders and promotes migration that makes it possible to develop well-founded management decisions.

Scientific approaches to the research topic

E. Lee divides the factors associated with the decision to migrate into two groups: push factors (inducing to leave the country of residence) and pull factors (attracting to a country for migration). The author clarifies that making the final decision is a search for a balance between a variety of conditions, positive, negative and neutral, observed in the countries of residence and migration (Lee, 1966). E. Lee's theory is developed to explain labor migration flows, and it can be applied to understand the choice of a university and educational migration. The push or pull factors are, for example, the level of education in universities, employment prospects for graduates of different universities, the cost of education or the possibility of free education, the transparency of procedures for interaction with migration services, the rating of universities in leading rating agencies, the language of instruction, and others. On this basis, migration flows of applicants can move from one country to another.

E. Lee's concept evaluates external factors and socio-economic conditions of labor at home-country and abroad. With regard to labor migrants, E. Lee warns against simple summation of factors when identifying the reasons for migration, since actors do not like to leave their place of residence and subjectively assess positive and negative factors. With regard to educational migration, it is also necessary to refuse simplifications, but to take into account that school leavers are less attached to their place of residence, as they may seek separation from their parental family, they are not yet bound by marriage ties, and are in a situation when their peers also leave their places of residence. Thus, applicants are ready to change their usual way of life, and Russophone compatriots can strive for education in Russian.

The theory of V. Chirkov, M. Vansteenkiste, R. Tao, M. Lynch (Chirkov et al., 2007) is promising for research. The authors define two motivational factors influencing the decision of applicants to study abroad: the "preservation factor" (the goal is to avoid disadvantageous living conditions in their home country) and the "self-development factor" (the goal is to get an education and stay to build a career abroad) and consider intrinsic motivation, the psychology of actors.

L.L. Rybakovskii (Rybakovskii, 2017) offers a general theoretical scheme for explaining the motives for migration: it is necessary to distinguish between migration factors as objective conditions and migration reasons as an explanation of the actors' subsequent reaction to the changes caused by the factors. In this case, factors precede causes, but when it comes to voluntary resettlement of Russophones in the Russian Federation, causes may become more significant than socio-economic, political factors.

Educational migration as a separate category of migration was considered by I.A. Bronnikov (Suvorova, Bronnikov, 2019), T.K. Rostovskaya, M.I. Skorobogatova (Rostovskaya, Skorobogatova, 2021), S.V. Ryazantsev (Ryazantsev, 2019; Ryazantsev et al., 2021), and V.M. Filippov (Filippov, 2015). Within the framework of these studies, the concept of educational migration has been given a meaning predetermined by the goals and objectives of the research. A generalizing definition of the concept of "migration educational policy" can be considered as follows – it is "a set of measures to ensure the effective attraction of professionals from abroad, deter the departure of qualified personnel from the country, repatriate migrants, create a system of national educational programs to support foreign education, as well as the development of joint inter-university programs to improve the reputation of the region in the field of educational services" (Rostovskaya et al., 2021).

Foreign studies of educational migration are conducted very intensively, especially in the UK and the USA, where educational migration is realized in accordance with the concept of "soft power" (Nye, 1990). "Soft power" is essentially a strategy of using adaptation technologies of actors to integrate them into the host community, which in some cases involves the transformation of actors' values. However, the goal of "soft power" is not that the outcome of adaptation is a change of citizenship, but that the actors return to their home country and promote the ideas adopted during the period of education. Works of I. Vershinina, A. Kurbanov, N. Panich (Vershinina et al., 2016), S.Yu. Boldyreva, R.Yu. Boldyrev, N.N. Beloshitskaya (Boldyreva et al., 2020) are devoted to the resources of Russian universities to attract educational migrants and adaptation of foreign students within the framework of the implementation of the "soft power" strategy. Russian studies of international mobility in the context of internationalization, analyzing the impact of academic exchange on the development of human capital, are also relevant (Egorychev, Rostovskaya, 2021; Zakirova, Kharitonova, 2022; Rostovskaya, Zolotareva, 2021).

According to the Higher Education Policy Institute's (HEPI)[4] 2022 report, the USA and the UK lead the way in attracting international students. The report presents data showing that the USA has maintained its lead since 2017. "Soft power" tools are used to attract the most ambitious applicants to the leading universities, as it is the applicants with high aspirations who become political leaders and promoters of new values in their countries (perhaps some countries use hidden mechanisms to promote such graduates to political leadership). According to the report, in 2022, the USA educated 67 world leaders; followed by the UK – 55; France – 31; Russia – 10; and Australia – 9. In 2020, the USA educated 62 world leaders; the UK – 57; France – 35; and Russia – 10. Russia ranks fourth in educating political leaders, while the USA has moved up in the rankings since 2020 (+5).

We supplement the information with Project Atlas data[5], which are collected by an international research group and record indicators of student mobility, academic migration and internationalization of higher education. According to the data for 2022, there are 351,127 foreign students studying in Russia, mainly from the following countries: Kazakhstan – 62,358 people; China – 39,939 people; Uzbekistan – 39,825 people; Turkmenistan – 36,773 people; Tajikistan – 20,251 people; India – 18,536 people; Ukraine – 11,123 people; Egypt – 10,535 people; Belarus – 9,769 people; Azerbaijan – 7,987 people. The most common areas of training: medicine – 72,029 people; engineering – 75,542 people; economics and management – 60,695 people; pedagogy – 30,849 people; humanities – 19,021 people. In the global ranking compiled by Project Atlas, Russia ranks sixth in the number of international students, after the USA – 948,519; the UK – 633,915; Canada – 552,580; France – 364,756; and Australia – 363,859.

Unfortunately, it is difficult to get a complete picture of educational migration of young compatriots to Russia based on open data. Some conclusions can be drawn by interpreting the following information:

– information on the entry of foreign citizens into the Russian Federation by purpose of visit, when selecting the purpose "education" in the EMISS constructor *(Tab. 1)*;

– data of the Ministry of Internal Affairs of the Russian Federation based on the monitoring of the implementation of the state program to assist voluntary resettlement of compatriots living abroad to the Russian Federation *(Tab. 2)*;

– information provided by universities in reports on contingent and educational migration; data collection is coordinated by the Ministry of Internal Affairs of the Russian Federation and the Ministry of Science and Higher Education of the Russian Federation.

Thus, international statistical data show that interest in Russian education on the market of educational services is high. At the same time, the Russian statistical data are insufficient to formulate reasonable conclusions. We try to identify the main resources for attracting and adapting foreign applicants, relying, first, on the concept of E. Lee, which allows analyzing push and pull factors causing migration; second, on the concept of L.L. Rybakovskii, systematizing social processes affecting migration, since the analysis of factors and conditions is the basis for the development of resources to support foreign students; third, on the concept of "soft power" and, finally, on the research of students' adaptation strategies to the host community.

[4] Hillman N. HEPI soft-power index: UK slips further behind the US for the fifth year running. Available at: https://www.hepi.ac.uk/2022/08/22/2022-hepi-soft-power-index-uk-slips-further-behind-the-us-for-the-fifth-year-running/ (accessed: September 4, 2023); Hillman N. HEPI's annual soft-power ranking, 2020: The UK slips further behind the US (August 27, 2020). Available at: https://www.hepi.ac.uk/2020/08/27/hepis-annual-soft-power-ranking-2020-the-uk-slips-further-behind-the-us-2/ (accessed: May 4, 2023).

[5] Project Atlas. Available at: https://www.iie.org/research-initiatives/project-atlas/explore-global-data/ (accessed: September 4, 2023).

Table 1. Data on entry of foreign citizens to the Russian Federation (purpose of visit – education), people

Country	2019				2020				2021				2022			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Republic of Azerbaijan	2,344	1,692	4,272	2,965	2,845	0	177	62	326	857	3,684	1,634	1,491	776	3,959	1,609
Republic of Armenia	2,050	1,433	5,133	1,620	1,823	0	292	35	1118	1,437	4,781	1,880	1,548	1,076	4,951	1,537
Republic of Belarus	114	117	179	113	113	0	0	1	4	18	78	75	83	47	66	96
Republic of Kazakhstan	36,204	23,102	37,229	22,223	38,467	0	864	2,700	5,459	12,979	44,224	24,125	26,378	14,448	32,017	14,422
Kyrgyz Republic	4,916	3,446	13,665	4,212	4,917	0	469	1,465	2,037	3,402	13,342	6,409	4,751	4,620	20,130	6,195
Republic of Moldova	3,098	2,062	5,094	1,543	2,786	0	3	2	7	137	1,117	571	726	174	653	300
Republic of Tajikistan	6,422	5,055	25,640	6,623	6,585	0	223	18	58	3,013	23,701	10,499	7,643	8,840	41,148	13,132
Turkmenistan	4,156	1,659	9,922	3,076	3,798	0	12	18	43	30	184	572	402	141	2,241	4,693
Republic of Uzbekistan	7,927	6,101	22,549	6,610	9,093	0	115	59	102	5,982	21,411	9,273	8,284	7,063	28,440	9,672
Ukraine	8,340	5,359	7,905	4,567	6,605	0	14	10	23	228	1,859	860	849	268	1,379	195
Total	75,571	50,026	131,588	53,552	77,032	0	2,169	4,370	9,177	28,083	114,381	55,898	52,155	37,453	134,984	51,851
Source: own compilation according to data of EMISS. Available at: https://www.fedstat.ru/indicator/38479 (accessed: May 4, 2023).																

Table 2. Monitoring data on the implementation of the state program to assist voluntary resettlement of compatriots living abroad to the Russian Federation in the territories of settlement of the constituent entities of the Russian Federation for 2018–2022

Year	2018				2019				2020				2021				2022			
Quarter	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Accepted applications, thousand	16.7	17.6	17.7	19.0	15.5	15.8	16.9	16.8	12.0	5.1	8.9	12.2	10.0	10.7	11.4	11.9	10.2	12.1	11.5	6.5
Persons included in the statements, thousand	38.3	41.4	42.0	44.5	35.9	37.5	39.7	40.1	28.6	11.0	20.4	30.8	25.2	27.6	29.0	31.3	27.4	34.2	33.0	18.1
Of which applications accepted abroad, %	53.0	54.0	57.0	52.0	52.0	48.9	54.5	50.3	45.6	10.9	25.2	46.4	47.5	50.8	60.3	60.1	63.9	67.3	73.3	68.1
On the territory of the Russian Federation, %	47.0	46.0	43.0	48.0	48.0	51.1	45.5	49.7	54.4	89.1	74.8	53.6	52.5	49.2	39.7	39.9	36.1	32.7	26.7	31.9
Certificates of the State Program participant issued, thousand	11.4	13.6	13.9	14.5	11.8	13.5	13.6	15.0	10.2	5.7	6.2	10.6	8.2	8.8	9.4	10.0	8.6	9.8	10.3	7.2
Persons included in certificates, thousand	27.0	31.6	33.0	33.5	28.0	31.7	32.4	35.1	24.6	12.8	13.2	26.3	21.1	22.9	24.1	25.6	23.3	26.8	30.3	19.9
Of which abroad, %	48.0	51.0	56.0	52.0	51.0	50.4	53.2	51.6	49.5	19.6	15.6	47.6	49.5	50.1	61.0	61.1	61.9	67.2	72.2	69.3
On the territory of the Russian Federation, %	52.0	49.0	44.0	48.0	49.0	49.6	46.8	48.4	50.5	80.4	84.4	52.4	50.5	49.9	39.0	38.9	38.1	32.8	27.8	30.7
Arrival and registration in migration units by local bodies of the Ministry of Internal Affairs of the Russian Federation, thousand people	24.2	27.1	30.9	25.5	23.9	28.0	31.0	25.7	19.9	9.5	16.8	15.7	15.7	19.2	25.3	18.3	15.7	16.9	20.0	12.2
Source: own compilation according to the data of the Ministry of Internal Affairs of the Russian Federation. Available at: https://xn--b1aew.xn--p1ai/mvd/structure1/Glavnie_upravlenija/guvm/compatriots/monitoring (accessed: May 4, 2023).																				

Institutional resources of attraction and adaptation of educational migrants in foreign universities

The increased interest in the problems of adaptation of foreign students is evidenced by rising volume of publications on ScienceDirect, the international database (The keywords used for the search were "adaptation of international students"; accessed at: https://www.sciencedirect.com/); for the period 2000–2022, the database contains 57,007 papers *(Fig.)*.

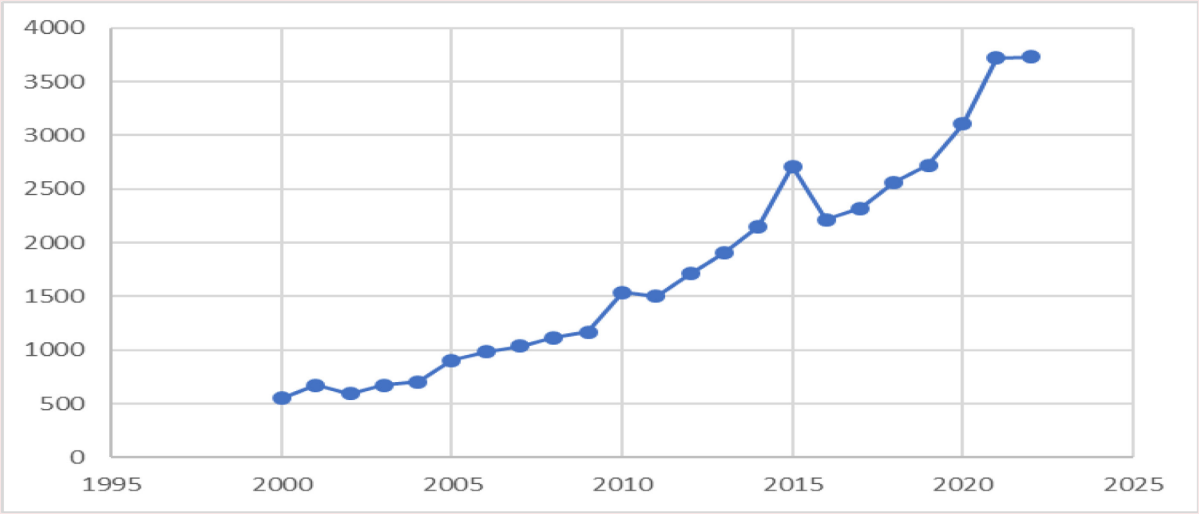
Research on the adaptation of foreign students is international in nature. An example of international cooperation project implementation is the publication by S.V. Ryazantsev and co-authors, which analyzes the Japanese model of attracting foreign students. Based on focus group data, the authors note that Japan uses selective migration, focusing on attracting applicants from ethnoculturally close Asian countries (Ryazantsev et al., 2020), that is, they use a model of work on adaptation of educational migrants, which is the most convenient for implementation.

Adaptation issues are widely covered in review articles. H. Xiaoying, S. Baharom, L. Sunjing (Xiaoying et al., 2023) study the influence of the level of cultural intelligence on the academic adaptation of international students. A.V. Sarmiento and co-authors (Sarmiento et al., 2019) systematized articles published between 2012 and the first semester of 2017 and outlined 45 theoretical frameworks for the study of international students' adaptation.

A. Yerken, L.A. Nguyen Luu (Yerken, Nguyen Luu, 2022) studied the adaptation of applicants from post-Soviet countries. The study, conducted using qualitative interviews, reveals that students from Kazakhstan, Azerbaijan, Georgia and Moldova consider Hungary as a host community only for the period of education, as their ultimate objective is pursuing a career in other Western countries.

In general, foreign studies pay more attention to psychological aspects of adaptation than to resources and technologies for working with international students (Matera, Catania, 2021; Zeng et al., 2022; et al.).

Dynamics of publication counts in the ScienceDirect international database regarding foreign student adaptation issues



Source: own compilation.

It is not possible to trace the dynamics of research publications concerning institutional resources for attracting international students, as the discourse is not unified. For example, a large number of works were published in the USA after September 11, 2001. For example, G. Borjas speaks about rethinking the positive results and risks of educational migration (Borjas, 2002). Indeed, on the one hand, it is possible to achieve positive objectives – international students become familiar with institutions and culture, which leads to the promotion of the host community's values. G. Borjas notes that the most talented young people from other countries remain in the USA. On the other hand, foreign students can undermine the security of the country, and their poor knowledge of English leads to a decrease in the quality of education in general.

M. Rosenzweig (Rosenzweig, 2006) identifies two models to explain the international mobility of students to developed countries. First, migration occurs due to the lack of educational institutions in the home country (which is not relevant for Russia). In this case, students migrate to acquire human capital and return home to take advantage of educational investments in their home country. Second, student visa migration may be a means of entering and staying in another country to avoid low benefit from education in the country of origin. The desire for higher income is the main factor driving student migration.

The USA and the UK occupy the highest positions in the world rankings in terms of the number of leading universities. The main institutional resource in this case is the high standard of living of the host community and recognition of high quality of education. For the USA and the UK, the relevant issue is not the issue of increasing the number of international students and finding resources, but the introduction of competitive selection tools (including language exams) and visa restrictions on entry (Chen et al., 2023; Kato et al., 2013). Several studies have attempted to answer whether the influx of international undergraduate and graduate students restricts opportunities for young people in the USA or whether high fees paid by international students subsidize the education of local youth (Borjas, 2007; Shih, 2017).

Resources for attracting international students and increasing academic mobility are necessary if the university is not among the top leading universities or if it is planned to maintain its place in the international ranking. High competition in the market of educational services promotes the monitoring of technologies for entering the market of educational services of universities, the academic reputation of which is just being formed. For example, H. French notes that Chinese universities attract the best professors from among compatriots to work in little-known universities (French, 2005). Working with the best specialists among the compatriots educated abroad, giving them the opportunity to manage equipped laboratories, select talented students, and receive high salaries is one of the effective measures to improve the reputation of a university and the university's place in international rankings. However, participation in international rankings does not always increase the university's recognition, as digital inequality is fixed worldwide (Rostovskaya et al., 2023). On the example of the study conducted in Australia (Tran et al., 2022), we make a conclusion that the attraction of educational migrants can be built as a business model, but even in this case state support is necessary, as this issue is included in the system of international relations.

Thus, we reveal that the general trends in the study of institutional resources for attracting foreign migrants are not formed in the scientific discourse, and the issues that are raised in different countries depend entirely on the national security strategy.

In this regard, it is necessary to review the resources used by Russian universities to consider the institutional resources that contribute to the formation of pull factors that allow foreign applicants, including compatriots, making a decision on educational migration to Russia and effectively adapt to the host community.

Activities of Russian universities aimed at attracting and adapting educational migrants

We used a method of qualitative analysis of documents – self-inspection reports of universities with the largest number of international students to achieve the research goal. The sample included self-inspection reports of 10 universities for 2022, which, according to information published on the website of the Ministry of Science and Higher Education of the Russian Federation[6], are leaders in the admission of foreign students: Federal State Autonomous Educational Institution of Higher Education "Peoples' Friendship University of Russia named after Patrice Lumumba"[7] (hereinafter – RUDN University); Federal State Autonomous Educational Institution of Higher Education National Research University Higher School of Economics[8] (hereinafter – HSE University); Federal State Autonomous Educational Institution of Higher Education Peter the Great St. Petersburg Polytechnic University[9] (hereinafter – SPbPU); Federal State Autonomous Educational Institution of Higher Education Kazan (Volga region) Federal University[10] (hereinafter – KFU); Federal State Autonomous Educational Institution of Higher Education Ural Federal University named after the First President of Russia B.N. Yeltsin[11] (hereinafter – UrFU); Private Educational Institution of Higher Education Omsk Humanitarian Academy[12]; and self-inspection reports for 2021: Federal State Educational Institution of Higher Professional Education Lomonosov Moscow State University[13] (hereinafter – MSU); Federal State Budgetary Educational Institution of Higher Professional Education Saint-Petersburg State University[14] (hereinafter – SPbSU); Federal State Autonomous Educational Institution of Higher Education I.M. Sechenov First Moscow State Medical University of the Ministry of Healthcare of the Russian Federation (Sechenovskiy University)[15]; Non-State Private Educational Institution of Higher Professional Education Moscow University for Industry and Finance Sinergy[16].

[6] The number of foreign students in Russia has increased by 26 thousand people over the past three years. Available at: https://minobrnauki.gov.ru/press-center/news/mezhdunarodnoe-sotrudnichestvo/46158/ (accessed: April 22, 2023).

[7] Report on the results of RUDN self-inspection for 2022. Available at: https://www.rudn.ru/sveden/files/Otchet_o_rezulytatax_samoobsledovaniya_za_2022_god(1).pdf (accessed: April 22, 2023).

[8] Self-inspection report of the Federal State Autonomous Educational Institution of Higher Education National Research University Higher School of Economics for 2022. Available at: https://www.hse.ru/pubs/share/direct/825973527.pdf (accessed: April 22, 2023).

[9] SPbPU self-inspection report for 2022. Available at: https://www.spbstu.ru/upload/sveden/otchet_samoobsledovanii-20-04-2022.pdf (accessed: April 22, 2023).

[10] KFU 2022 self-inspection report. Available at: https://kpfu.ru/sveden/document/ (accessed: April 22, 2023).

[11] Report on self-inspection of the Ural Federal University. Available at: https://urfu.ru/fileadmin/user_upload/urfu.ru/documents/self/2023/samoobsledovanie_URFU_Ekaterinburg.pdf (accessed: April 22, 2023).

[12] Report on the results of self-inspection of PEI HE OmHA for 2021. Available at: https://www.omga.su/sveden/document/ (accessed: April 22, 2023).

[13] Self-inspection report of the Lomonosov Moscow State University for 2021. Available at: https://www.msu.ru/upload/pdf/2022/samoobsl2022.pdf (accessed: April 22, 2023).

[14] Report on the results of self-inspection of SPbSU for 2021. Available at: https://spbu.ru/sveden/document (accessed: April 22, 2023).

[15] Report on the results of self-inspection of Sechenovskiy University for 2021. Available at: https://www.sechenov.ru/normativnye-dokumenty/samoobsledovaniyeotcht/ (accessed: April 22, 2023).

[16] Report on the results of self-inspection of Synergy University for 2021. Available at: https://synergy.ru/about/official/dokumentyi/ (accessed: April 22, 2023).

In today's complex geopolitical conditions, the global media reports that Russian universities are excluded from the Bologna system[17]. In general, this will not affect the quality of Russian education, which is traditionally high, but may affect the representation of Russian universities in international rankings such as QS World University Ranking (QS), Academic Ranking of World Universities (ARWU), Times Higher Education World University Rankings (THE). The decrease in the representation of Russian universities in the ratings may become a push factor and contribute to their lower recognition on the educational services market, so it is necessary to examine what strategies and resources are used by the universities to overcome the current risks.

In the course of qualitative analysis of the documents, the tasks in hand included outlining strategies and organizing the resources of Russian universities for working with international students, which can be perceived as pull factors; determining whether there are special tools for working with international students from CIS countries and/or compatriots. Further we place the universities in the order corresponding to the order of their mentioning in the information report of the Ministry of Education of Russia, excluding the data on OmHA, Sechenovskiy University and Synergy University, because the structure of the reports of these universities is compressed, which does not allow analyzing the strategies of work with foreign applicants and students, they state in general terms that the tasks of inclusion of the universities in the world educational space are realized, but there is no actual data on the resources used to solve the task, so other methods of research of university resources are needed to formulate valid conclusions.

RUDN University is traditionally very popular among foreign applicants. According to the self-inspection report, the university maintains multilingualism in education; conducts activities to strengthen academic prestige both at the federal and regional levels; the Career Center launched a Telegram-channel for international students, which provides information on employment of foreign students in Russia; develops scholarship programs, network educational programs; implements employment projects for international students and graduates with the companies "Yandex" (YanGo) and "Novostal-M". The report contains a paragraph on the enrollment of international students and states that the indicator of the implementation of the programs "Priority–2030" and "Program of complex development of the Peoples' Friendship University of Russia – 2025" is "at least 10,000 RUDN students annually from 160+ countries". As a result, the enrollment plans are fulfilled, the number of students from Asia, CIS and Baltic countries, Europe, Middle East and North Africa is growing. Positive results in RUDN University have been achieved not only due to initiative projects of the university management, but also in the course of implementation of the state assignment, due to active cooperation with the Ministry of Education and Science of the Russian Federation, setting quota places for foreign applicants, etc. The university also uses the resources formed after meetings with ambassadors and representatives of diplomatic missions, engages recruitment agencies in the admission campaign, uses the platforms of the centers of Russian education abroad, which RUDN University organizes on the basis of foreign partner educational organizations, partner universities, etc. In 2022 new platforms were opened in Tunisia, Indonesia, Morocco, Serbia. RUDN University participates in the international Olympiad movement, exhibition and presentation activities, using both offline and online formats.

[17] Russian universities excluded from Bologna Process, says science and education ministry. Available at: https://tass.com/society/1461333 (accessed: May 4, 2023).

Besides, scientific joint activities are carried out, as they have become the basis for increasing the number of foreign graduate students.

Kazan Federal University has developed a list of measures to provide quotas for foreign citizens to study at Russian universities on bachelor's, specialist's and master's degree programs; it also organizes the international MagistriUm Olympiad, in which bachelors from 22 countries took part in 2022, and 13 foreign citizens became winners. The work is underway to attract foreigners not only to master's programs, but also to postgraduate programs (100 people, including 89 people from non-CIS countries and 11 from CIS countries). The report states: "KFU holds stable leading positions among Russian universities in terms of export of educational services, ranks second in terms of absolute number of foreign students in the main educational programs among universities of the Russian Federation and is one of the top three universities in Russia, identified by foreign applicants as a priority using electronic systems of Federal Agency for the Commonwealth of Independent States Affairs, Compatriots Living Abroad, and International Humanitarian Cooperation (hereinafter – Rossotrudnichestvo) within the framework of the admission campaign. According to the indicator "Share of international students" in 2020, KFU entered the top 200 of the international QS ranking (198th place). KFU is also one of the leaders among Russian academic centers in attracting foreign scientists and is one of the top five in terms of interaction of Russian scientific organizations and universities with foreign scientists"[18]. Active position of the university rector in supporting international meetings, sending employees to foreign countries, interaction with Rossotrudnichestvo, participation in nine international educational exhibitions in Uzbekistan, Kyrgyzstan, Kazakhstan, Belarus, Egypt in 2022, preparatory program in Egypt, network training programs in Türkiye and Iran, use of the "STUDERUS" educational platform developed in KFU, organization of advanced training in the form of internships for 20 prorectors on scientific work and innovations of higher education institutions of Uzbekistan, creation of a network of KFU branches abroad in priority regions and countries such as Uzbekistan, Egypt, Kazakhstan, on demanded specialties and areas of training. All these are the pull factors for foreign applicants to KFU. An interesting project is the organization of unique events by the Russia – Islamic World Strategic Vision Group, which has been headed by the President of the Republic of Tatarstan R.N. Minnikhanov since 2014. The development of this project makes it possible to consider religion as a pull factor for studying at KFU, and the university is also developing a multicultural environment.

At SPbPU, a BIG PhD competition was held for foreign citizens in 2022. Representatives of SPbPU are members of the Presidium of the Organizing Committee of the International Olympiad "Open Doors" on the track of master's and postgraduate studies, subject, methodological and expert commissions. The report states that the target regions for international student enrollment in 2022 were Ibero-America, Southeast Asia, the Middle East, and the CIS countries. International students gain unique competencies at the university. For example, for eight years, SPbPU has been training students from Turkey in the field of nuclear energy in cooperation with Rosatom State Corporation and Akkuyu Nuclear Power Plant, together with the IAEA. A new international master's degree program "Emergency preparedness and response" was opened with financial support from Rosatom. SPbPU holds Summer and Winter Schools to attract international students, and implements international professional development programs and other activities.

[18] KFU 2022 self-inspection report. Available at: https://kpfu.ru/sveden/files/001780.pdf (accessed: April 22, 2023). P. 22.

MSU is the Russian university most recognized in the global market of educational services, which is due to the history, reputation of the university, quality of education confirmed by all international ratings. The reputation of MSU's foreign branches in Astana, Tashkent, Baku, Dushanbe, Yerevan, Koper (Slovenia) is also high. The distance learning experience made it possible for MSU to quickly transform the technology of attracting applicants ("Since 2020, under the COVID-19 pandemic, MSU's admissions campaign has been conducted entirely in a distance format. This format allows building an effective campaign to attract foreign students and to enroll them in the educational programs of Moscow University"). As a result, MSU is implementing a combined admission model, which has increased the accessibility of postgraduate programs for foreign citizens. In 2021, enrollment was held for 14 programs implemented jointly with international partners from the world's leading universities, as well as with the participation of corporate partners, enrollment is underway for foreign language programs, dual and more diploma programs.

HSE University provides educational counselors and employment assistance for international students. There is a system of international student recruiting, Olympiad competitions, short-term training programs, a center for international online promotion (creation of Russian and English-language content for social networks, portals – VK, Baidu, QQ, WeChat, Zhihu, etc.), the "Year at HSE University" admission model. The project of academic lyceum classes of HSE University was launched in Tashkent, an agreement was reached on the formation of the Higher School of Economics of Kyrgyzstan on the basis of the Training Center of the Ministry of Finance of Kyrgyzstan, an info-hub on visa and migration support for foreign students ivisa.hse.ru was developed, foreign students are provided with comfortable accommodation in the dormitory.

UrFU is working on establishing friendly relations not only with partner universities, but also with enterprises of Uzbekistan, Tajikistan, Mongolia, Belarus, Kyrgyzstan, Egypt, Sri Lanka, and China. The university takes part in international exhibitions, with the participation of the university in 2022 Russian language centers were opened in Egypt, as well as in China on the basis of Hengxing University.

SPbSU includes information about international accreditation of educational programs in the diploma to attract foreign applicants and increase the demand for graduates in the international labor market; implements "two diploma" programs, including the "Russian language and Russian culture in the aspect of Russian as a foreign language" program within the area of study 45.04.02 "Linguistics" with Fergana State University (Uzbekistan); SPbSU organizes the work of educational program councils, whose members include consuls and ambassadors of foreign countries, offers foreign citizens to participate in the SPbSU Schoolchildren Olympiad, offers 27 basic educational programs that are fully implemented in a foreign language, develops the Club of foreign students of SPbSU, etc. In the report of SPbSU, unlike the reports of other universities, there is a reference to the category of compatriots: "In 2021, an open competition for foreign citizens within the quota of places allocated for the education of foreign citizens, stateless persons and compatriots permanently residing abroad at the expense of budgetary allocations of the federal budget of the Russian Federation was organized"[19].

Let us systematize the information on institutional resources of universities to increase the number of foreign applicants *(Tab. 3)*.

[19] Available at: https://spbu.ru/sites/default/files/otchet_o_rezultatah_samoobsledovaniya_za_2021_god_0.pdf

Table 3. Institutional resources for attracting educational migrants to universities

Resources	Results
External resources	
Legal framework	*Regulating the quota places for foreign applicants* • Quota places program for international applicants *Regulating border crossing by international students* • Visa and migration support for foreign students *Regulating the implementation of educational programs in the Russian Federation* • Network educational programs, programs of two or more diplomas
Finances	• State programs to support Russian universities (“Priority 2030”) • Programs of Rossotrudnichestvo • Grants and other sources
Information resources	• News about the main trends in the development of higher education in the world • News agenda of institutional actors (Ministry of Science and Higher Education, Rossotrudnichestvo, etc.).
Digital technology	• International and Russian educational platforms • Distance education • Online meetings (business, educational, scientific)
International educational ratings	• Strengthening academic prestige • Saving money on promoting a news agenda about the achievements of Russian education
Internal resources	
Human capital assets of university	• Participation of teachers and students in the international Olympiad movement • Expansion of the network of foreign partners • Organization of professional development, internships for foreign students, teachers, specialists working in the higher education system • Opening of educational programs in English and other languages • Organization of Summer and Winter Schools for students • Adaptation programs for students (assigning academic advisors to international students; opening clubs for international students, providing a multicultural environment, etc.).
Financial management strategy	• International accreditation of educational programs • Scholarship programs for international students • Work with recruiting agencies • Secondment of employees to foreign countries • Targeting • Organization of international Olympiads • Scholarship programs for talented youth and young teachers • Recruitment of leading specialists for teaching activities
Information resources	• Promotion of the news agenda about the achievements of the university • Publication of information in several languages on the official website of the university • Publications in social networks, including those popular in other countries
Building partnerships (stakeholders)	*Rossotrudnichestvo:* • Participation in meetings and conferences with ambassadors and representatives of diplomatic missions • Organizing or participating in the opening of Russian language centers • Support in establishing a network of branches abroad in priority regions and countries • Participation in international educational exhibitions *Employers:* • Assistance to foreign students in finding employment in the Russian Federation • Scholarship programs *Other educational organizations:* • Consortia, etc.
Digital technology	• Distance education • Online meetings (business, educational, scientific)
Source: own compilation.	

Conclusion

The legal framework has a predominant impact on the attraction of educational migrants. According to Federal Law 99-FZ, dated May 24, 1999 "On the state policy of the Russian Federation concerning compatriots living abroad", compatriots may enroll in Russian educational organizations on equal rights with Russian citizens. In this case, admission to bachelor's and specialist programs is carried out on the basis of the results of entrance examinations and/or the results of the Unified State Examination both for places with the payment of tuition fees and for places financed from federal budget allocations.

Foreign citizens may enroll for places financed from budgetary allocations of the federal budget, in accordance with the Government Decree 2150, dated December 18, 2020 "On establishing a quota for the education of foreign citizens and stateless persons in the Russian Federation"20. The following quotas for education in the Russian Federation for foreign citizens and stateless persons, including compatriots living abroad, are established: in 2021 – not exceeding 18 thousand people; in 2022 – 23 thousand people; starting from 2023 – 30 thousand people.

It is indicative that only one surveyed report of educational institutions uses the concept of "compatriots", hence, no specific work with this category of foreign applicants is carried out. When it comes to the optimization of migration policy in relation to compatriots, the Concept of legal regulation of migration scientific and educational policy in the context of export of Russian education through to 2030 is of interest. It represents a system of principles, approaches and priorities in the sphere of legal regulation of social relations arising in the process of realization of constitutional and legal foundations of migration educational policy (Skorobogatova, 2021). However, the main principles of the concept are not reflected in the work of universities.

The analysis of the documents shows that the main resources of the leading universities are human capital; development of communication at different levels in the process of interaction of universities with the Ministry of Education, diplomatic missions, partner universities, educational organizations of secondary general education, employers, etc.); information resources that promote the university brand, including through social networks (VK, Baidu, QQ, WeChat, Zhihu, etc.); finance.

The effectiveness of attracting educational migrants depends on the existence of a comprehensive strategy of the university, where the cost structure includes the costs of both attracting leading professors and retaining internal human capital – from leading professors to specialists in youth policy. Financing a university is a complex mechanism, but investments in attracting educational migrants pay off, as the cost of education for foreign students is higher than for Russian citizens. When attracting the attention of foreign applicants, establishing long-term cooperation, universities form exclusive offers, which may become the reason for choosing a particular institution for admission (religion, multicultural environment, employment of foreign students, dual degree programs, etc.). Planning specific work with compatriots enables universities to work in the context of Russia's demographic development.

[20] Available at: http://government.ru/docs/all/131611/ (accessed: September 20, 2023).

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The Experience of Russia and China in Addressing the Age Aspect of the Digital Divide

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Abstract. The process of demographic aging is global and irreversible, and the share of the elderly in the population of most countries will steadily increase. This sets strategic tasks of taking these trends into account in management, creating conditions for quality life of people in older ages. In the conditions of rapid digitalization of the economy and branches of the social sphere, the issue of integration of elderly people into modern processes, monitoring the dynamics and factors of inclusion, and creating conditions for leveling various kinds of related exclusion is acute. The aim of the article is to comparatively analyze the practices of digital inclusion of the elderly in China and Russia in order to identify opportunities to improve their effectiveness. We used a complex of general scientific methods and relevant empirical base, consisting of data from population censuses and statistics on the development of information and communication infrastructure in the countries under consideration. We show the current state of research on the problem of age digital divide in China, Russia and other countries. We outline the scale and main trends in the use of digital technologies by elderly people, which unite China and Russia and are expressed in the growing number of Internet users in older ages, the desire for more active use of mobile Internet and mobile apps. The main constraints and challenges for the elderly with inadequate digital inclusion are formulated. In the conclusion, the main directions of development and increasing the effectiveness of inclusion practices of the older generation in digital interactions are formed. The results may be useful for formulating management decisions for successful digital development in the countries under consideration.

Key words: digitalization, digital inequality, digital divide, digital divide age factor, elderly people, Russia, China.

Introduction

According to the UN's World Population Prospects 2022 report on population estimates and projections, the world's population will reach 8 billion on November 15, 2022, and the proportion of the population aged 65 and older will rise from 10% in 2022 to 16% in 2050, and triple and reach almost 30% by 2100. By 2050, the number of people aged 65 and older worldwide is projected to be more than double the number of children under 5 and about the same as the number of children under 12 years of age[1]. The main reasons for this are falling birth rates and rising life expectancy. All countries will age at different rates. And no one knows today how society and the economy will adapt to this process[2].

Global aging may take a number of decades and affect all societies, although in high birth rate countries its effects will only begin to be felt in the second half to the last third of this century. In addition, it is one of the very few future-oriented processes, about which we can say that it will materialize with almost one hundred percent probability. Global aging will have a multifaceted result, and a number of aspects of this process have not yet been explored at all or are even unclear. Moreover, humanity has no experience of such processes (Grinin, Grinin, 2020).

This raises questions for science about the study of elderly people's inclusion in various social issues, in particular in digital interactions, which are an integral part of modern life. And management faces a fundamentally new task of integrating this group into the digital society to reduce the prevalence of various types of social insecurity, unequal access to goods and services, discrimination, including in

[1] Five key findings from the 2022 UN Population Prospect. Available at: https://ourworldindata.org/world-population-update-2022

[2] Makurin A. (2021). Old, but not super. Why aging is scarier for mankind than atomic war. *Argumenty i fakty*, 13. Available at: https://aif.ru/money/economy/star_no_ne_super_pochemu_dlya_chelovechestva_starenie_strashnee_atomnoy_voyny

the labor market. And the complexity of this task is that the group of older people who are "digital migrants" is fundamentally different from the "digital natives". Thus, the first born after the digital revolution and accustomed to receiving information through digital channels (the approximate boundary is estimated as 1980) have more developed digital skills because it has been part of their daily life since childhood. And the second are people, born before these changes and forced to learn about digital innovations at different stages of adulthood and for different purposes. People who never adopted digital reality are also known as "Pre-digital Aborigines" (Prensky, 2001).

Taking into account the global and irreversible nature of the process of demographic aging, and the need to develop management tools for leveling the negative sides of this process, in this article we turn to the study of the experience of overcoming the digital divide in relation to the elderly residents of China and Russia.

The President of the People's Republic of China, Xi Jinping, pays great attention to the development of digital China and has repeatedly made a number of important statements in this regard, emphasizing the need to make every effort to accelerate the process. According to the latest industry report, as of June 2022, the number of Internet users in China was 1.051 billion and the Internet penetration rate reached 74.4%; the country ranks second in the world in terms of Internet development or availability. In the digital society, especially against the background of the ongoing global pandemic, on the one hand, the social and economic importance of online learning, remote work, telemedicine and remote recreation is emphasized. On the other hand, the problems of social inequality caused by different degrees of high technology accessibility are becoming more acute. In the face of the impending wave of digitalization and the continuing aging of society, the question of how to provide seniors with the ability to keep up with the times and bring smart technology into their lives is the core of our thoughts on this topic.

In Russia, this issue is also given a prominent role in digitalization management and scientific research. At the initial stages of the Internet technologies introduction (2000–2005), the country lagged far behind European and large Asian countries in terms of users' share, and was in the same group with African countries. However, since 2013, the number of Internet users among Russian residents began to exceed the global average and has been growing ever since, raising the country's status in the ranking of territories that have Internet access (Gruzdeva, 2020). At the beginning of 2022, there were 124630000 Internet users in Russia, which determines a penetration rate of 85.3%3.

The tasks of large-scale digitalization of the economy and society are currently being addressed in Russia through the implementation of the national project "Digital economy", which involves accelerated introduction of digital technologies in the economy and social sphere, creating conditions for high-tech business, increasing the country's competitiveness in the global market, strengthening national security and improving the life quality of people. Despite the prolonged stage of targeted financing, development of the regulatory and legal framework, increased inclusion of the population and public authorities in digital interactions, a number of risks and specific problems remain relevant, in particular they increase the risk of further lagging behind Russia and technological dependence on the world digitalization leaders (National Projects..., 2019).

The aim of the article was to comparatively analyze the practices of digital inclusion of the elderly in China and Russia in order to identify opportunities to improve its effectiveness.

[3] According to Internet World Stats.

The objectives of the study included analyzing theoretical and methodological approaches to the study of digital age gaps in the world; considering the practices of using digital technologies by older people in China and Russia; providing an analytical assessment of the factors promoting the inclusion of elderly people in the digital society and their exclusion from it; generalize and systematize the practices of overcoming the digital age gap on the example of China and Russia.

Scientific novelty of the conducted research includes a theoretical aspect, because the authors analyzed studies on the topic of the digital age gap in China, Russia and other countries. Practical significance consists in generalizing the practice of overcoming the age aspect of the digital divide in China and Russia.

Materials and methods

The study used a set of scientific methods, in particular, comparative analysis, statistical analysis to realize the aim and objectives. To analyze the results, the methods of system-structural and cross-tabulation analysis are applied, and the "distance in time" method is used to assess the dynamics of gaps. The theoretical basis of the study is scientific works on the problems of age-related digital inequality, adaptation of older people to digital transformations of modern society, risks and benefits of increasing the inclusion of people of different ages in online interactions.

The object of the study is the policy in the sphere of reducing digital inequality, in particular, the age gap in China and Russia.

The information base of the study included the official data of the International Telecommunication Union, Internet World Stats, the collection "Information Society in the Russian Federation", the data of selective federal statistical observation on the use of information technologies and information and telecommunication networks by the population, the Statistical Yearbook of China, the 49th statistical report on the development of the Internet in China, the data of the 7th Census of China.

Results of the study

Current state of the research in China, Russia and other countries

The widespread use of the Internet on a global scale and the growing digital connectivity have given birth to the concept of the "digital divide", first coined in Alvin Toffler's book Powershift (Toffler, 2003). The digital divide refers to the disparity between demographic and regions that have access to modern information and communications technologies and those that do not. Rene Lenoir (1974) proposed a theory of social exclusion, in which technological transformations significantly affect how older people live, what social roles they play, what social status they have, and the environment in which they live, creating a disconnect between the real and digital lives of older people (Silver, 1994). According to Ding Kaijie (Kaijie, 2009), the digital divide is a social exclusion in the information age. Zhong Xiangming and Fang Xingdong further developed the concept of "intelligent divide", which refers to the evolved version of the main features of the digital divide in the new era. The "digital divide" by the elderly does not only refer to the difficulty of using the Internet to obtain economic benefits, but also emphasizes the fact that their lower ability to use digital technology deprives them of the right to participate in digital life (Xiangming, Xingdong, 2022).

Research on the digital divide in China has started to emerge in recent years and is generally not well established. Mou Tianqi et al. (Tianqi et al., 2021) showed that the digital access divide has been gradually bridged by the expanding network coverage in China, which has led to a continuous reduction in the cost of access, while the application divide is more pronounced due to the individual difference in Internet application capabilities. Ran Xiaosheng and Hu Hongwei (Ran Xiaosheng, Hu Hongwei, 2022) argued that differences in the utilization of Internet functions provide a possible explanation for the formation of health inequalities between urban and rural elderly. However, digital

technologies have changed the provision of public services across sectors including administration, education, and healthcare, providing a low-cost channel for sharing quality resources in rural areas (Haodong et al., 2020). Niehaves (Niehaves, Plattfaut, 2014) and others have shown that the age divide is more prevalent and invisible than the gender divide or the racial divide. Scholars (Joan, 2005) and (Ramon, Angel, 2016) have analyzed the predicaments brought about by the development of the digital economy on the aging population, including the economic divide, the access divide, the ability divide, the use divide, and the media literacy divide.

Some studies have found that the digital economy can increase income and reduce poverty, thereby alleviating income inequality, or it may lead to the widening of the income gap (Skiter et al., 2020). Others have found that the digital economy can improve the quality of life of nationals and reduce poverty through developing self-employment. The work (Kurantin, Osei-Hwedie, 2019) studied the relationship between the digital economy and poverty in Ghana. The author concludes that innovation capacity is a key factor in effective poverty reduction policies and that the digital economy can promote to its development. In addition, the U.S. has developed Digital Inclusion Programs and Connecting America: The National Broadband Plan, etc.; the EU has adopted an investment scheme called Senior Plus, which emphasizes that digital technologies should provide solutions for the EU and encourages social sectors and businesses to improve their digital accessibility through product and service innovation to meet the digital needs of older citizens.

In Russia, the issues of studying digital inequality have become relevant recently, and for the most part at the moment they are based on the postulates and methodological apparatus of foreign studies. Thus, the subject of many foreign and Russian studies has been the uneven access to digital technologies (Gladkova et al., 2019; Gruzdeva, 2020; Shinyaeva et al., 2019; Nieminen, 2016; Ragnedda, Kreitem, 2018).

At the same time, the issues of digital inequality factors, especially at the local level (in the case of Russia, between and within regions and municipal entities), remain poorly studied. In addition, according to a number of authors (Zarubina, Vlasova, 2018), one of the urgent problems, related to the digitalization of society, is to understand the mechanisms by which the established, institutionalized forms of interaction in society, social perceptions, values and orientations will change in the new social context. Thus, some of the trends of modern digital development are those, which in one way or another are related to people of different age groups and generations: these include earlier initiation of children to digital resources (Shabunova, Korolenko, 2019), digitalization of workplaces, which is relevant for people of working age, aging of the population and associated barriers of digital participation on par with its increasing importance for people of older ages (Senokosova, 2018; Smirnykh, 2020). This predetermines the relevance of research in this direction.

When studying digital divides or barriers, modern researchers in one way or another address the age impact of PC and Internet users on its formation and scale (Volchenko, 2016; Shinyaeva, Slepova, 2019; Robinson et al. 2015; Yates et al. 2015). The age influence on the use of digital services, in particular financial services (Kuchmaeva, Arkhipova, 2017) and consumer behavior online has been proved (Gorelova, Serebrovskaya, 2021). The work (Varlamova, 2022) studied the dynamics of the intergenerational gap in access to the Internet and showed, that it is quite stable and in the absence of external shocks in the short term will remain within the existing boundaries.

The most frequently studied groups are certain population groups by socio-demographic characteristics, where age is a determinant: these are children, young people and the elderly (more often pre- and retirement age, third 60+ and fourth 75+ ages). For them, the level of digital skills is assessed as an important component for education, competitiveness in the labor market, addressing digital services, etc. (Smirnykh, 2020; Solomatina, 2020). Of particular research interest is always the extreme opposite groups: children and the elderly. For children, the digital environment is considered risky, its negative impact on health, academic performance and the emergence of addictions is becoming an important subject of study in sociology, psychology, pedagogy and demography (Shakirova, 2020; Chassiakos et al., 2016; Donelle et al., 2021). For the elderly, the possible benefits of their inclusion in the use of digital goods, in particular for improving the life quality, extending the period of employment, retraining in older age, are more often the subject of study (Bikkulov, Sergeeva, 2016; Anderson, Perrin, 2017; Mitzner et al. 2019). Moreover, medical research concludes the preservation of stable cognitive function and longevity prolongation of elderly people when using Internet and computer (Berner et al. 2012). Despite the existence of research interest, a general picture of differences in access to ICT, availability of digital skills, privileges in the use of the Internet for elderly people, in particular, at the regional level has not been formed.

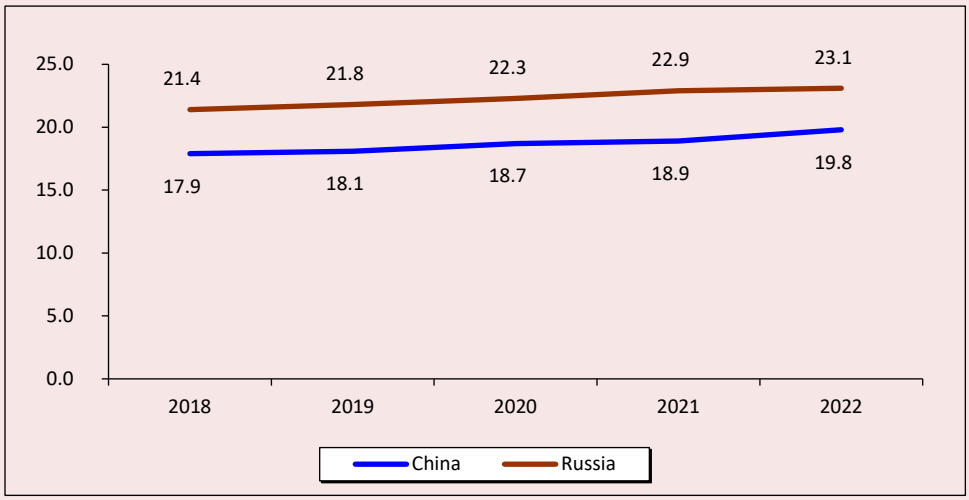
Thus, both in China and Russia, the research of digital divides is at the initial stage, and it is important to study their scale, factors of spread and search for tools to reduce them in order to level possible risks and improve the life quality.

Digital technology use by elderly

The first trend in the countries under consideration is the accelerated population aging and increased number of elderly Internet users.

In recent years, the population aging has continued to accelerate. Over the past 5 years, the share of the older population in China has increased by 1.9 p.p. to 19.8% in 2022 *(Fig. 1)*. Demographic aging in Russia is deeper and the rate of increase is similar, between 2018 and 2022, the share of the elderly increased by 1.7 p.p. and amounted to 23.1% in 2022.

Figure 1. Share of the population aged 60 and above in the total population of China and Russia



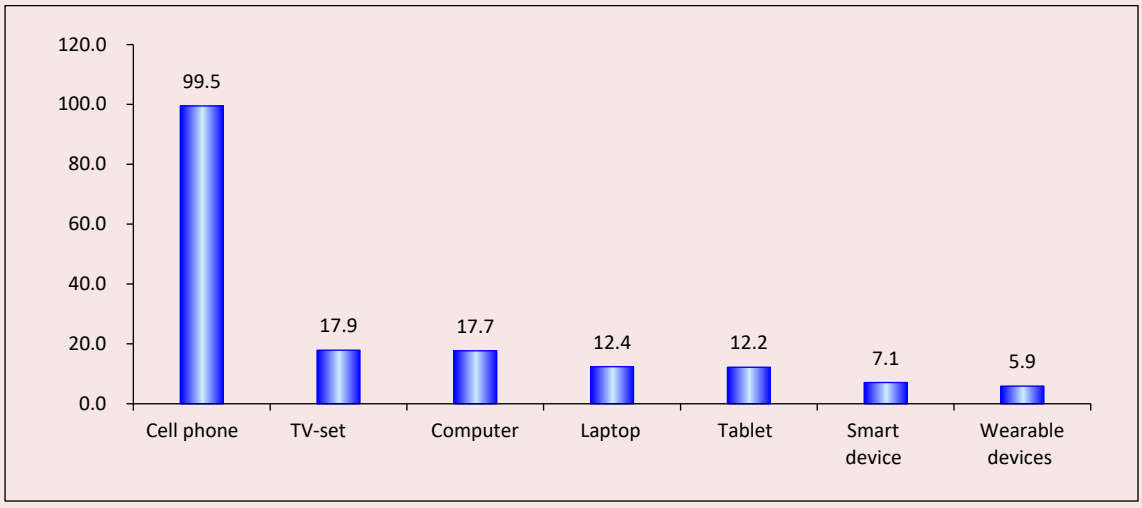
According to: data of the 7th Census of China, China Statistical Yearbook, Russia Statistical Yearbook.

Meanwhile, the number of elderly Internet users also continued to grow: as of December 2021, there were 119 million Internet users aged 60 or above in China, resulting in an Internet penetration rate of 43.2% among the elderly population4. In Russia in 2022, the share of Internet users over 60 years of age was more than 17.9 million people, the Internet penetration rate among the elderly population is 53%5. Over the past 5 years, the share of elderly Internet users in Russia has doubled: from 7.9% of the total population over 15 years old in 2018 to 15.2% in 2022. In general, positive trends in the inclusion of people of the older generation in the digital space, in particular, positive attitudes and trust in it in Russia are increasing. It is found, that it will take 4.2 years for young retirees (55–64 years old) and 7.4 years for people aged 65–74 to eliminate the intergenerational gap in digitalization and reach an Internet penetration rate similar to youth (Gruzdeva, 2022).

The second trend: Chinese researchers observe elderly people's desire to use mobile devices to access the Internet. The proportion of elderly Internet users using cell phones to access the Internet has reached 99.5%, which is basically the same as the proportion of Internet users as a whole *(Fig. 2)*. The proportion of senior citizens using smart home and wearable devices to access the Internet is less than 10%.

In Russia, 97.7% of the 60–69 age group use a cell phone, including for Internet use, a little less than 91.5% of the 70–79 age group and 67.4% of people over 80 years old. And the use of personal computers in older age groups is significantly lower, compared to young and middle-aged people. While in the latter two groups the proportion of those using a PC in the last 12 months is more than 87%, for people aged 65–74 years it is only 52%, over 75 years old it is 20.8%.

Figure 2. Devices used by elderly Internet users to access the Internet in China



Source: 49th Statistical Report on the Development of China's Internet.

[4] The 49th Statistical Report on the Development of China's Internet. Available at: http://www.cnnic.net.cn/n4/2022/0401/c88-1131.html

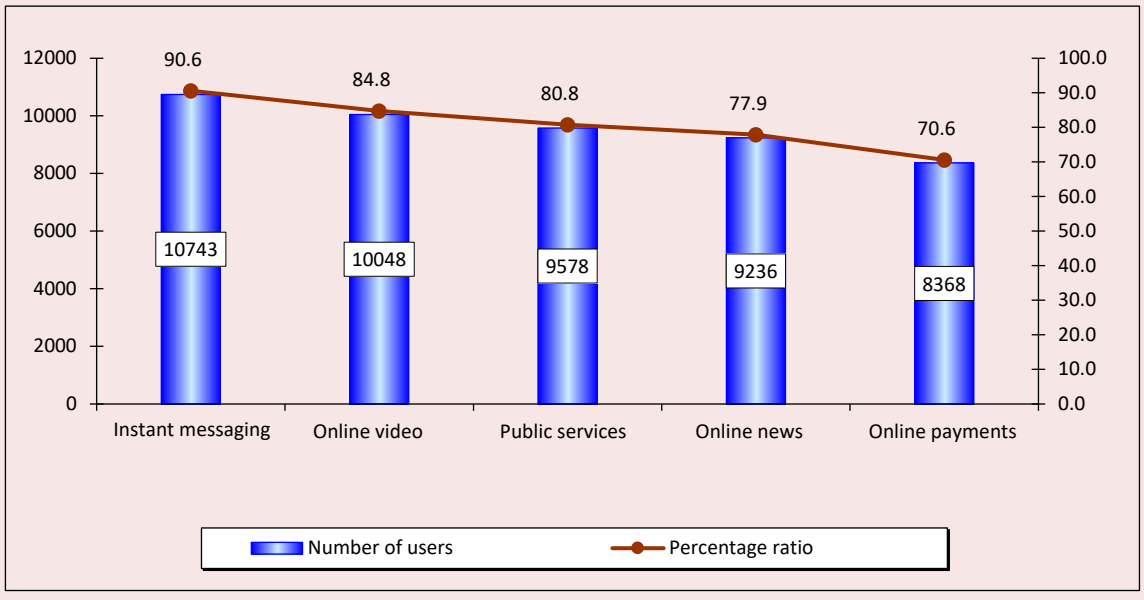
[5] Selective Federal Statistical Observation on the Use of Information Technologies and Information and Telecommunication Networks by Population. Available at: https://gks.ru/free_doc/new_site/business/it/ikt22/index.html

It should be noted that the desire for mobility is a global trend (Gruzdeva, 2020). On the one hand, this trend is dictated by the availability and convenience of mobile communication and the Internet, on the other hand, by the income opportunities in the purchase of personal computers, software upgrades, installation of wired Internet. Empirical data on the availability of PCs in Russian households show a positive picture: the number of PCs per 100 families has exceeded 100 for a long time, but these measurements do not take into account the obsolescence of equipment, the increasing requirements for devices for Internet surfing, watching video in high resolution and so on.

Some of the apps most frequently used by elderly Internet users in China include instant messaging, online video, government services, online news and online payments *(Fig. 3)*. Among them, online news is the only app where the usage ratio of the elderly group exceeds that of Internet users as a whole; that is, elderly Internet users are more actively following real-time events and trending news.

In Russia, the Internet usage practices of the elderly differ from other age groups: according to nationwide observations, people over 60 years are significantly less likely to use the Internet as a place to shop and receive state and municipal services online *(Table)*. According to a regional survey conducted in the Vologda Oblast in 2021, elderly Internet users are less likely to use all categories of opportunities and prefer a personal visit to an agency to an online form of receiving public services (Gruzdeva, 2021). A significant role in this is played by a lower level of trust in online practices, elderly people are more likely to fall victim to scammers, they fear the loss of financial resources with insufficient experience in handling them in online payments and so on.

Figure 3. Apps most commonly used by elderly Internet users



Source: 49th Statistical Report on the Development of China's Internet.

Internet use practices of different age groups in Russia, 2022, %

Indicator	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–69	70–79	80 and older
Share of the population aged 15 and older, who used the Internet to order goods and/or receive services	52.2	71.6	74.1	73.2	71.1	66.4	60.0	52.4	42.9	24.4	8.6	1.8
Share of population aged 15–72, who used the Internet to receive state and municipal services	65.5	77.6	81.6	83.3	83.7	81.1	79.4	74.2	67.6	45.0	No data	No data

Source: Selective Federal Statistical Observation on the Use of Information Technologies and Information and Telecommunication Networks by Population. Available at: https://gks.ru/free_doc/new_site/business/it/ikt22/index.html

Digital inclusion or the "digital divide": A dilemma for the elderly

Older people benefit less from the inclusive digital economy. Compared to young people, the senior population is significantly disadvantaged in terms of digital access and utilization, and the various economic opportunities brought about by digitally inclusive technologies often implicitly exclude many older groups, which reduces the digital participation and digital consumption capacity of the older population (Yifei, 2019). While the digital economy has led to significant automation and intellectualization of production, providing more opportunities for economic growth, it has also consequently caused technological unemployment and structural unemployment among the aging population (Chenxi, 2020). For example, in rural areas, automation and intelligent operations will inevitably deprive less-senior healthy elderly people of certain jobs in loading, transporting, farming, etc., putting this group of people at risk of unemployment. The brick-and-mortar stores that could be run offline by older people are being impacted by the rapid development of e-commerce and modern logistics, making senior retail workers more vulnerable to job losses (Zechi et al., 2016).

As a result of the pension reform, which began in Russia in 2019, the share of workers in older ages has increased, all of this has taken place in the context of the economy digitalization, increasing demands for jobs and functions in a wide range of areas, from retailers (transition to new electronic labeling, new cash registers, payment terminals), social services workers, to high-tech areas. Thus, the share of "digital migrants" in the labor market has increased, and researchers have begun to note the formation of technoagism due to stereotypes and discrimination against elderly people, which in turn are followed by technostress in the workplace. This negatively affects labor outcomes and puts older workers in a vulnerable position (Karapetyan et al., 2021).

In general, the digital society brings great opportunities for development, but most older groups are limited by the stage of physiological development they are in, thus benefiting less from the inclusive digital economy compared to younger groups.

It is difficult to meet the needs of the elderly for age-friendly products. Some digital products on the market are designed without taking into account the special needs of the aging population (Hodong, 2020), which prevents consumer desires from being fully satisfied. Older adults often find themselves in a series of awkward situations, such as having difficulty completing online appointments for medical services and ticket purchases, being afraid to use self-service banking, and not easily receiving change when using cash for shopping (Xiaohong,

2016). The research data shows that relatively more senior Internet users can independently complete online activities such as showing health code/travel card, purchasing daily necessities and searching for information (69.7, 52.1 and 46.2% respectively); meanwhile, there are fewer senior Internet users who can independently complete online activities such as hailing a taxi, booking tickets and registering an appointment number for medical services. If they do not know how to use a smart device or an app, 55.7% of senior Internet users will "ask family members or friends for assistance", 21.1% of them choose to "give up using it", and 20.0% of them opt for "learn to use it by myself according to the instructions of the system", which shows that senior Internet users are more dependent on external help.

The social participation channels of the elderly are relatively narrow. The development of digital technology has provided people with newer and more ways to participate in social activities, however, older generations are not active in learning about the new things and technologies around them, coupled with their physical conditions and other limitations. More often they will obtain information from traditional media such as television and radio in a one-way manner (Hongyan et al., 2020). Yet the digital society, which emphasizes two-way interaction, promotes human interaction, progress and innovation through cross-distributed data networks. Therefore, technological development affects the active or passive formation of "technophobia" among older people to a certain extent, thus affecting their social participation (Peng, Wenting, 2021). In recent years, the government and related departments, communities, and public welfare organizations have been enhancing the social participation of older people in the digital age through various activities. However, as of now, there are still problems such as inadequate activity management mechanisms and insufficient sharing of activity resources. Much more needs to be done in increasing the digital participation of older groups (Zechi, 2021).

As the elderly are not the principal users of smart devices, along with the inadequacies of digital education and popularization among the elderly, overall, the digital literacy of the elderly needs to be improved. In the face of the digital divide, some elderly Internet users also become "Internet-addicted" and fall into the "Internet traps" (Lili, 2014). A research report shows that among the elderly Internet users, some use mobile apps for more than 3 hours a day on average; 17.25% of the interviewed elderly people experienced online scam. Specific cases include being coaxed into buying fake health care products, believing in false medical information, being swindled into the "free online red pockets" fraud, and being lured into buying "high-yield" financial products. It is worth paying attention to the weaker ability of older people to filter information in the digital society – in the face of all kinds of information circulating on the Internet, 80% of the interviewed older people only trust their own judgment, while 60% of them will use websites or apps to verify the authenticity of the information. The lack of endogenous motivation of the elderly is also an important factor in determining the digital divide; most of the elderly do not have much desire to explore new things in the digital society and are not active in learning about, or using the smart devices and products, which leads to the further widening of the divide between them and the digital society (Yongai et al., 2019).

How can the elderly cross the digital divide

Bridging the digital divide for older adults must be done with a focus on overall care and more support. In the digital age, it is important to keep as many senior citizens as possible abreast of the times. The proposed measures can be divided into three groups, implying taking into account age characteristics when creating digital products, protecting the financial security of the elderly in digital interactions, and creating special training programs, including professional ones, for the elderly.

Taking into account age characteristics when creating software and gadgets

The government should actively promote projects and programs that take into account the peculiarities of the elderly population and aim to enhance the digital capabilities of the elderly, helping them to integrate into the digital society.

It is necessary to design and promote apps with caring version, seniors mode, or elderly mode that are easy to use by the older people (big fonts, big icons, big buttons and high volume, to address the difficulties of the elderly groups in reading, hearing, finding and learning when using the Internet; adapt to the elderly's Internet user behavior through "four simplifications", that is, simplify the user interface, simplify the structure, simplify the functions, and simplify the process). Apps should cover various functions such as news and information, social networking and communications, search engine, shopping, financial services, travel, medical and health care, etc., to better meet the online needs of the older people. When designing apps for shopping and travel, major Internet enterprises should streamline search, selection, payment and other functions and also the steps of using these functions for the elderly to realize the "one-click start" of the main functions.

Creation of technological innovations and research and development, intelligent products and services for the elderly is possible through government incentives, subsidies, project bidding, service purchase, etc. companies that take into account the physiological characteristics and needs of the elderly in the design and development of their products.

Protecting the financial security of older people in digital interactions

It is encouraged to introduce exclusive preferential rates for senior groups and reasonable reductions in communication costs such as cell phones and broadband service.

It is necessary to adopt measures aimed at strengthening support and supervision in order to create a safe digital environment for older adults. It is important to establish a credit system, improve the regulatory system, and introduce a corresponding institutional system to guarantee the safe participation of older people in the digital economy, crack down on online scams and unlawful acts to provide a trustworthy consumer environment. Older people are the main group suffering from digital disadvantage, therefore a designated financial fund should be set up for the reduction of digital poverty among older people, specifically for purchasing digital products, providing digital education services, improving information infrastructure, etc., to ensure fair opportunities for digital development. It is necessary to enhance the elderly's awareness of cyber information security, provide basic protection strategies, and offer legal protection for their personal information security, so as to create a safe and credible environment for their access to the Internet.

Educational programs for the elderly

It is important to actively expand the supply of education resources for elderly, innovate the development path of elderly education, consolidate the support service system of elderly education, encourage communities to carry out educational activities enjoyed by elderly groups, so that the elderly can appreciate the benefits and fun of the digital economy in the learning process. In Russian practice, successful educational projects on improving digital literacy of the elderly are supported by funds for NPOs and public structures support (Presidential Grants Foundation, Timchenko Foundation, etc.). Among other things, this indirectly solves the problem of intergenerational communication, since younger generations become teachers and elderly can use their improved skills to communicate with their families online.

For older people who want to find jobs, employment programs and appropriate training should be organized to get them acquainted with the digital economy features. Such programs have already been successfully implemented in Russia, including digital literacy courses within the framework of the national project "Digital economy", universities of the third age/silver age (Saint Petersburg, Kursk, Kaluga).

Conclusion

The digitalization of everyday life and the economy brings both risks and opportunities to improve the life quality of the population and its individual groups. The older generation in terms of digital inclusion remains more vulnerable than younger people. At the same time, the scale of device and Internet accessibility for the elderly in Russia and China is quite high and continues to grow. The involvement of the state and civil society in overcoming the age-based causes of the digital divide has had notable results. Increasing the effectiveness of work in this area is associated with the adaptation of digital services and gadgets to the characteristics of silver-age users, which may be inherent in representatives of other age groups due to individual cognitive features. One way or another, digitalization is part of our social reality and a promising trend of socio-economic development. Therefore, the policies of Russia and China, along with the goals of economic growth, set the aim of ensuring equal opportunities for all members of the digital society to maximize the benefits and reduce the digital divide.

In this regard, the policy of Russia and China, along with the goals of economic growth, sets the task of ensuring equal opportunities for maximizing the benefits and bridging the digital divide for all members of the digital society.

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Revisiting the Linkages Between Economic Growth, Human Capital and Environmental Quality

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Abstract. Various anthropogenic activities that cause the release of greenhouse gases have increased the problems caused by climate change. The increasing necessity of mitigating the damaging impacts of worldwide warming draws attention to the environmental degrading effects of fossil fuels. This empirical research explores the relationship among China's human capital (lhc), GDP growth (lgdp), energy intensity (lei) and environmental degradation (lco2) by using the data from 1990 to 2019. In this study, macroeconomic data of China is analyzed; the Bayer – Hanck test is employed in the analysis of cointegration, and the Toda – Yamamoto test is conducted for causality analysis. The following are the study's findings: the cointegration analysis shows that there exist a cointegrated relationship between lco2, lhc, lgdo and lei. In other words, it shows that the factors have a cointegrated relationship. According to the outcomes of FMOLS analysis, increases in energy intensity, GDP growth, and human capital

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increase carbon dioxide releases in the long term. As evidenced by the findings, improvement in energy efficiency is associated with favorable outcomes for the environment, though economic expansion and the augmentation of human capital are linked to adverse effects on environmental conditions. The Toda – Yamamoto causality test has yielded results indicating the presence of causality links between human capital and carbon emissions, as well as between human capital and energy intensity. Furthermore, it has been observed that the former variable exerts a unidirectional influence on the latter. There is also a unidirectional causality from all variables to carbon emissions, GDP growth and energy intensity, respectively.

Key words: economic growth, human capital, China, CO_2 emissions, Bayer – Hanck cointegration.

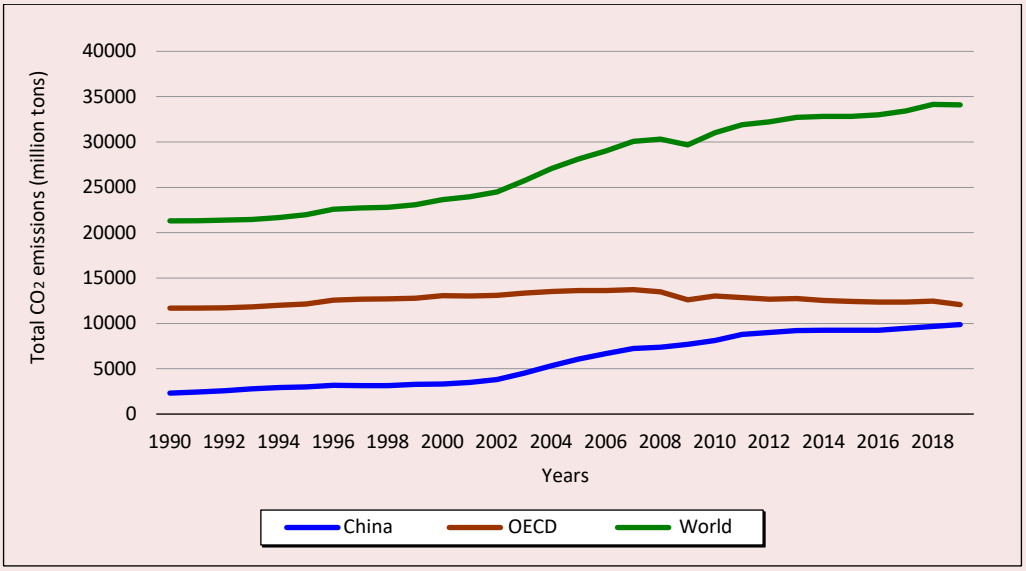
Introduction

The biggest factor leading to environmental degradation is the anthropogenic rise in greenhouse gas pollution. A vast majority of these anthropogenic emissions are because of the production of products with fossil-fuel-based energy. The issues of global warming and climate change continue to be widely discussed in modern scientific discourse, with a particular emphasis on the ecological impacts of human behavior. The antrhropogenic environmental pollution is a significant area of concern in this regard. Therefore, it has become very important and imperative to understand the relationship of deterioration of environment with the expansion of the economy and other factors that cause environmental degradation. The problem of reducing anthropogenic emissions has become more urgent than ever for policy makers to cope with environmental problems and thus ensure sustainable economic expansion. CO_2 emissions constitute the largest share among greenhouse gas emissions. Therefore, governments have taken measures to decrease CO_2 emissions. The fundamental goal of countries throughout the economic growth process is to boost output, which has led to environmental concerns reaching global proportions since the 1990s. The most prominent among these environmental problems are the unconscious consumption of natural resources, degradation of green areas, and global warming. Among these problems, the rapid and large-scale effects of global warming have brought global warming to the top of the list of problems to be solved. Greenhouse gas emissions originating from human-induced activities, which are important factors contributing to global warming, continue to increase every year *(Fig. 1, 2)*. According to BP Statistics, between 1990 and 2019, global total CO_2 emissions from energy and global per capita carbon emissions increased by 60% and 10%, respectively[1].

Since the 1990s, the increase in CO_2 emissions from anthropogenic activities in newly industrialized countries has been greater than in industrialized countries (Kasman, Duman, 2015). Among the newly industrialized countries, China is the most important and the largest country that uses fossil fuel-based production methods and emits a very high amount of CO_2. China's economy has undergone a significant period of growth during the past thirty years, which has led to excessive CO_2 releases and consequent degradation of environment. In 2019, China, the world's largest energy related CO_2 emitter since 2006, emits a total of CO_2 around, 9868.5 million tones. China's total carbon emissions rosed from 10.8% of world in 1990 to 28.9% in 2019. BP Energy Statistics shows the annual growth rate of CO_2 emissions in China as

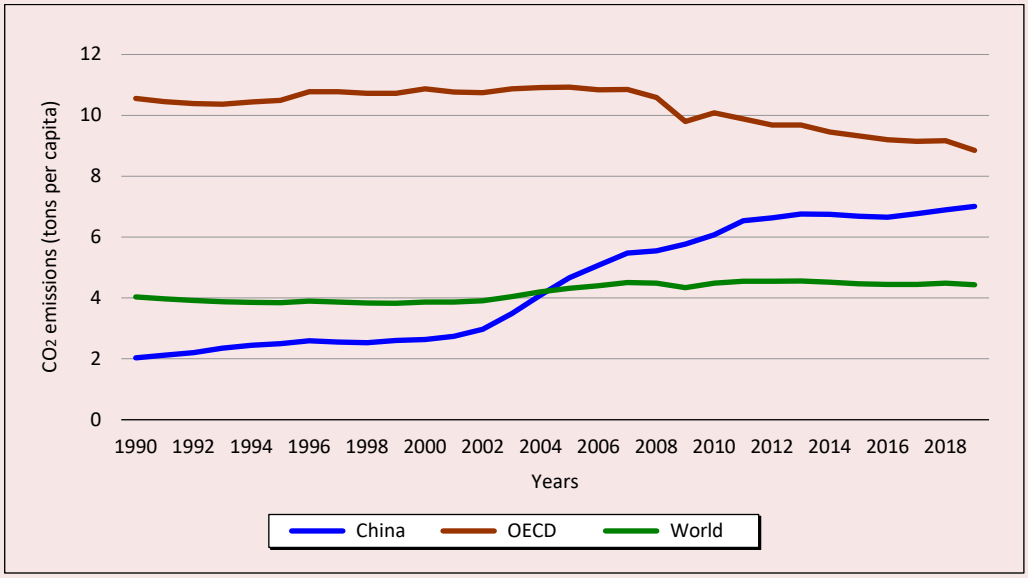
[1] BP Statistical Review of World Energy (2022). Data on Carbon Dioxide Emissions from Energy. Available at: http://www.bp.com/statisticalreview (accessed: August 19, 2022).

Figure 1. Total CO_2 emissions



Source: BP Statistical Review of World Energy (2022). Data on Carbon Dioxide Emissions from Energy. Available at: http://www.bp.com/statisticalreview (accessed: December 28, 2022).

Figure 2. CO_2 emissions per capita



Source: BP Statistical Review of World Energy (2022). Data on Carbon Dioxide Emissions from Energy. Available at: http://www.bp.com/statisticalreview (accessed: December 28, 2022).

10.9 for the period from 1990 to 2019[2]. As can be seen from the graph of total CO_2 emissions, the gap between China and OECD members is narrowing between 1990 and 2019. For this period, (although slightly declining in recent years) OECD members' total CO_2 emissions stayed virtually flat, while total CO_2 emissions in China nearly quadrupled.

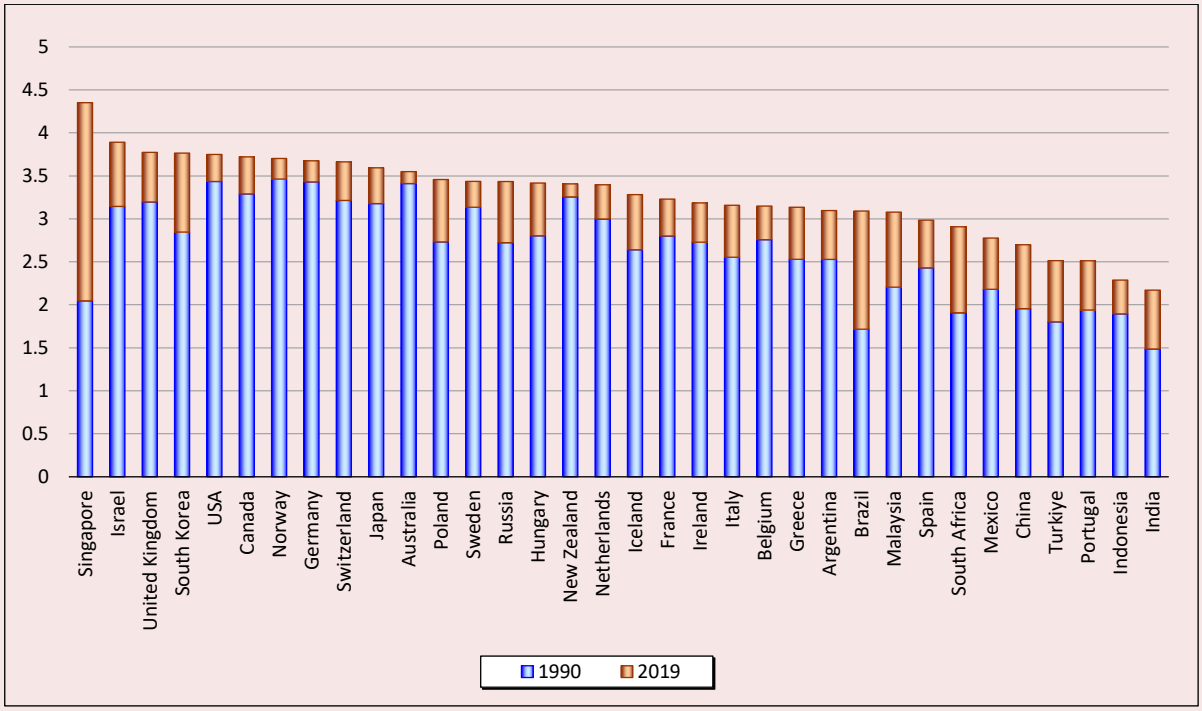
Figure 2 shows how the gap in per capita CO_2 emissions between China and the OECD countries continues to narrow. The per capita emissions of China exceed the mean of all other countries. Despite the decrease in average CO_2 emissions per capita in OECD member countries, the 10% growth in global emissions per individual, which followed almost a flat course throughout this particular period, was influenced by the great increase in China. China officially joined the WTO in December 2001 (Teng, 2004). As shown in the figures, China's membership to the WTO has increased the country's production, through the implementation of development strategy that prioritizes exports and increases both the amount of total CO_2 emissions and per capita emissions. The figures demonstrate China's CO_2 emissions have had a notable increasing trend since 2001.

The data presented in the figures depict the impact of the worldwide economic downturn on China, OECD member countries, and other regions across the globe. The 2008 global economic crisis severely affected the world economy and OECD members, but less so China. As of 2008, when the economic crisis was effective, CO_2 emissions decreased in OECD countries, and remained stable in the world due to the decrease in production. China, however, did not experience such a reduction in emissions level of CO_2 due to 2008 economic crisis.

It is important to apply nonconventional methods as well as conventional methods of combating environmental pollution. One of the nonconventional methods is human capital. Numerous studies show that raising the stock of human capital reduces carbon dioxide emissions. It is emphasized in the literature that investing in education is a channel to reduce CO_2 emissions. It is suggested that highly educated individuals will pay attention to using products with low CO_2 emissions. Regions with significant accumulation of human capital and thus technological capability have the potential to facilitate environmental amelioration because these regions can use sophisticated technologies (Lan et al., 2012). While higher-income consumers are spending more on green products, they are also demanding regulations to protect the environment (Dinda, 2004; Aytun, Akın, 2016). Highly educated and talented people are almost always more likely to earn more than others (Becker, 1994). People with increasing incomes care more about the environment, so regulators work more effectively and environmental degradation levels are reduced (Dinda, 2004). It has been demonstrated that the allocation of resources towards the development of human capital leads to a rise in labor productivity and serves as a catalyst for economic growth. There are very few examples of countries that have experienced a period of sustainable economic development without significant investments in the workforce. Most studies that attempt to quantitatively analyze the drivers of growth have identified that investment in human capital plays an important role (Becker, 1994). Research and development activities for environmental improvements increase with income (Komen et al., 1997). It is argued that skilled human capital is important for technological progress (Vandenbussche et al., 2006). With technological progress, old technologies that pollute the environment are replaced by new and cleaner technologies that contribute positively to environmental quality (Dinda, 2004).

[2] BP Statistical Review of World Energy (2022). Data on carbondioxide emissions from energy. Available at: http://www.bp.com/statisticalreview. Accessed 19/08/2022.

Figure 3. Human Capital Index in selected countries



Source: Feenstra R.C., Inklaar R., Timmer M.P. (2015). The next generation of the Penn World Table. *American Economic Review*, 105(10), 3150–3182.

China's human capital level is given in *Figure 3*. As can be seen, China's human capital level is not very high. It is seen that China lags behind many industrialized countries in the ranking of human capital. Although China has increased its human capital level more than 2 times from 1990 to 2019, this is not enough for China to catch up with industrialized countries.

The major aim of this research is to investigate the possible impact of investing in human capital as an unconventional method to address air pollution by decreasing CO_2 emissions. The examination of the relationship between the human capital index, a comprehensive tool for assessing education, and environmental quality will provide significant suggestions for policymakers. Despite the fact that many research papers have investigated the correlation between a nation's education level and its impact on environment, the academic literature lacks a consensus regarding the specific direction of human capital's influence on the decline of the environmental conditions. Different results were obtained through the models developed by adding various control variables. We tried to contribute to the literature by adding energy intensity as a control variable. However, we did this by applying the Bayer – Hanck procedure.

The organization of subsequent sections of research is laid off in the following manner: First section contains a comprehensive review of literature pertaining the correlation between human capital and carbon dioxide emissions. After that, we will go on to a discussion of the data as well as the methodology. Subsequently, the main findings are presented and discussed. Finally, the article concludes with some recommendations on policy implications for China.

Literature review

Recent years have witnessed a substantial increase in academic research on the variables influencing environmental health. The literature on environmental quality has reached a very high volume, as the countries or groups of countries studied, the econometric techniques used and the models developed are quite different from each other. According to our knowledge, the prevailing body of research examining the influence of human capital on the quality of environment has produced results indicating a favorable correlation between education level and environmental quality. Numerous scholarly studies demonstrate, however, that an enhancement in human capital either degrades environmental conditions or has no significant impact on it.

Danish et al. conducted an Autoregressive Distributed Lag analysis of the interrelations among Pakistan's GDP expansion, ecological footprint, biodiversity, and education level between 1971 and 2014, revealing educational investments do not significantly increase ecological footprint (Danish et al., 2019). Using STIRPAT model, Yao et al. assessed the role of educaiton level on the release of CO_2 in OECD nations from 1870 to 2014, discovering that educational investments could potentially serve as aviable means of CO_2 mitigation (Yao et al., 2020).

Khan analyzed EKC hypothesis for 122 nations between 1980 and 2014 using the Hansen threshold model. He found that beyond a certain threshold level, CO_2 emissions decrease with an increase in human capital (Khan, 2020). Hao et al. (2020) utilized data on G-7 countries collected from 1991 to 2017 and the Cross-Sectionally Augmented Auto-regressive Distributive lag method to explore the link that exists between human capital and carbon dioxide emissions. They found that investing in people helps the environment by lowering carbon output (Hao et al., 2020). Mahmood et al. investigated the effects of renewable energy and reel GDP growth in Pakistan from 1980 to 2014 on CO_2 emissions by adding human capital and came to the conclusion that making better use of human capital can contribute to a reduction in the quantity of carbon dioxide that is discharged into the environment (Mahmood et al., 2019). The research of Beyene, which employs the STIRPAT model and examines 38 African nations from 2000 to 2018, reveals a positive and nonlinear relationship between the Human Development Index and health of the environment (Beyene, 2021). Khan et al. studied data of seven OECD countries from 1990 to 2018, indicating higher levels of human capital are associated with lower levels of carbon dioxide emissions and worsening environmental quality through CS-ARDL model (Khan et al., 2021).

By using panel quantile regression approach, Chen et al. explored the drivers of ecological footprints in 110 nations. According to the findings of Chen et al., human capital initially results in a larger ecological footprint and subsequently contributes to the footprint's reduction. In addition, according to the analysis of subsamples, Chen et al. point out that environmental degradation in high-income countries decreases with the increase in human capital, whereas environmental degredation in low income countries increases with human capital (Chen et al., 2021).

Aytun and Akin also investigated the causal relationships among environmental degredation, human capital, and Türkiye's energy usage by analyzing the data from 1971 to 2010. The results of bootstrap causality method found no association between enrollment in primary or secondary school and air pollution, while there exists a causal linkage between human capital measured by tertiary education and environmental degredation (Aytun, Akin, 2016). In a study for Pakistan, Li et al. emprically examined the effect of economic disparity on environmental quality by incorporating globalization and human capital for the period 1980–2015 and pointed out that human capital is a contributor of the contamination of the environment (Li et al., 2021).

Ahmed and Wang analyzed the influence of human capital on India's ecological footprint between 1971 and 2014 by deploying the cointegration test and auto-regressive distributed lag (ARDL) bound test, and noted that human capital improvement promotes environmetal quality via reducing the ecological footprint both in the short term as well as in the long term (Ahmed, Wang, 2019). Iorember et al. studied the relationship between South Africa's human capital and environmental quality during the period 1990–2016 based on Maki cointegration tests, Auto-regressive Distributed Lag (ARDL) model, and VECM causality tests, concluding that human capital development is essential for slowing South Africa's environmental deterioration through lowering ecological footprint (Iorember et al., 2020).

In their study based on data from sixteen countries in Central and Eastern Europe spanning from 1991 to 2014, Shujah-Ur-Rahman et al. revealed that human capital has the capacity to diminish the ecological footprint, thus leading to improvement in the quality of environment (Shujah-Ur-Rahman et al., 2019).

Pata and Caglar used data of China from 1980 to 2016 to emprically investigate how real GDP per capita, education level, globalization, use of renewable energy, and trade openness affect environmental quality. Their conclusion states that that the rate of environmental degredation decreases with a rise the country's human capital level in the long-term (Pata, Caglar, 2021). Li and Ouyang also specifically analyzed education level's role on air quality using Chinese data for the period between 1978 and 2015, with an ARDL approach. Their results unveiled that the association between human capital and CO_2 emissions exhibits a non-linear relationship, that in the begining, advancement in human capital lessens CO_2 emission levels until 1992, then increases emissions and lastly reduces it in the long-run (Li, Ouyang, 2018).

Zafar et al. also researched the effect of human capital on the ecological footprint in the U.S. over 1970–2015 through ARDL model and discovered improving human capital improve environmental outcomes through mitigating ecological footprint of the U.S. (Zafar et al., 2019). Jun et al. employed the Chinese provincal panel data from 1996 to 2008 to explore the link between economic disparity and CO_2 emissions by incorporating human capital, through the three-stage least square method, finding that human capital alleviates emmissions in China and helps to reduce the income inequality (Jun et al., 2011). Using a historical dataset for 11 EU transition economies from 2000 to 2018, Bayar et al. investigated the potential correlation between the level of human capital and the enhancement of environmental quality, specifically through the reduction of CO_2 emissions. In the study, they imply that higher human capital decreases CO_2 emissions considerably in certain countries, but increases CO_2 emissions in several other countries (Bayar et al., 2022). Sarkodie et al. examined the factors affecting environmental degradation in China from 1961 to 2016 via dynamic ARDL model, and revealing that the augmentation of human capital has a positive effect on China's ecological footprint (Sarkodie et al., 2020). The study conducted by Zhang and colleagues utilized the dynamic ARDL approach to examine the impacts of natural resources, human capital, and GDP growth on Pakistan's ecological footprint and carbon emission from 1985 to 2018. According to the findings of the research, it was discovered that in the short term, human capital is positively related with both CO_2 emissions and ecological footprint. In addition, human capital is negatively associated with CO_2 emissions and positively associated with ecological footprint, in the long run (Zhang et al., 2021).

In 2021, Williamson explored the relationships between education, government structure and carbon dioxide and methane emissions across 181

countries, finding that CO_2 emissions decrease with a rise in human capital, but only once certain threshold levels of human capital are reached. (Williamson, 2017). Hassan et al. studied the human capital's impact on Pakistan's environmental conditions during the time framework of 1970–2014 via ARDL bound test, noting that human capital had no statistically significant effect on Pakistan's ecological footprint (Hassan et al., 2019).

This extensive literature review examined 22 studies that addressed the link between education level and environment. Briefly, there are a variety of points of view about the environmental impact of a nation's education level.

Methods

The study's empirical framework suggests that environmental degradation is influenced by energy intensity, economic growth, and human capital. In the analysis, time series methods were employed to identify the link between the variables. First, the unit root test developed by Kwiatkowski et al. (Kwiatkowski et al., 1992) was used to identify the series' stationarity levels. The cointegration test proposed by Bayer and Hanck (Bayer, Hanck, 2012) was then utilized to determine the existence of a long-run relationship between the aforementioned variables. Long-term parameters were estimated by FMOLS method. In order to determine whether or not there was a causative relationship between the variables, the causality test that had been devised by Toda and Yamamoto (Toda, Yamamoto, 1995) was used.

KPSS unit root test

The KPSS unit root test, which was first introduced to the literature by Kwiatkowski, Phillips, Schmidt, and Shin (Kwiatkowski et al., 1992), has the opposite hypothesis compared to standard unit root tests. In the presence of a deterministic trend, the KPSS test is proposed as a means of testing the null hypothesis that a given observable series is stationary. In the KPSS test, the series consists of three structures: the series is a combination of the deterministic trend, random walk, and stationary error. The LM test is employed to test the null hypothesis that the variance of the random walk is equivalent to zero within the framework of the KPSS test (Kwiatkowski et al., 1992, p. 159).

Model:

$Y_t = \beta + \delta t + \alpha_t + \varepsilon_t$, $\alpha_t =$ constant, $\alpha_t = \alpha_{t-1} + u_t$, $u_t \sim WN(0, \sigma_\varepsilon^2)$ (Kozhan, 2010, p. 74).

The critical values used to test the hypotheses in the KPSS test were produced by using the Lagrange multiplier and $KPSS = \frac{\left(\frac{1}{T^2}\sum_{t=1}^{T}\hat{S}_t^2\right)}{\hat{\lambda}^2}$.

The equation here $\hat{S}_t = \sum_{j=1}^{t}\hat{\varepsilon}_j$, $\hat{\varepsilon}_t$, t and $\hat{\lambda}_t^2$ represents the residual of a regression on a(t).

The alternative hypothesis posits that a series is non-stationary and contains a unit root, in contrast to the null hypothesis which assumes the series is stationary and lacks a unit root.

Bayer – Hanck combined cointegration test

The Bayer – Hanck combined cointegration test, which was brought to the literature by Bayer and Hanck (Bayer, Hanck, 2012), proposes combined procedures by evaluating several tests together to provide stronger tests (meta tests) by combining the results of multiple scientific studies. In the first version of the test developed in 2008, a residual-based Engle–Granger test (Engle, Granger, 1987) and a system-based Johansen test (Johansen, 1988) were used together, while the version developed in 2012 also includes Boswijk (Boswijk, 1994) and Banerjee et al. (Banerjee et al., 1998) tests based on error correction. In the Bayer – Hanck combined cointegration test, the power of the test is based on metatests. Using metatests makes testing superior to other basic tests. Thus, it can be easily decided which one to use if individual test results are inconsistent. The test statistic of the test is obtained by adding the probability values

of the cointegration tests calculated by the Fisher χ^2-test (Fisher, 1932; Bayer, Hanck, 2012). The statistics:

$\tilde{\chi}_I^2 = -2\sum_{i\in I} ln(p_i)$, where p_i = represents the p values of each tests or

$$EG - JOH = -2\left[ln(p_{EG}) + ln(p_{JOH})\right]$$
$$EG - JOH - BO - BDM = -2\left[ln(p_{EG}) + ln(p_{JOH}) + \right.$$
$$\left. + ln(p_{BO}) + ln(p_{BDM})\right].$$

Probability values (p values) of the Engle – Granger, Johansen, Boswijk and Banerjee cointegration tests are shown as $p_{EG}, p_{JOH}, p_{BO}, p_{BDM}$ respectively (Govindaraju, Tang, 2013).

The test's null hypothesis indicates that cointegration does not exist, while alternative hypothesis indicates that there is cointegration.

FMOLS

FMOLS is employed for the purpose of estimating the long-term coefficients, provided that the series exhibit cointegration. For the method to work, regression errors (w_t) of the independent variables should be calculated first, and then using the Least Squares method, the cointegrated regression errors (ε_t) need to be computed. Subsequently, long-run covariance matrix (Λ) from the regression errors of the independent variables and the covariance matrix (Ω) from the regression errors of the independent variables should be calculated. In order to eliminate the endogeneity problem, a transformation should be applied to the dependent variable. Thus, FMOLS estimators are obtained as:

$$\hat{\theta}_{FMOLS} = \begin{bmatrix}\hat{\alpha}\\ \hat{\beta}\end{bmatrix} = \left(\sum_{t=1}^{T} S_t y_t^{+} - T\hat{\gamma}_{12}^{+}\right)\left(\sum_{t=1}^{T} S_t S_t^{'}\right)^{-1}$$

(Phillips, Hansen, 1990).

Pedroni also examined the FMOLS method with his work in 2001 (Pedroni, 2001). With the simulation in the study, he obtained consistent, asymptotically unbiased and normally distributed results in his analysis. Based on the results, he concluded that the FMOLS method would also give good results in small samples.

Toda – Yamamoto casuality test

The Toda Yamamoto causality test is grounded on the VAR model and unlike the classical Granger causality test it does not detect the stationarity and cointegration relationship in the series. Prior to conducting the test, the optimal lag length of the VAR model and the maximum integration level in the series should be determined. Here, the condition $d_{max} \le k$ must be met in order not to take the difference of the variables and thus to prevent loss of information by including the variables in the analysis at the level (Toda, Yamamoto, 1995).

The model is as follows:

$$Y_t = \beta_0 + \sum_{i=1}^{k+d_{max}} \lambda_{1i} Y_{t-1} + \sum_{i=1}^{k+d_{max}} \lambda_{2i} X_{t-1} + \varepsilon_{1t} \quad (1)$$

$$X_t = \beta_0 + \sum_{i=1}^{k+d_{max}} \gamma_{1i} X_{t-1} + \sum_{i=1}^{k+d_{max}} \gamma_{2i} Y_{t-1} + \varepsilon_{2t} \quad (2)$$

In order to perform the analysis, the VAR model with the lag length ($k + d_{max}$) must be estimated first, and then the parameters need to be estimated. However, when the Toda-Yamamoto test is applied to the stationary series at the level, no lagged variables can be added to the VAR model, so the test statistics obtained are the same as the Granger causality test based on the VAR model.

The hypothesis of the 1st equation of the test:

H_0: $\lambda_{2i} = 0$ X does not Granger cause Y.

H_1: $\lambda_{2i} \neq 0$ Granger causes Y.

The hypothesis of the 2nd equation of the test:

H_0: $\gamma_{2i} = 0$ Y does not Granger cause X.

H_1: $\gamma_{2i} \neq 0$ Y Granger causes X.

Here, the test statistics of the hypotheses are calculated with the Wald test, which is subject to the χ^2 distribution with k degrees of freedom (provided that $i \le k$) (Toda, Yamamoto, 1995).

Data

The research investigates the influences of output expansion, energy intensity and human capital on CO_2 pollution in China between 1990–2019.

Table 1. Variable units and sources

Indicator	Definition	Measurement	Source
lco2	Carbon emissions	Million tonnes of carbon dioxide per capita	BP Statistical Review of World Energy, World Bank WDI (Population*)*
lei	Primary energy consumption intensity	Exajoules (GDP, constant indicator for 2015, USD)	BP Statistical Review of World Energy, World Bank WDI (GDP*)*
lgdp	GDP per capita	GDP per capita (constant indicator for 2015, USD)	World Bank, World Development Indicators
lhc	Human Capital Index	Based on years of schooling and returns to education	PennWorld Table 10.0

In the study, carbon emission data for environmental degradation indicator, real GDP for economic growth indicator, primary energy consumption per output for energy intensity indicator and human capital index data for human capital indicator are used. Carbon emission and income growth data have been divided by population data and converted to per capita data. The natural logarithms of the variables were computed prior to their incorporation into the model. *Table 1* contains details about the variables. The functional model utilized in the research is:

$$lco2 = f(lei, lgdp, lhc)$$

$$lco2_t = \beta_0 + \beta_1 lei_t + \beta_2 lgdp_t + \beta_3 lhc_t + \varepsilon_t.$$

In the model, β_0 represents the constant term or autonomous coefficient, β_1, β_2 and β_3 denote the independent variable coefficients, and ε_t denotes the error term. The positive β_1, β_2 and β_3 coefficients indicate that quality of environment worsens as energy intensity, income or human capital increase while negative β_1, β_2 and β_3 coefficients indicate that an increase in energy intensity, income or education level reduces pollution levels.

Descriptive statistics and correlation matrix of the series are given in *Table 2*. Each of the series consisting of 30-year data is normally distributed. All variables are highly correlated with each other. The variable *lei* is negatively correlated with all variables. Other correlations are positive.

Table 2. Descriptive statistics and correlation matrix

	lco2	*lei*	*lgdp*	*lhc*
Observations	30	30	30	30
Mean	1.396010	2.755635	8.100115	0.854279
Median	1.478849	2.744280	8.077781	0.870074
Maximum	1.941460	3.329926	9.232913	0.992877
Minimum	0.716422	2.296033	6.807969	0.670941
Std. Dev.	0.460667	0.278626	0.753663	0.089956
Skewness	-0.091036	0.323727	-0.082661	-0.407844
Kurtosis	1.282113	2.500363	1.738759	2.280940
Jarque-Bera	3.730356	0.836043	2.022575	1.477994
Probability	0.154869	0.658348	0.363750	0.477593
lco2	1.000000			
lei	-0.854411	1.000000		
lgdp	0.974300	-0.948065	1.000000	
lhc	0.924358	-0.978356	0.979951	1.000000
Source: own elaboration.				

Results

It is imperative to ascertain the stationarity of the variables before delving into the investigation of the long-term relationship between them. KPSS unit root test is used for stationarity analysis. *Table 3* demonstrates that calculated test statistics for level values exceed the 5% and 10% critical values. As a result, the null hypothesis that the series is stationary is rejected. Upon conducting differencing, the null hypothesis cannot be rejected since computed test statistics are lower than the critical values. To put it differently, the analysis indicates that the series possess a unit root at the level and their first differences exhibit stationarity. Therefore, it can be investigated whether there is a long-term link between the variables. The integration of variables at I(1) level allows the Bayer – Hanck cointegration technique to be applied.

In time series analysis, test results are sensitive to lag length. Therefore, it is important to determine the appropriate lag length prior to cointegration test. *Table 4* shows the estimation results of the VAR model. According to all information criteria, the appropriate lag length is determined as 2.

Table 5 displays Bayer – Hanck cointegration analysis results. According to individual test statistics, a cointegrated relationship was found only in Johansen and Boswijk tests. The null hypothesis, which assumes the non-existence of cointegration, is rejected on the basis of the outcomes obtained

Table 3. Unit root analysis

	lco2	*lei*	*lgdp*	*lhc*
I(0)	0.673141	0.674352	0.712530	0.702510
I(1)	0.139412	0.151816	0.272310	0.341069
1%	0.739			
5%	0.463			
10%	0.347			
Source: own elaboration.				

Table 4. Lag length selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	155.9806	NA	2.27e-10	-10.85576	-10.66544	-10.79758
1	391.8342	387.4738	3.48e-17	-26.55959	-25.60801	-26.26868
2	440.9588	66.66907*	3.54e-18*	-28.92563*	-27.21280*	-28.40200*
Note: * represent significance level at 10 percent. Source: own elaboration.						

Table 5. Results of the Bayer – Hanck cointegration analysis

Estimated Models	Engle-Granger	Johansen	Banerjee et al.	Boswijk	EG-J	EG-J-BA-BO
lco2=f(lei, lgdp, lhc)	-3.2392	34.1885	-2.2132	29.2102	9.4236052	22.229473
	(0.4586)	(0.0196)	(0.7203)	(0.0023)	*	**
lei=f(lco2, lgdp, lhc)	-3.5709	34.1885	-3.3516	31.8766	10.342961	27.281768
	(0.2896)	(0.0196)	(0.2331)	(0.0009)	*	**
lgdp=f(lco2, lei, lhc)	-3.4407	34.1885	-2.4390	32.0999	9.9475925	25.132192
	(0.3529)	(0.0196)	(0.6304)	(0.0008)	*	**
lhc=f(lco2, lei, lgdp)	-4.2980	34.1885	-4.4299	45.7574	13.352843	76.203365
	(0.0643)	(0.0196)	(0.0225)	(0.0000)	**	***
Note: *, **, and *** represent significance level at 10 percent, 5 percent and 1 percent respectively. Values in parentheses represent significance values. The 1%, 5%, and 10% critical values for the EG-J test are 16263, 10711, 8352, respectively; the 1%, 5%, and 10% critical values for the EG-J-BA-BO test are 31742, 20788, and 16239, respectively. Source: own calculation.						

from the EG-J test and the EG-J-BA-BO test. It has also been determined that there is a cointegrated relationship in models where the dependent variables are growth, energy intensity and human capital. These findings revealed a cointegrated relationship between *lco2, lei, lgdp* and *lhc*. In other words, there is a long-run relationship between these variables.

After determining if the factors have a cointegrated relationship, the coefficients of their long-term relationship need to be figured out. *Table 6* demonstrates the estimation results that were obtained using the FMOLS testing approach. Statistical significance was observed for all variables in the model. According to the results, carbon emissions rise by 1.25% for every 1% increase in energy intensity, 1.38% for every 1% increase in GDP growth, and 1.32% for every 1% increase in human capital. All variables in the model exhibit a positive link with carbon related emissions, indicating a gworing influence. While the increase in energy efficiency affects the environment positively, advances in output and education level have a detrimental effect on environmental quality.

The error correction model is established by adding the lagged value of the residuals obtained from the estimation of the long-run coefficients to the model. The error correction model showing the short-run dynamics in the research is as follows:

$$\Delta lco2_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i} \Delta lco2_{t-i} + \sum_{i=0}^{n} \alpha_{2i} \Delta lei_{t-i} + \\ + \sum_{i=0}^{p} \alpha_{3i} \Delta lgdp_{t-i} + \sum_{i=0}^{q} \alpha_{4i} \Delta lhc_{t-i} + \beta ECT_{t-1} + \varepsilon_t.$$

In the equation above, Δ, α_0, β and ε_t, denote the difference operator, constant term, error correction term and error term, respectively. The estimation results of the error correction model are shown in *Table 7*. All coefficients in the model are significant at the 10% level. The effect of independent variables on dependent variables is positive in the short run as well as in the long run. The error correction term,

Table 6. Long run analysis

Indicator	Coefficient	Std. error	t-statistic	Prob.
lei	1.255213	0.050302	24.95356	0.0000
lgdp	1.384287	0.063256	21.88376	0.0000
lhc	1.328164	0.261181	5.085225	0.0000
c	-13.77963	0.507668	-27.14300	0.0000
@trend	-0.043432	0.005916	-7.341792	0.0000
R2	0.999415			
Source: own calculation.				

Table 7. Short run analysis

Indicator	Coefficient	Std. error	t-statistic	Prob.
Δlei	1.209813	0.049130	24.62493	0.0000
$\Delta lgdp$	1.266015	0.064732	19.55768	0.0000
Δlhc	0.578302	0.294373	1.964520	0.0617
ect(-1)	-0.265227	0.144540	-1.834978	0.0795
c	-0.027580	0.006269	-4.399177	0.0002
R2	0.982282			
Jarque – Bera normality test	2.129068			0.3448
Breusch – Godfrey LM test	2.626693			0.2689
BPG heteroskedasticity test	2.330506			0.6752
Ramsey RESET test	0.004112			0.9495
CUSUM	Stable			
CUSUMQ	Stable			
Source: own calculation.				

Table 8. Toda – Yamamoto causality analysis

	Chi-sq	df	Prob.
lhc→ lco2	12.69879	2	0.0017
lgdp→ lco2	0.812548	2	0.6661
lei→ lco2	1.294541	2	0.5235
All→ lco2	**15.89347**	**6**	**0.0143**
lco2→ lhc	3.885790	2	0.1433
lgdp→ lhc	3.298155	2	0.1922
lei→ lhc	4.336021	2	0.1144
All→ lhc	**5.604208**	**6**	**0.4690**
lco2→ lgdp	0.836165	2	0.6583
lhc→ lgdp	3.995740	2	0.1356
lei→ lgdp	0.659725	2	0.7190
All→ lgdp	**15.92684**	**6**	**0.0142**
lco2→ lei	2.175016	2	0.3371
lhc→ lei	9.230317	2	0.0099
lgdp→ lei	2.007678	2	0.3665
All→ lei	**12.63654**	**6**	**0.0492**

Source: own compilation.

which represents the speed of adjustment of short-term imbalances, was determined as negative and significant. Accordingly, 26% of that disequilibrium occurring in the short-term dissipates by the following period, thus approaching the long-term equilibrium. The diagnostic test results of the error correction model are also listed in Table 7. According to the results, the error terms are normally distributed; there are no autocorrelation and heteroscedasticity problems. Also, there is no model specification error and the coefficients are stable.

The Toda – Yamamoto causality test is utilized to examine the causal relationship among variables. *Table 8* displays the results of VAR analysis, wherein appropriate lag length is 2 and maximum degree of integration is 1. According to these outcomes, unilateral causal relation from human capital to carbon emission and from human capital to energy intensity has been determined. In addition, there is unilateral causality relation from all variables to carbon emissions, economic expansion, and energy intensity individually.

In the context of China, the prioritization of economic growth and the fast industrialization process has resulted in the relegation of environmental concerns to a secondary position. Insufficient implementations of environmental legislation and suboptimal practices have resulted in the occurrence of environmental pollution and deterioration. Moreover, it is expected that education would enhance environmental awareness and foster the preservation of the environment. However, it is often seen that there exists a positive association between greater levels of education and both increased wages and elevated levels of resource use. This phenomenon might potentially lead to a rise in energy consumption and the exhaustion of natural resources, thereby resulting in environmental damage. Furthermore, there is often a positive correlation between greater levels of education and increased levels of industry and technical advancement, leading to a potential rise in pollution and environmental degradation (Hou, 2022).

Conclusion

The current study examined how China's ecological deterioration between 1990 and 2019 was affected by the country's educational attainment, energy efficiency, and production expansion. The econometric analysis yielded results indicating the presence of a significant correlation between the variables in the long term. Moreover, elasticities suggest that each of the three independent factors has an influence that is damaging to the circumstances of the environment over the long-run. The increase in GDP also increases carbon emissions as it increases energy consumption, which is the main input of production. This relationship is an expected result for China, which has a low renewable energy utilization rate. The energy density analysis result was consistent with the anticipated outcome. As anticipated, the increase in energy density, which is also an indicator of energy efficiency, i.e., the increase in the quantity of primary energy consumed per output, results in environmental degradation and carbon emissions. The progress in human capital in China, which has a lower level of human capital compared to developed countries, increases its carbon emissions. The literature on developed countries commonly asserts that investing in education helps to favorably influence environmental conditions. China's relatively low level of human capital during development process does not have a mechanism to raise environmental quality. When we compare the short-term analysis results with the log-term results, the elasticities were also similar with the long-term analysis results. In the causality analysis, it was found that human capital causes carbon emissions.

These results provide useful information in the design of education and environmental policies for China in the development process. In this study, it has been determined that raising the education level of the society in China reduces the environmental quality and this requires more emphasis on environmental protection policies. Another method of improving environmental quality in China is to increase efficiency in energy use. Since reducing the energy intensity directly reduces the amount harmful emissions, increasing energy efficiency is a policy that can achieve rapid results. One of the effective policies to decrease primary energy intensity is to augment the the percentage of energy derived from renewable sources in total consumption. Although initial installation costs are high, it is a more reasonable policy to bear the high installation costs of renewable energies, as it has a reducing effect on carbon emissions and can prevent or reduce the emergence of major environmental problems that may be encountered in the future.

To make some useful policy recommendations regarding human capital for the prevention of environmental degradation, we can make the following recommendations: Initially, it is imperative to expeditiously elevate the mean educational attainment in China to the requisite level for environmental preservation, which is currently comparatively deficient in contrast to industrialized nations. Furthermore, training should be given to individuals at all levels of education that will increase their awareness of environmental protection and enable them to learn methods of using energy efficiently. Moreover, environmentally friendly technologies, renewable energy projects and efficiency-enhancing ideas and practices should be supported at higher education levels. Lastly, incentives and subsidies should be provided to the private sector to reduce carbon emissions.

The pre-university curriculum in China lacks emphasis on sustainability, sustainable development, and environmental responsibility. It is essential to enhance the environmental education curriculum in order to provide students with a more comprehensive understanding of sustainability issues (Wang, 2021). The establishment of collaborations at both local and national levels is crucial in the promotion and progression of environmental education.

By fostering collaboration among environmental groups, colleges, local governments, and other stakeholders, these partnerships have the potential to facilitate the advancement and execution of environmental education initiatives (Li et al., 2022).

Although this research is an original study in terms of its econometric model and methods, the subject can be handled in a different way with future studies in this field. The study's methodology does not account for structural breaks. In this study, structural breaks were not added to the models in the analysis, so future studies may consider the structural breaks. Lastly, the research model can be expanded by adding more control variables.

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The Belt and Road: Achievements and Prospects (to the Tenth Anniversary of the Initiative)

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Abstract. September 7, 2013, Chinese President Xi Jinping proposed the Silk Road Economic Belt initiative in Astana (Kazakhstan), and October 3, 2013 – the 21st Century Maritime Silk Road in Indonesia. The year 2023 marks the 10th anniversary of The Belt and Road Initiative, which has received positive feedback from many countries and international organizations. The Belt and Road strategy corresponds to the course of historical development and meets the expectations of all parties. The international community pays considerable attention to it. As of January 2023, China has signed more than 200 documents on cooperation with 151 countries and 32 international organizations. In ten years, The Belt and Road Initiative achieved fruitful results and brought tangible benefits to the population of the countries located along the route. Currently, cooperation within the framework of The Belt and Road project is facing the turbulence of the external environment, but its possibilities have not been exhausted.

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In the future, it will contribute to the development of international cooperation in more areas and at a deeper level, achieving mutual benefit. The article summarizes the achievements and experience of the construction of The Belt and Road for ten years, analyzes the problems and difficulties that have arisen, and also considers new opportunities and challenges in promoting high-quality development within the framework of The Belt and Road Initiative.

Key words: China, The Belt and Road Initiative, Silk Road Economic Belt, Maritime Silk Road, opportunities, challenges.

Introduction

The year 2023 marks the 10th anniversary of the launch of The Belt and Road Initiative. The Belt and Road is a short title for the initiatives "Silk Road Economic Belt" and "21st Century Maritime Silk Road", put forward by Chinese President Xi Jinping during negotiations in Kazakhstan and Indonesia in 2013. The Belt and Road is the longest economic corridor in the world, connecting several economic regions, such as the Asia-Pacific region, Africa and Europe. The Belt and Road Initiative covers a large number of developing countries and is aimed at establishing links between developing and developed States. Domestic and foreign scientists are showing great interest in the impact of The Belt and Road Initiative on the economic development of individual countries and the world in general.

Scientific novelty of our work consists in the fact that, based on the results of recent research and data, we carry out a comprehensive analysis of the development of The Belt and Road strategy over ten years; discuss achievements in the framework of cooperation; and outline further prospects for the development of the project.

Theoretical contribution of the research findings is due to the fact that only a timely generalization and comprehensive understanding of the latest achievements of The Belt and Road Initiative will ensure constant guidance for the development of cooperation within its framework. The article summarizes practical experience of the project's implementation over ten years, and considers new opportunities and challenges to be faced in the next ten years to promote high-quality development within the framework of The Belt and Road Initiative.

Practical contribution of the research findings consists in the fact that they can be used as lessons and recommendations for other countries and regions if they intend to join The Belt and Road Initiative.

Literature review

Chinese and foreign scientists are very interested in the development of The Belt and Road Initiative; in general, they positively assess the concepts of openness and inclusiveness, peaceful development, mutual benefit, and put forward a number of opinions and proposals.

Speaking about the impact of The Belt and Road strategy on the Chinese economy, Helen Wong (Wong, 2015) noted that it involves strengthening China's relations with trading partners, in particular economic relations with Asian neighbors, mainly through the development of transport networks and other infrastructure projects.

Georgi Georgiev (Georgiev, 2015) argues that the implementation of The Belt and Road Initiative has made it possible to expand transport and communication links between the countries of Central Europe through the construction of railway, automobile, aviation, telecommunications and electric networks, which contributes to the economic development of the Eurasian countries.

According to Jeanne L. Wilson (Wilson, 2016), in order to strengthen ties with its neighbors, the

Eurasian Economic Union unites the participating countries into an integrated single market with free movement of goods, capital, services and labor; as for China, it has developed The Belt and Road strategy. This reflects the goals of Russia and China's expanded foreign policy, which has had a positive impact on Russian-Chinese relations.

Leonard K. Cheng (Cheng, 2016) raises the question of the future development of The Belt and Road Initiative: which of the more than 60 countries of Asia, Europe and Africa located along the route can become priority objects of economic cooperation within its framework? He argues that economic interests (i.e. long-term mutually beneficial situations) are a good guiding principle.

Lyu Han and Zhang Chunting (Lyu, Zhang, 2023) study the impact of the initiative on the financial development of 62 countries located along The Belt and Road route. Empirical results show that The Belt and Road strategy as a whole can significantly contribute to improving the level of financial development of the countries located along the route.

Ma Weiguang (Ma, 2020) analyzed the impact of The Belt and Road Initiative on economic development of the countries along the route, including trade, investment and infrastructure construction, and revealed that they received benefits such as economic growth, job creation, optimization and modernization of industry.

Gu Weiyu (Gu, 2018) believes that The Belt and Road strategy is a positive response to the changes of time and has a profound positive impact on the economic development of China, Europe and Central Asia, as well as promotes cultural exchange and the development of world culture.

The articles by S.S. Zhiltsov (Zhiltsov, 2021), A.A. Kireeva (Kireeva, 2018), T.A. Levchenko (Levchenko, 2020) analyze the reasons that prompted China to put forward this initiative, as well as the mechanisms of its application in the implementation of long-term plans.

According to Li Na (Li, 2018), the concepts of the Silk Road Economic Belt and the 21st Century Maritime Silk Road laid the foundations of China's new foreign strategy for the near historical perspective.

According to Hu Biliang, executive director of the Belt and Road School of Beijing Pedagogical University (Hu, 2021; Hu, Zhang, 2022), despite the fact that the implementation of the initiative has faced some resistance and setbacks, the prospects for its development seem promising.

For ten years, The Belt and Road project has made significant progress

In February 2015, Chinese Vice Premier Zhang Gaoli held a workshop on promoting The Belt and Road Initiative. In March of the same year, the Chinese government developed and published the document "Vision and Action aimed at promoting the joint construction of the Silk Road Economic Belt and the 21st Century Maritime Silk Road", where five connecting elements were formalized: political coordination, interconnection of infrastructure, uninterrupted trade, free movement of capital and rapprochement of peoples, on the basis of which the key provisions of The Belt and Road have been formed.

Deepening political coordination and building a broad international consensus

Political coordination means strengthening mutual political trust, deepening contacts between people, addressing problems and disagreements during cooperation through political communication, as well as jointly providing political support for practical cooperation and the implementation of large-scale projects.

Political coordination is a guarantee of effective joint construction of The Belt and Road and an important prerequisite for the implementation of various measures for interaction and cooperation[1].

[1] The initiative of joint construction of The Belt and Road: Progress, contribution and prospects. Available at: https://rus.yidaiyilu.gov.cn/document/issue/87094.htm

Countries that have signed cooperation agreements with China in the framework of The Belt and Road Initiative

Region	Countries	Number
Africa	Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Gabon, Gambia, Ghana, Guinea-Bissau, Guinea, Djibouti, Egypt, Zambia, Zimbabwe, Cape Verde, Cameroon, Kenya, Comoros, Congo (DRC), Congo-Brazzaville, Ivory Coast, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Seychelles, Senegal, Somalia, Sudan, Sierra Leone, Tanzania, Togo, Tunisia, Uganda, Central Africa, Chad, Equatorial Guinea, Eritrea, Ethiopia, South Africa, South Sudan	52
Asia	Afghanistan, Armenia, Azerbaijan, Bangladesh, Bahrain, Brunei, Cambodia, Georgia, Indonesia, Iraq, Iran, Kazakhstan, Korea, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Oman, Pakistan, Palestine, Qatar, United Arab Emirates, Vietnam, Yemen, Saudi Arabia, Singapore, Syria, Tajikistan, Thailand, Timor-Leste, Turkmenistan, Turkey, Uzbekistan, the Philippines, Sri Lanka	40
Europe	Albania, Austria, Belarus, Bosnia and Herzegovina, Bulgaria, Cyprus, Croatia, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Moldova, Poland, Portugal, Republic of North Macedonia (The Former Yugoslav Republic of Macedonia), Romania, Russia, Serbia, Slovakia, Slovenia, Ukraine, Montenegro, Czech Republic, Estonia	27
Oceania	Vanuatu, Kiribati, Niue, New Zealand, Cook Islands, Papua New Guinea, Samoa, Solomon Islands, Tonga, Federated States of Micronesia, Fiji	11
South America	Argentina, Bolivia, Venezuela, Guyana, Peru, Suriname, Uruguay, Chile, Ecuador	9
North America	Antigua and Barbuda, Barbados, Grenada, Dominica, Dominican Republic, Costa Rica, Cuba, Nicaragua, Panama, El Salvador, Trinidad and Tobago, Jamaica	12
Compiled according to: The Belt and Road. Available at: https://rus.yidaiyilu.gov.cn/document/issue/87094.htm		

As of January 2023, China has signed more than 200 documents on cooperation with 151 countries and 32 international organizations for the implementation of The Belt and Road Initiative in the fields of investment, trade, finance, science and technology, social and humanitarian sciences and human life support. Among the participants are 52 countries in Africa, 40 countries in Asia, 27 European countries, 11 countries in Oceania, as well as 9 countries in South America and 12 countries in North America (*Table*).

1. The Belt and Road Initiative corresponds to the trends of multipolarity, economic globalization, cultural diversification and social informatization in the world, proclaims open regional cooperation, a global system of free trade and an open world economy. Supporting economic globalization and regional economic integration within the framework of the strategy, China is improving cooperation mechanisms with ASEAN, the Shanghai Cooperation Organization, the BRICS countries, the five countries of Central Asia, Central and Eastern Europe, the African Union, the Gulf Cooperation Council and the Community of Latin American and Caribbean States. On January 1, 2022, the Agreement on a Regional Comprehensive Partnership between 15 States entered into force, which is the largest international free trade agreement and a serious incentive for regional and global economic growth (Yuan Xi et al., 2023).

2. By the end of 2021, China has established working groups on trade facilitation with 17 countries, working groups on investment cooperation with 46 states and regions, developed bilateral cooperation mechanisms on e-business with 23 countries and cooperation mechanisms in the field of trade in services with 14 countries.

Since 2016, China has signed a memorandum of understanding on e-commerce cooperation and established bilateral e-commerce cooperation mechanisms with a number of countries located on five continents, turning Silk Road e-commerce into

a new channel and a new direction of economic and trade cooperation. As of March 2023, the number of partner countries with which China has established bilateral cooperation mechanisms in the field of e-commerce has increased to 29[2].

In 2022, China signed 31 investment memoranda on cooperation with relevant countries in the field of "green" development, digital economy and blue economy, expanding the space for cooperation within the framework of The Belt and Road. China has also signed documents on cooperation in third-country markets with 14 countries, including France, Japan, Italy and the UK[3]. At the same time, it is assumed that the enterprises of China and other countries will complement each other, receiving mutual benefits, and jointly contribute to industrial development, improving infrastructure and living conditions of the population of third countries, achieving the effect of 1+1+1 >3.

3. The goals of The Belt and Road strategy are also consistent with the mechanisms of global and regional cooperation presented in the UN 2030 Agenda, the Master Plan on ASEAN Connectivity 2025, the African Union Agenda 2063, to promote overall global development and support the process of regional economic integration. On July 10, 2015, the Ufa Declaration by the Heads of Member States of the Shanghai Cooperation Organization was published, supporting China's initiative to create the Silk Road Economic Belt[4]. On March 17, 2016, the UN Security Council unanimously adopted Resolution 2344, calling on the international community to strengthen regional economic cooperation through the development of the Silk Road Economic Belt and the 21st Century Maritime Silk Road[5].

Strengthening the connectivity of infrastructure and increasing the level of interconnectedness

The development of infrastructure connectivity is a priority area of The Belt and Road strategy. Its goal is to boost infrastructure development, improve connectivity in the field of transport, transportation, electricity and communications, and promote intraregional trade and investment. It stimulates interregional flows and optimizes the allocation of resources and opportunities; establishes mutually beneficial cooperation of countries for joint development.

1. According to the report on China's trade and investment development in 2022 published by the Institute of International Trade and Economic Cooperation under the Ministry of Commerce of the People's Republic of China, since the launch of The Belt and Road Initiative in 2013, the amount of new contracts signed by China for projects in countries along the route has increased from 71.57 billion USD in 2013, to 134.04 billion USD in 2021, i.e. the annual growth rate was 8.2%. The completed turnover increased from 65.40 billion USD in 2013 to 89.68 billion USD in 2021; the average annual growth rate was 4.0%.

Due to the consequences of the global COVID-19 pandemic, the number of new contracts signed and the turnover of Chinese enterprises in countries located along The Belt and Road has decreased. The share of newly signed contracts and trade turnover amounted to 51.9 and 57.9%, respectively, of the total business volume for China's foreign contract projects. As we can see, their share remained above 50%. The number of construction projects carried out by Chinese companies has increased.

[2] Ministry of Commerce of the People's Republic of China: The Belt and Road – economic and trade cooperation takes new steps. Available at: http://fec.mofcom.gov.cn/article/fwydyl/zgzx/202302/20230203384784.shtml

[3] China has signed documents on cooperation in third-country markets with 14 countries. Available at: http://russian.people.com.cn/n3/2019/0909/c31518-9613295.html

[4] Ufa Declaration by the Heads of Member States of the Shanghai Cooperation Organization. Available at: http://rus.sectsco.org/documents/20150710/49075.html

[5] The UN Security Council calls for the creation of a community with a common destiny for all humankind. Available at: https://rus.yidaiyilu.gov.cn/ydyl/event/37074.htm

2. In accordance with the basic principle of "six corridors, six routes, and multiple countries and ports"[6] within the framework of The Belt and Road project, international transport channels continue to expand, the level of global connectivity increases, the stability of global supply chains is ensured, the ordering of flows and the optimal distribution of resources between regions improves.

Over the past 10 years, the Sino-European railway has been formed, helping the countries along the route to establish interconnection and mutually beneficial cooperation. During the COVID-19 pandemic, it became a "lifeline" for the whole world, helping to unite the efforts of countries in the fight against the epidemic.

3. Thanks to the joint efforts of all countries, a comprehensive, multi-level and multidimensional infrastructure network with railways, highways, shipping, aviation, pipelines and integrated spatial information networks is being formed at a faster pace. Interregional transaction costs for commodities, capital, information and technology have been significantly reduced, which effectively contributes to the optimal distribution of interregional resources, the achievement of mutually beneficial cooperation and development.

Cooperation in the field of maritime transport. The maritime transport system in China continues to improve, international sea routes lead to major ports in more than 100 countries and regions, which makes China the leading country in the world in terms of maritime transport links. China has signed 38 bilateral and regional maritime transport agreements with 47 countries located along The Belt and Road route.

Cooperation in the field of air transport. Currently, there are 254 transport airports in China. China has signed bilateral intergovernmental agreements on air transportation with 126 countries and regions of the world, expanded the openness of airspace within the framework of cooperation programs with Luxembourg, Russia, Armenia, Indonesia, Cambodia, Bangladesh, Israel, Mongolia, Malaysia, Egypt, etc. Over the past five years, China and the countries located along The Belt and Road route have additionally opened 1,239 international airlines, which is 69.1% of the total number of new international airlines.

Cooperation in the field of railway transportation. As an important part of The Belt and Road Initiative, the China–Europe Railway is a key aspect of national development planning and an important measure to deepen mutually beneficial cooperation at the international level. According to China Railway Group Limited, the number of Chinese-European railways has grown from 80 in 2013 to 16,000 in 2022 (*Figure*), while they reach 208 cities in about 25 European countries.

Strengthening uninterrupted trade flows and expanding economic, trade and investment cooperation

An important direction of The Belt and Road strategy is to ensure uninterrupted trade. The implementation of the project contributed to the liberalization and simplification of trade and investment procedures in the countries and regions located along the specified route, reducing the costs of concluding and servicing transactions and conducting economic activities, freeing up

[6] In accordance with the important points of cooperation and the spatial location of joint construction objects within The Belt and Road, China proposed a framework of cooperation "six corridors, six routes, and multiple countries and ports".

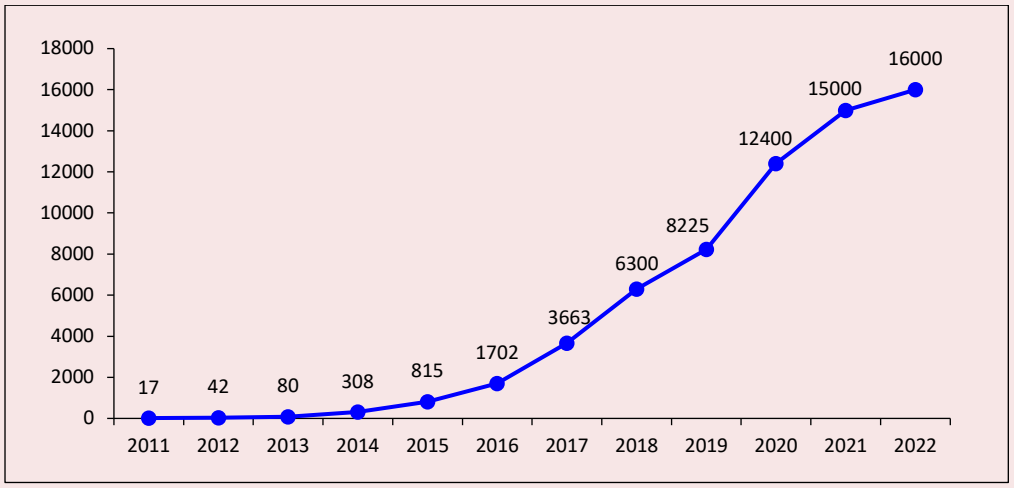
Six corridors are six major international economic cooperation corridors, including the new Eurasian Continental Bridge, China–Mongolia–Russia, China–Central Asia–West Asia, China–Indochina, China–Pakistan and Bangladesh – China–India–Myanmar.

Six routes are railways, highways, waterways, airways, pipelines and a comprehensive information network. This is the main content of the interconnection and interaction of infrastructures.

Multiple countries are countries with which China has already started cooperation.

Multiple ports are various cooperating ports that provide safe and unhindered sea transportation along major sea transport routes.

Number of Chinese-European railways in 2011–2022



Compiled according to: China Railway Group Limited.

development potential, allowing all interested countries to participate at a deeper level in the process of economic globalization.

1. Over the past ten years, the scale of trade within The Belt and Road Initiative has been constantly expanding. From 2013 to 2022, the volume of trade in goods between China and countries and regions along The Belt and Road Initiative increased from 1.04 to 2.07 trillion USD, with an average annual growth rate of 8%; the share of China's imports and exports to these countries and regions in China's total foreign trade increased significantly: from 25% in 2013 to 32.9% in 2022[7]. Chinese Foreign Ministry spokesman Mao Ning noted that as The Belt and Road continues to develop, more and more high-quality cooperation projects will bring development results and benefits for people's livelihoods, opening up new opportunities for the common prosperity of all countries[8].

Qi Xin, director of the Belt and Road Research Institute of the Academy of International Trade and Economic Cooperation under the Ministry of Commerce of the People's Republic of China, said that since 2022, against the background of repeated outbreaks of COVID-19 and the slow recovery of the global economy, The Belt and Road Initiative has made significant progress, withstood severe tests and demonstrated high stability. The constant growth of China's trade and investment cooperation with the participating countries not only effectively contributes to the establishment of a new development model, but also serves as a stabilizer for the recovery of the global economy[9].

According to the General Customs Administration of China, the annual volume of trade between China and countries located along The Belt and Road in 2021–2022 increased from 1.8 to 2.1 trillion USD, that is, by 16.7%. According to the Ministry of Commerce of China, in 2022 Chinese enterprises invested 141.05 billion yuan of direct nonfinancial investments in countries along The Belt and Road route, which is 7.7% more than in

[7] Ministry of Commerce of the People's Republic of China. Available at: http://www.mofcom.gov.cn/article/xwfb/xwztfbh/202303/20230303394394.shtml

[8] Chinese Foreign Ministry spokesman Mao Ning holds another press conference on March 10, 2023. Available at: https://www.fmprc.gov.cn/web/fyrbt_673021/jzhsl_673025/202303/t20230310_11039036.shtml

[9] The Belt and Road. Available at: https://www.yidaiyilu.gov.cn/p/314721.html

2021 (equivalent to 20.97 billion USD, an increase of 3.3%). This is 17.9% of the total investment volume, which corresponds to the indicator of the same period last year, mainly in Singapore, Indonesia, Malaysia, Thailand, Vietnam, Pakistan, the United Arab Emirates, Cambodia, Serbia and Bangladesh. From January to February 2023, this figure was 27.53 billion yuan, an increase of 37.1% (equivalent to 4.04 billion USD, an increase of 27.8% year-on-year) and amounting to 20.2% of the total for the same period[10].

2. New business models and industries, such as cross-border e-business and foreign warehouses, are becoming an important driving force promoting uninterrupted trade. They make full use of digitalization to unlock trade potential, enrich and expand international cooperation within the framework of The Belt and Road Initiative.

According to the General Customs Administration of China, the share of cross-border e-commerce in China's foreign trade has increased from less than 1% in 2015 to 5% by 2022[11]. In the first quarter of 2022, China's cross-border e-commerce exports to countries along The Belt and Road increased by 92.7%. At the end of 2021, there were more than two thousand foreign warehouses for Chinese goods with a total area of more than 16 million square meters in the world.

3. By the end of 2022, China has signed 1,919 free trade agreements with 26 countries and regions, with free trade partners located in Asia, Oceania, Latin America, Europe and Africa.

Customs cooperation between China and the countries located along The Belt and Road is constantly expanding. The efficiency of customs clearance of imports and exports increases, and costs decrease. In 2022, the duration of customs clearance of goods imported to China and exported from the country amounted to 32.02 and 1.03 hours, respectively, which is 67.1 and 91.6% less than in 2017. To date, the Customs Administration of China has signed agreements on mutual recognition of the authorized economic operator (AEO) with 35 countries (regions) participating in the implementation of The Belt and Road strategy.

According to the World Bank estimates, if all transport links proposed under The Belt and Road scheme are completed, an annual increase of 1.6 trillion USD will be received by 2030, which will amount to 1.3% of world GDP. In the period from 2015 to 2030, about 7.6 million people will come out of extreme poverty, and 32 million will come out of moderate poverty[12].

Expanding capital flows and creating a more efficient financial system

The free movement of capital is the most important support and basis for the joint construction of The Belt and Road. The key task in this direction is to improve the investment and financial environment in the regions by strengthening financial cooperation, expanding monetary circulation, expanding currency swaps and jointly promoting the development of the Asian Investment Bank.

Over the past ten years, China has actively engaged in financial cooperation with countries along The Belt and Road, contributing to the creation of a multi-level system of financial services and providing a variety of financial support and services. The Center for the Development of the Potential of China and the International Monetary Fund has been established to support the optimization of the macroeconomic and financial base of The Belt and Road countries. Also, the Asian Infrastructure Investment Bank, the Silk Road Fund and other multilateral institutions of financial cooperation were established to provide investment and financial support and develop interconnections.

[10] China Business News Network. Available at: https://baijiahao.baidu.com/s?id=1761851007092062626&wfr=spider&for=pc

[11] Chinese Government Network. Available at: https://www.gov.cn/xinwen/2022-10/13/content_5717999.htm

[12] The Belt and Road. Available at: https://www.yidaiyilu.gov.cn/p/268357.html

1. By the end of 2022, the governments of 29 countries, including China, have approved the principles of The Belt and Road financing aimed at more efficient use of government and market forces, encouraging the participation of countries, international organizations, financial institutions and investors, building a long-term, stable, sustainable and controlled diversified financing system[13]. By the end of 2022, 44 signatories and 14 supporting institutions from 17 countries and regions participated in the implementation of The Belt and Road green investment principles, while participating institutions continue to make efforts to expand green investments in emerging markets.

2. The Asian Infrastructure Investment Bank (AIIB), the Silk Road Fund, the China-Africa Development Fund, the New BRICS Development Bank, the SCO Development Bank and a number of other financial institutions are developing rapidly.

Since its establishment in 2015, the number of founding members of AIIB, the first multilateral development bank initiated by China, has increased from 57 to 106. AIIB currently covers six continents, 81% of the world's population and 65% of GDP, making it the world's second largest international multilateral development institution with fewer members than the World Bank. From 2016 to 2022, AIIB approved 202 projects in 33 countries with a total funding of more than 38.8 billion US dollars and attracted capital of almost 130 billion US dollars, including sustainable infrastructure construction and restoration of the "green" economy of the member countries in the fields of energy, transport, water supply, communications, education, healthcare, etc.

The Silk Road Fund was established in December 2014 in Beijing with the aim of supporting and developing trade and economic cooperation within the framework of the Silk Road Economic Belt and Maritime Silk Road concept through medium- and long-term investments in the countries. According to the official website of the Silk Road Fund[14], by the end of 2022, more than 60 projects with equity investments have been signed, with an investment volume of more than 20 billion US dollars, of which 70% is invested in countries located along The Belt and Road route.

Since its establishment in 2007, the China-Africa Development Fund has invested in a total of 110 projects in 37 African countries.

3. Over the past decade, the steady growth of economic, trade and investment cooperation between China and countries along The Belt and Road has accelerated the internationalization of the yuan, which has steadily increased its functions as a payment currency, investment and financing currency, as well as a reserve currency, gradually strengthening its role as an exchange currency.

By the end of July 2022, China has signed bilateral currency swap agreements with more than 20 countries, as well as clearing agreements in yuan in more than 10 countries of The Belt and Road. The volume of business and the impact of the system of cross-border interbank payments in yuan (CIPS) is steadily growing. As of the end of March 2023, CIPS has 1,427 participants (79 direct and 1,348 indirect participants) from 106 countries and regions. Among them are 965 from Asia, 185 from Europe, 46 from Africa, 23 from Oceania, 29 from North America and 17 from South America.

According to the Society for Worldwide Interbank Financial Telecommunications, from 2013 to 2022, the yuan's share in international payments increased from 0.63 to 2.15%, and in the global currency ranking it rose from 15th to 5th place after the US dollar, euro, pound sterling and Japanese yen. In May 2022, the International Monetary Fund increased the weight of the yuan

[13] A series of reports on the achievements of economic and social development after the 18th National Congress of the Party. State Statistical Office of the People's Republic of China. Available at: http://www.gov.cn/xinwen/2022-10/09/content_5716806.htm

[14] Official website of the Silk Road Fund. Available at: http://www.silkroadfund.com.cn/cnweb/

to 12.28% (from 10.92% in 2016). This reflects recognition of the increased degree of freedom to use the yuan[15].

Promoting contacts between peoples

The rapprochement of peoples is the humanitarian basis for the joint construction of The Belt and Road through the development of cultural exchanges, cooperation in the field of education, strengthening understanding and friendship between peoples.

Against the background of profound and complex changes in the international and domestic political and economic environment, China has always adhered to the concept of justice and benefit, deepened international development cooperation in the construction of The Belt and Road, actively provided assistance abroad, made a positive contribution to promoting the implementation of the UN 2030 Sustainable Development Goals and the joint development of humankind.

1. China has established a government scholarship within the framework of The Belt and Road Initiative, signed an agreement on the mutual recognition of educational qualifications and academic degrees and diplomas of higher education with 24 countries located along The Belt and Road. At present, 153 Confucius Institutes and 149 Confucius classes have been opened in 54 countries[16].

2. Following the COVID-19 outbreak, guided by the vision of a community that cares about public health, China launched the longest and largest humanitarian relief operation since the founding of the People's Republic of China. China's achievements in coordinating epidemic prevention and control with economic development have been recognized by the international community. China, together with 31 partners, launched a vaccine initiative within the framework of The Belt and Road project; actively provided assistance and led international cooperation in the fight against COVID-19. In 2020, China provided 150 countries and 13 international organizations with more than 4 billion sets of protective clothing and more than 6 billion sets of PCR tests, about 350 billion protective masks and other materials for epidemic prevention, and also sent 37 groups of medical experts to 34 countries.

By the end of 2021, China has provided more than 2 billion doses of coronavirus vaccines to more than 120 countries and international organizations. A significant part of these doses was intended for countries located along The Belt and Road route. The joint fight against the epidemic has enriched international cooperation within the framework of The Belt and Road Initiative and strengthened friendship between the countries.

3. After holding the First Forum on International Cooperation within the framework of The Belt and Road Initiative, China signed 56 agreements on promoting cooperation in the field of health with various countries, including Mongolia and Afghanistan, as well as with international organizations such as the World Health Organization and some nongovernmental organizations. China also provided 2 billion yuan in emergency food aid to developing countries located along The Belt and Road, increased investments in the South-South Cooperation Assistance Fund by 1 billion US dollars, implemented 100 projects to build "happy homes", 100 projects to help the poor, 100 projects to provide medical assistance to patients for the restoration of health and rehabilitation[17].

[15] Report on the internationalization of the yuan in 2022. Available at: https://www.gov.cn/xinwen/2022-09/24/content_5711660.htm

[16] The initiative of joint construction of The Belt and Road: Progress, contribution and prospects. Available at: https://rus.yidaiyilu.gov.cn/document/issue/87094.htm

[17] The initiative of joint construction of The Belt and Road: Progress, contribution and prospects. Available at: https://rus.yidaiyilu.gov.cn/document/issue/87094.htm

4. China and the countries located along The Belt and Road route have close ties in the field of tourism. The Year of Tourism was held, the mechanisms of tourism cooperation were created, such as the International Union for the Promotion of Tourism Growth on the Silk Road, the International Union for the Promotion of Tourism on the Maritime Silk Road, the International Tourism Union of the Great Tea Road. China has signed an agreement on visa-free regime applicable to various citizens and holders of various types of passports with 57 countries, has reached an agreement on 19 documents on simplifying visa procedures with 15 countries.

According to the special report on tourism "The Belt and Road" published by the Chinese Academy of Tourism, the countries located along the route in 2017 received revenue from international tourism in the amount of 385.1 billion US dollars, 30.82% – tourists from mainland China. In addition, tourism provides 5.36% of direct employment and 14.11% of total employment in the tourism sector in the countries along The Belt and Road route, which significantly reduces unemployment and poverty. In 2018, 150 million Chinese tourists visited abroad, and 30.54 million foreign tourists visited China. Russia, Myanmar, Vietnam, Mongolia, Malaysia, the Philippines, Singapore and other countries have become the most popular destinations for Chinese tourists.

Opportunities and challenges in the process of promoting The Belt and Road Initiative in China

The world is currently undergoing unprecedented changes. Due to the COVID-19 pandemic, the world economy has become more vulnerable, geopolitical tensions have increased, global governance has been seriously weakened, and numerous crises, such as food and energy, overlap. The international situation is creating increasingly difficult conditions for the implementation of The Belt and Road Initiative.

The ***serious challenges*** faced by cooperation within the framework of The Belt and Road strategy are related to the following aspects.

Growing global economic risks increase uncertainty in the framework of cooperation. In the World Bank's World Economic Outlook report, published on January 10, 2023, the world economic growth forecast for 2023 was revised downward to 1.7%, which is 1.3 percentage points less than in the forecast made in June last year, and is one of the lowest growth rates in almost 30 years (only the 2020 figures were even lower due to COVID-19 and the 2009 figures due to the international financial crisis)[18]. Aggressive tightening of monetary policy, worsening financial conditions, falling confidence and widespread shortage of energy resources have led to a sharp decline in global growth forecasts. Overall inflation in emerging and developing economies is currently over 9.4%, the highest since 2008; inflation in advanced economies is 6.9%, the highest since 1982.

In October 2022, the World Bank warned that 25% of emerging market countries are in or close to a debt crisis, and more than 60% of low-income countries are in a debt crisis. Emerging and developing countries such as Sri Lanka, Pakistan, Lebanon, Turkey, Egypt, Ghana and Argentina have experienced financial crises caused by increased short-term capital outflows (currency depreciation, increased external debt burden and falling prices of domestic assets)[19]. The expected global economic downturn has exacerbated instability and uncertainty within the framework of The Belt and Road Initiative.

Geopolitical conflicts have increased the instability of cooperation. Currently, conflicts continue to affect

[18] National Development and Reform Commission of the People's Republic of China. Available at: https://www.ndrc.gov.cn/fggz/fgzh/gjzzychyjdt/gjzzyjdt/202301/t20230129_1347419_ext.html

[19] Zhang Ming. Overview of domestic and foreign financial markets for 2022 and prospects for 2023. Round table of the journal *Chinese Currency*. December 12, 2022.

many regions, and exert negative impact on the peaceful environment for cooperation within the framework of The Belt and Road Initiative. The US-led Indo-Pacific Economic Framework (IPEF), which includes a number of Southeast Asian countries20, cannot be underestimated in terms of its negative impact on the development of the strategy.

Under the influence of the conflict between Russia and Ukraine, the attitude of some European countries toward China has changed to a certain extent. As the African region becomes a new hotbed of competition between major world powers, The Belt and Road Initiative will face increasingly fierce competition in this region, especially in areas such as the digital economy, cybersecurity, critical infrastructure and key mineral resources. The risks associated with geopolitical factors have increased significantly, which exacerbates the complexity of development of The Belt and Road strategy.

Despite the existing challenges, ***important strategic opportunities*** open up for the development of cooperation between the countries within the framework of The Belt and Road Initiative.

1. *Economic recovery of countries after COVID-19 will help accelerate the development of their cooperation.* The epidemic has had a significant impact on the global supply chain and production, so all countries need to restore and improve supply chains and production links as soon as possible, and accelerate the construction of infrastructure, especially transport. Although the global economic downturn cannot be overcome in the short term, the determination and measures taken by national governments to speed up economic recovery after COVID-19 will give impetus to the steady progress of cooperation within the framework of The Belt and Road Initiative.

For example, the Government of Vietnam has approved the Foreign Investment Cooperation Strategy for the 2021–2030 period, which proposes nine specific solutions to improve the effectiveness of cooperation in connection with foreign investment. Cambodia has adopted the Law on Investment of the Kingdom of Cambodia, encouraging investment in 19 industries, including high-tech industries, science and technology innovation parks and the food industry, in order to stimulate the economic development of the country. The President of the Republic of Uzbekistan signed Decree UP-101, dated April 8, 2022 "On the next reforms to create conditions for stable economic growth by improving the business environment and private sector development", presenting a number of initiatives to stimulate the development of the private sector and improve the business environment. The Philippines has amended the Foreign Investment Act to allow foreign investors to set up businesses in the country (including small and micro businesses) and fully own them.

At the same time, China's supply chains are stable, there is a full production cycle; the economy has huge potential and vitality. Economic and trade cooperation within the framework of The Belt and Road Initiative will continue to play the role of stabilizer of the international production and supply chain and contribute to global economic growth.

2. *There is a potential for international cooperation in the field of ecology, digital technology and healthcare.* In the new conditions, the "green" economy and sustainable development, medicine, including joint response to COVID-19, as well as digital technology and the digital economy are key areas of cooperation within the framework of The Belt and Road.

In the post-epidemic era, China, with a long-term perspective, needs to strive for eco-friendly, inclusive and sustainable development, accelerate the development of new energy industries, environmental protection, reduce carbon emissions,

[20] The first 14 members of the Indo-Pacific Economic Framework are the USA, South Korea, Japan, India, Australia, New Zealand, Indonesia, Thailand, Malaysia, the Philippines, Singapore, Vietnam, Brunei and Fiji, which account for about 40% of the world's gross domestic product (GDP).

i.e. build a reliable economic system characterized by eco-friendly, low-carbon and cyclical development. Within the framework of The Belt and Road strategy it is necessary to promote cooperation in key areas such as pollution control, environmental protection, nuclear and radiation safety, and develop science and technology innovations in the field of environmental protection. China should promote international cooperation in combating climate change, take an active part in global environmental governance, promote the "green" recovery of the world economy, and achieve high-quality economic development taking into account the principles of environmental protection and ecology.

3. *The digital economy is the future direction of global development.* China has become the second largest digital economy in the world, and its cooperation with the countries participating in The Belt and Road in the field of digital economy is deepening. The COVID-19 pandemic provoked the development of new technologies, such as 5G, artificial intelligence and smart cities, new types of businesses and platforms, accelerated the development of the "contactless" economy (online shopping, telemedicine, online education, collaboration platforms). The Internet plays an important role in promoting economic recovery, ensuring social functioning and developing international cooperation in the fight against COVID-19. China should seize the opportunity of a new round of technological revolution and industrial transformation, promote digital communication, digital technology innovation, stimulate new drivers of innovation and development, bridge the digital divide and open up new prospects for digital cooperation along The Belt and Road route.

4. *Health is the basis for development and an effective indicator for assessing sustainable development.* Since 2016, when Xi Jinping proposed building the "Silk Road of Health", China, together with other countries and international organizations, has been enhancing the coordination of health policy, developing The Belt and Road medical alliance, building foreign centers of Chinese medicine, developing scientific research and health technology. Projects such as the Program for Training Public Health Professionals have been implemented within the framework of China–ASEAN relations and cooperation between China and African countries.

In the post-epidemic era, the need for cooperation in the field of public health has increased significantly, and within the framework of The Belt and Road Initiative new opportunities for international cooperation are opening up. It is necessary to establish more "high-speed" and "green" routes, assist in the supply of anti-epidemic materials to other countries, carry out research, development and production of medicines and vaccines, support the leading role of the World Health Organization in coordinating global epidemic prevention and control, explore the possibilities of creating a regional communication mechanism in emergency situations in the field of public healthcare and promote the creation of a healthcare community for all.

Conclusion

The paper analyzes the results of implementation of The Belt and Road strategy for ten years and considers its main achievements.

China has managed to achieve fruitful results in the construction of The Belt and Road together with the countries along the route. The Belt and Road Initiative contributed to the prosperity of all parties supporting the principles of "joint consultations", "joint construction" and "sharing the fruits", common development and progress.

From the point of view of political coordination, China has interacted comprehensively with countries and organizations to form a broad consensus on international cooperation for the joint construction of The Belt and Road. Thanks to the joint efforts of all parties, the

structure of "six corridors, six routes, and multiple countries and ports" has basically been formed, a large number of mutually beneficial projects have been successfully implemented. The level of trade liberalization and simplification is steadily increasing between China and the countries located along The Belt and Road route, and trade methods are being continuously improved, so trade relations have reached a new level. Financial cooperation is developing rapidly, a multi-level system of financial services has been created. From the point of view of the rapprochement of peoples, the countries engage in various forms of cooperation in the field of culture, education, tourism and scientific and technological innovation.

British historian P. Frankopan in the book The Silk Road. A New History of the World noted: "The spirit of the Silk Road, which once helped shape the world of the past, will continue to shape the world today and tomorrow" (Frankopan, 2015).

After ten years of joint efforts, The Belt and Road Initiative has become the largest platform for international cooperation, making a sustainable, progressive and significant contribution to the recovery of the world economy. Currently, armed conflicts, extreme weather conditions and prolonged epidemics have increased uncertainty and instability within the framework of cooperation, but have not undermined the aspirations of people in the countries that are jointly building The Belt and Road for a better life.

The more difficult the situation, the better it can show the true meaning of "joint consultations", "joint construction" and "sharing the fruits"; the need for high standards, improving the welfare of the people and sustainable development as goals for promoting the joint implementation of The Belt and Road strategy.

Chinese President Xi Jinping said that in 2023 China will host the third international forum within the framework of The Belt and Road. China will take this opportunity to analyze its experience jointly with the international community and develop a plan for continuously improving the quality of implementation of The Belt and Road strategy.

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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[1].

The following tables and graphs show the dynamics of several parameters of social well-being and socio-political sentiment of the region's population according to the results of the latest round of the monitoring (October 2023) and for the period from October 2022 to October 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[2].

In August – October 2023, the share of positive assessments of the RF President's work increased slightly (by 3 percentage points, from 60 to 63%). The proportion of negative judgments did not change significantly and amounted to 21–22%[3].

Over the past 12 months (from October 2022 to October 2023, the share of positive assessments of the activities of the head of state increased by 4 percentage points (from 59 to 63%), the proportion of negative ones decreased by 3 percentage points (from 24 to 21%)[4].

[1] The surveys are held six times a year in the cities of Vologda and Cherepovets, in Babayevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Tarnogsky Kirillovsky, Nikolsky municipal okrugs, and in Sheksninsky Municipal District. The method of the survey is a questionnaire poll by place of residence of respondents. The volume of a sample population is 1,500 people 18 years of age and older. The sample is purposeful and quoted. The representativeness of the sample is ensured by the observance of the proportions between the urban and rural population, the proportions between the inhabitants of settlements of various types (rural communities, small and medium-sized cities), age and sex structure of the Oblast's adult population. Sampling error does not exceed 3%.

More information on the results of VolRC RAS surveys is available at http://www.vscc.ac.ru/.

[2] In 2020, four rounds of the monitoring were conducted. Surveys in April and June 2020 were not conducted due to quarantine restrictions during the spread of COVID-19.

[3] Here and elsewhere, in all tables and in the text, positive changes are highlighted in green, negative changes are highlighted in red, and no changes – in blue. Due to the fact that the changes of +/- 3 p.p. fall within the limits of sampling error, they are considered insignificant and are marked in blue.

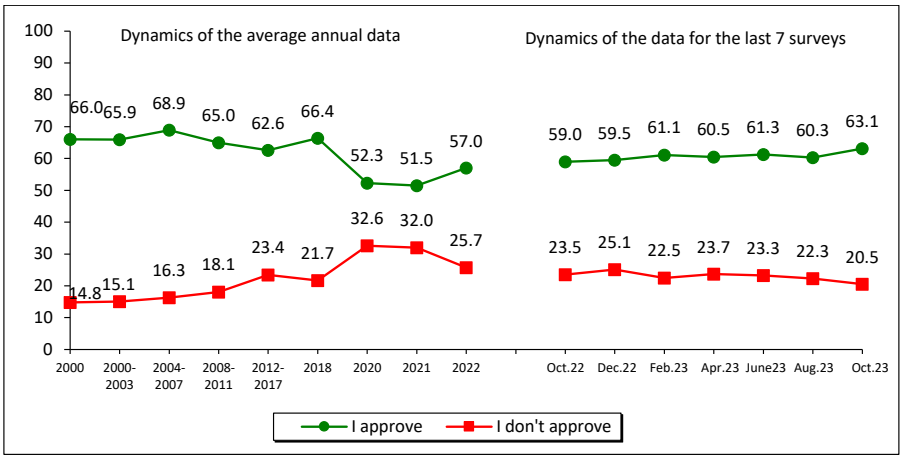
[4] Here and elsewhere in the text, the results of a comparative analysis of the data from the survey conducted in October 2023 and the results of the monitoring round conducted in October 2022 are given in the frame.

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 (+/-), Oct. 2023 to	
	2000	2007	2011	2012	2018	2020	2021	2022	Oct. 2022	Dec. 2022	Feb. 2023	Apr. 2023	June 2023	Aug. 2023	Окт. 2023	Oct. 2022	Aug. 2023
RF President																	
I approve	66.0	75.3	58.7	51.7	66.4	52.3	51.5	57.0	59.0	59.5	61.1	60.5	61.3	60.3	63.1	+4	+3
I don't approve	14.8	11.5	25.5	32.6	21.7	32.6	32.0	25.7	23.5	25.1	22.5	23.7	23.3	22.3	20.5	-3	-2
Chairman of the RF Government*																	
I approve	-*	-*	59.3	49.6	48.0	38.7	39.9	45.4	48.1	50.1	49.3	48.3	49.2	50.8	51.3	+3	+1
I don't approve	-	-	24.7	33.3	31.6	40.4	37.6	32.0	31.3	29.9	27.9	28.1	27.1	26.1	28.6	-3	+3
Vologda Oblast Governor																	
I approve	56.1	55.8	45.7	41.9	38.4	35.0	36.7	40.9	43.0	45.5	47.1	48.3	48.7	48.1	47.5	+5	-1
I don't approve	19.3	22.2	30.5	33.3	37.6	42.5	40.5	35.8	33.9	35.2	33.0	32.3	30.7	29.7	29.7	-4	0

Wording of the question: "How do you assess the current work of ...?"
* Included in the survey since 2008.

How would you assess the current work of the RF President?
(% of respondents, VolRC RAS data)*



Dynamics (+/-), October 2023 to		
Answer option	Oct. 2022	Aug. 2023
I approve	+4	+3
I don't approve	-3	-2

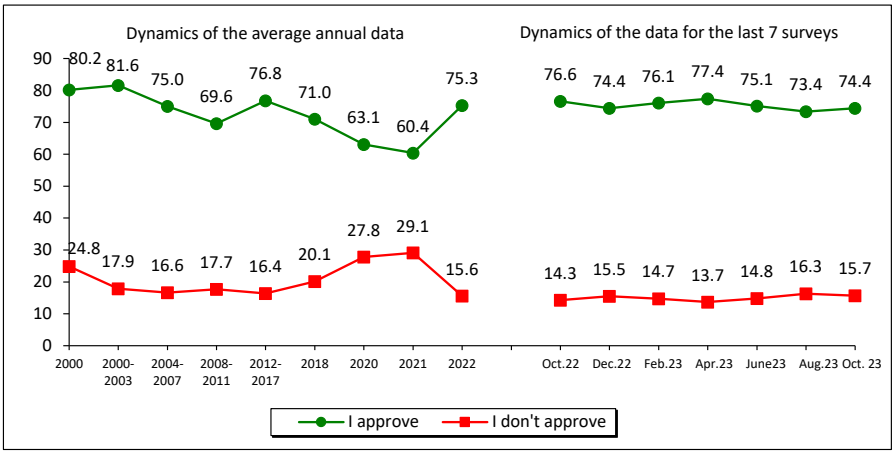
* Here and elsewhere, all graphs show the average annual data for 2000, 2018, 2020, 2021, 2022, as well as the average annual data for the periods 2000–2003, 2004–2007, 2008–2011, 2012–2017 that correspond to presidential terms.

For reference:

According to VCIOM, people's assessment of the RF President's work from August to the first half of October 2023 has not changed significantly: the share of positive judgments is 74%, negative – 16%.

From October 2022 to the first half of October 2023, the level of approval of the President's work decreased slightly (by 3 percentage points, from 77 to 74%); the share of negative judgments was 14–16%.

In general, do you approve or not approve of the work of the RF President?
(% of respondents; VCIOM data)



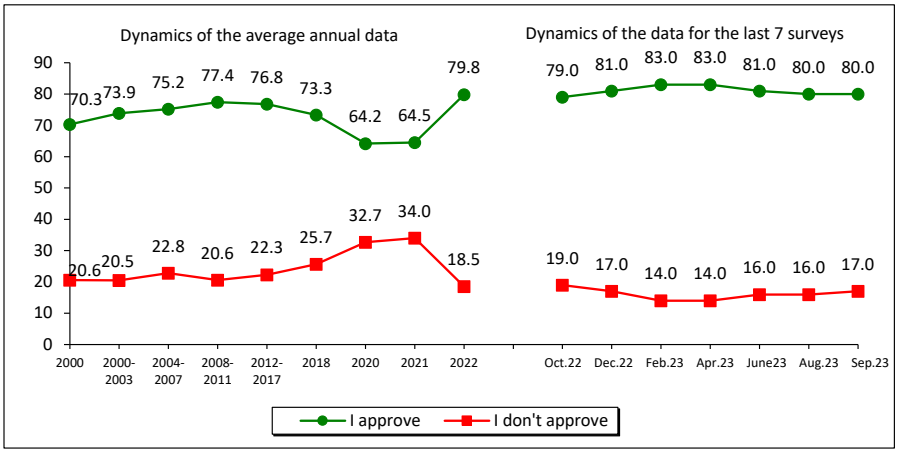
Dynamics (+/-), October 2023 to		
Answer option	Oct. 2022	Aug. 2023
I approve	-2	+1
I don't approve	+1	-1

Wording of the question: "In general, do you approve or not approve of the work of the President of the Russian Federation?"
Data for October 2023 represent the average for three surveys: (October 1, 2023, October 8, 2023 and October 15, 2023).
Source: VCIOM. Available at: https://wciom.ru/

According to Levada-Center, the share of positive assessments of the President's work in August – October 2023 amounted to 80%; the proportion of negative judgments was 16–17%.*

In the annual retrospective, there are also no significant changes: over the past 12 months, the share of positive assessments was 79–80%, negative – 17–19%.

In general, do you approve or not approve of the work of Vladimir Putin as President of Russia?
(% of respondents; Levada-Center* data)



Dynamics (+/-), September 2023 to		
Answer option	Oct. 2022	Aug. 2023
I approve	+1	0
I don't approve	-2	+1

Wording of the 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

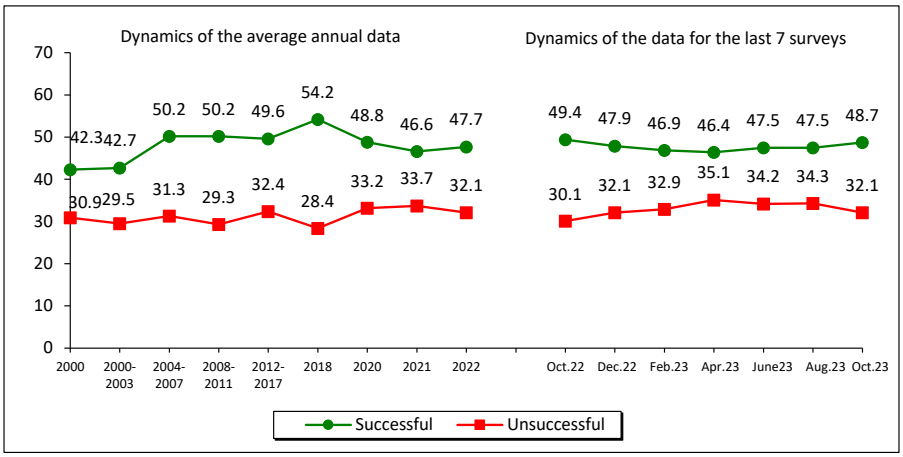
* Included in the register of foreign agents.

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 position to be successful amounted to 48% (*Fig. 4*). For comparison, the proportion of those who hold to the opposite point of view is considerably smaller and remains stable as well (32–34%).

From October 2022 to October 2023, people's estimates have not changed significantly: the share of positive judgments is 49%, negative – 30–32%.

Strengthening Russia's international position

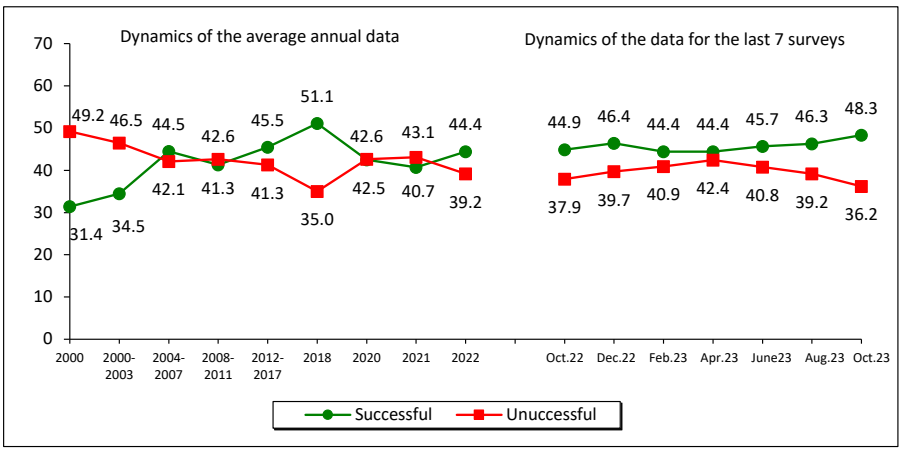


Dynamics (+/-), October 2023 to		
Answer option	Oct. 2022	Aug. 2023
Successful	-1	+1
Unsuccessful	+2	-2

The share of Vologda Oblast residents who positively assess the work of the head of state aimed at restoring order in the country continues to increase: it was 46–48% in August – October 2023; however, it increased by 4 percentage points (from 44 to 48%) from April to October 2023. The proportion of negative judgments over the same period decreased by 8 percentage points (from 42 to 36%).

Over the past 12 months, the share of those who positively assess the work of the head of state to restore order in the country increased by 3 percentage points (from 45 to 48%). The proportion of negative judgments was 36–38%.

Imposing order in the country

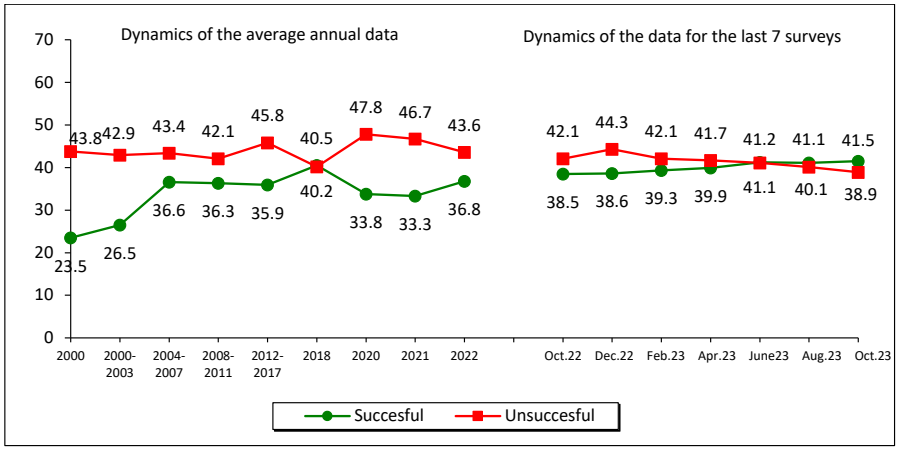


Dynamics (+/-), October 2023 to		
Answer option	Oct. 2022	Aug. 2023
Successful	+3	+2
Unsuccessful	-2	-3

In August – October 2023, the share of positive assessments of the President's work to protect democracy and strengthen citizens' freedoms was 41%, negative – 40–39%.

Over the past 12 months, the share of positive judgments has slightly increased (by 3 percentage points, from 39 to 42%), the proportion of negative ones has decreased (by 3 percentage points, from 42 to 39%).

Protecting democracy and strengthening citizens' freedoms

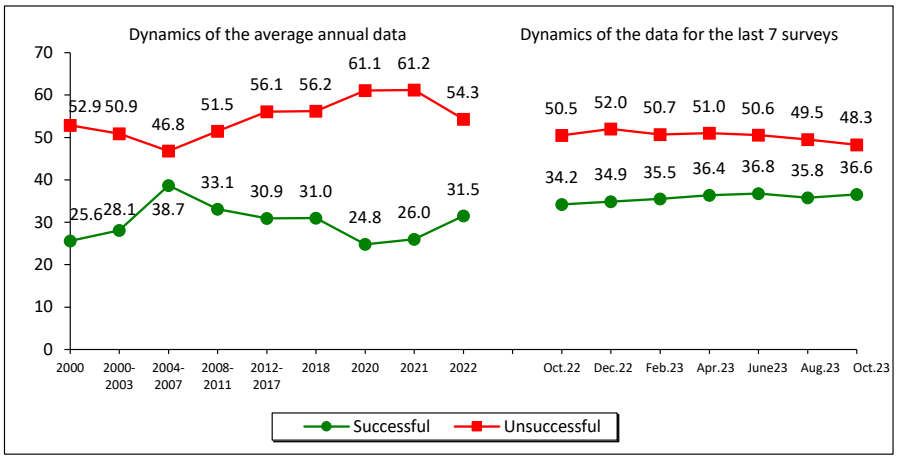


Dynamics (+/-), October 2023 to		
Answer option	Oct. 2022	Aug. 2023
Successful	+3	0
Unsuccessful	-3	-1

The share of positive judgments about the President's work to boost the economy and increase the welfare of citizens has remained stable since February 2023 (36%). The proportion of negative characteristics remains at 48–50%.

From October 2022 to October 2023, the share of positive judgments increased by 3 percentage points (from 34 to 37%), the proportion of negative ones decreased by 3 percentage points (from 51 to 48%).

Economic recovery, increase in citizens' welfare



Dynamics (+/-), October 2023 to		
Answer option	Oct. 2022	Aug. 2023
Successful	+3	+1
Unsuccessful	-3	-1

There have been no significant changes in the structure of political preferences of Vologda Oblast residents over the past two months: in August – October 2023, the share of people whose interests are expressed by United Russia was 39–40%, the Communist Party – 10%, the Liberal Democratic Party – 8%, Just Russia – 5%, the New People – 2%.

Over the past 12 months, there has been an increase in support for the United Russia party (by 3 percentage points, from 37 to 40%), as well as a noticeable decrease in the proportion of those who believe that none of the parliamentary parties expresses their interests (by 6 percentage points, from 31 to 25%).

Which party expresses your interests? (% of respondents; VolRC RAS data)

Party	Dynamics of the average annual data												Dynamics of the data for the last 7 surveys							Dynamics (+/-), Oct. 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	Oct. 2022	Dec. 2022	Feb. 2023	Apr. 2023	June 2023	Aug. 2023	Oct. 2023	Oct. 2022	Aug. 2023
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	36.7	38.3	39.1	37.6	39.3	39.0	40.3	+3	+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	9.9	9.3	9.5	9.3	9.5	9.8	9.8	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	6.0	6.3	5.9	6.9	6.7	7.8	7.9	+2	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	4.5	4.7	4.6	4.7	4.7	4.5	4.5	0	0
New People*	–	–	–	–	–	–	–	–	–	5.3	2.3	1.5	1.1	1.5	1.3	2.1	2.1	2.3	1.5	0	-1
Other	0.9	1.8	1.9	–	2.1	0.3	–	0.7	0.5	–	0.2	0.3	0.5	0.0	0.1	0.1	0.0	0.2	0.0	-1	0
None	29.6	17.8	29.4	–	31.3	29.4	–	28.5	34.2	–	33.9	30.6	30.6	29.9	28.0	28.0	26.5	25.2	24.6	-6	-1
I find it difficult to answer	20.3	21.2	13.2	–	11.7	12.0	–	11.2	11.1	–	10.0	10.1	10.8	9.9	11.4	11.4	11.4	11.2	11.4	+1	0

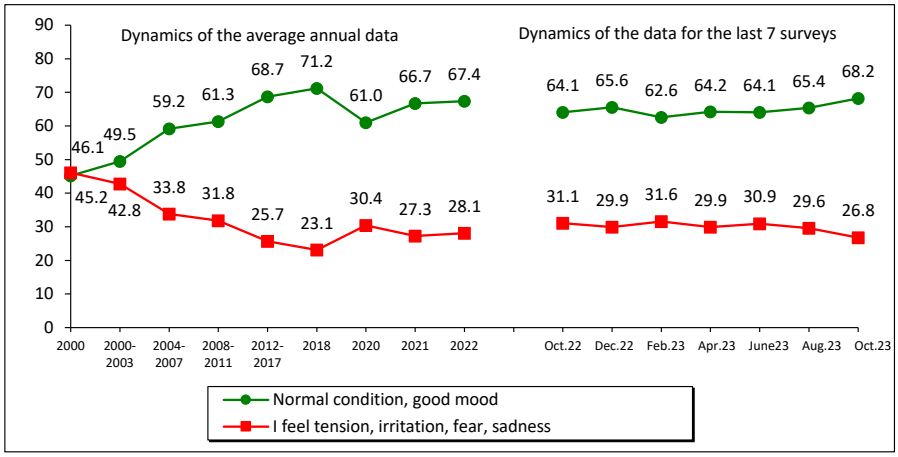
*The New People party was elected to the State Duma of the Russian Federation for the first time following the results of the election held on September 17–19, 2021.

Estimation of social condition (% of respondents; VolRC RAS data)

In October, compared with August 2023, the share of Vologda Oblast residents who positively characterize their daily emotional state increased (by 3 p.p., from 65 to 68%). The share of negative characteristics decreased by 3 percentage points as well (from 30 to 27%).

Over the past 12 months, the proportion of people describing their daily emotional state as "normal, fine" increased by 4 percentage points (from 64 to 68%). The proportion of those who experience mainly "tension, irritation, fear, sadness" decreased by 4 percentage points as well (from 31 to 27%).

Social mood

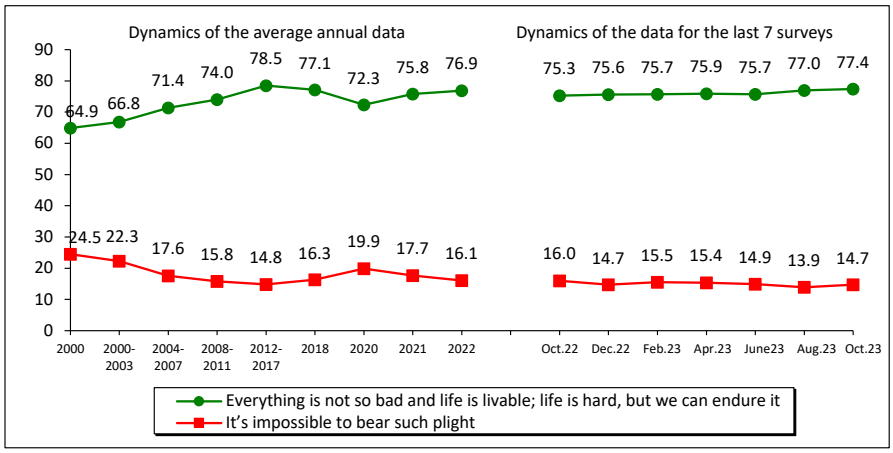


Answer option	Dynamics (+/-), October 2023 to Oct. 2022	Aug. 2023
Usual condition good mood	+4	+3
I feel tension, irritation, fear, sadness	-4	-3

The stock of patience remains at a consistently high level: in August – October 2023, 77% of Vologda Oblast residents noted that "everything is not so bad and life is livable". The share of those who believe that "it's impossible to bear such plight" has also not changed and amounted to 14–15%).

From October 2022 to October 2023, the share of positive characteristics of the stock of patience was 75–77%); the proportion of negative judgments was 15–16%.

Stock of patience

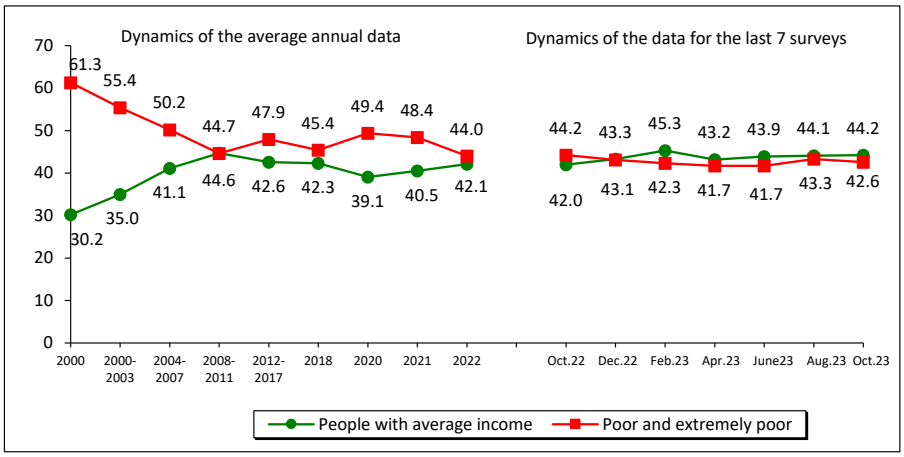


Answer option	Dynamics (+/-), October 2023 to Oct. 2022	Aug. 2023
Everything is not so bad and life is livable; life is hard, but we can endure it	+2	0
It's impossible to bear such plight	-1	+1

The proportion of Vologda Oblast residents subjectively classifying themselves as "poor and extremely poor" in August – October 2023 was 43%. The share of those who classify themselves as "middle-income" people was 44%.

There are also no noticeable changes in the annual dynamics. Over the past 12 months, the share of "poor and extremely poor" residents of the Vologda Oblast amounted to 42–43%, the proportion of "middle-income people" – 43–44%.

Social self-identification



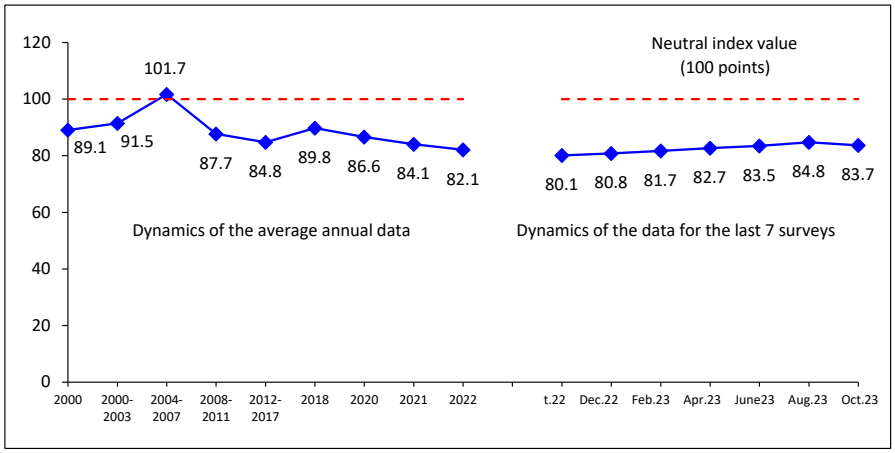
Dynamics (+/-), October 2023 to		
Answer option	Oct. 2022	Aug. 2023
People with average income	+2	0
Poor and extremely poor	-2	-1

Wording of the question: "What category do you belong to, in your opinion?"

Over the past two months, the Consumer Sentiment Index (CSI) did not change and amounted to 84–85 points.

Compared to October 2022, the CSI increased by 4 points (from 80 to 84 points).

Consumer Sentiment Index
(CSI, points; VolRC RAS data for the Vologda Oblast)



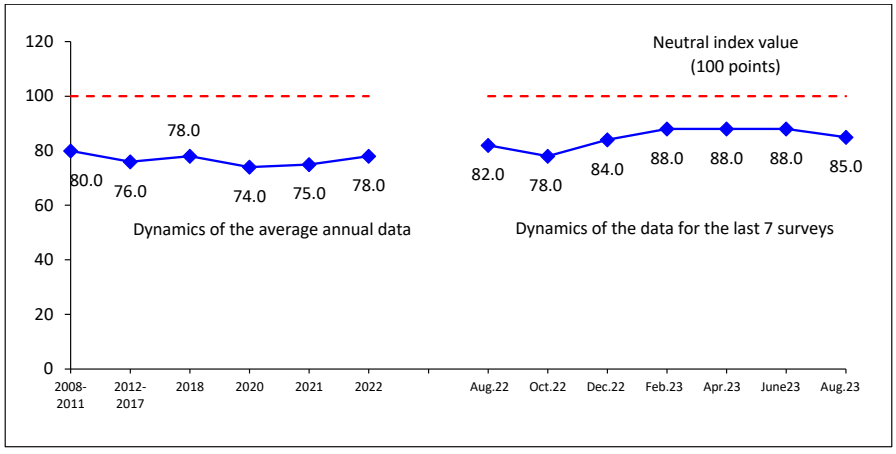
Dynamics (+/-), October 2023 to		
CSI	Oct. 2022	Aug. 2023
Index value, points	+4	-1

For reference:

According to the latest data from the all-Russian polls conducted by Levada-Center, the Consumer Sentiment Index for the period from June to August 2023 decreased by 3 points (from 88 to 85 points).*

From August 2022 to August 2023, positive changes are observed in the dynamics of the CSI (the index increased by 3 points, from 82 to 85 points).

Consumer Sentiment Index
(CSI, points; Levada-Center* data for Russia)



Dynamics (+/-), August 2023 to		
CSI	Aug. 2022	June 2023
Index value, points	+3	-3

The index is calculated since 2008.

Latest data are as of August 2023.

Source: Levada-Center*. Available at: https://www.levada.ru/indikatory/sotsialno-ekonomicheskie-indikatory/

* Included in the register of foreign agents.

From August to October 2023, in most of the main socio-demographic groups (in 11 out of 14), the share of positive assessments of social mood increased by 3–5 percentage points, especially among people with secondary vocational education (from 65 to 70%) and people over 55 years of age (from 56 to 61%). Negative changes over the past two months have not been noted in any of the main socio-demographic groups.

The dynamics of public sentiment over the past 12 months (from October 2022 to October 2023), show mainly positive changes, especially among residents of Vologda (the share of positive assessments of social mood increased by 8 percentage points, from 56 to 64%). The decrease in the share of positive ratings was recorded only in one group – among people who, according to self-estimates of income, fall into the category of 20% of the most affluent residents of the region. In this group, the share of positive assessments of social mood has decreased by 6 percentage points over the past year (from 79 to 73%).

Social mood in different social groups (answer option: "Wonderful mood, normal, stable condition", % of respondents; VoIRC RAS data)

Population group	Dynamics of the average annual data								Dynamics of the data for the last 7 surveys							Dynamics (+/-), Oct. 2023 to	
	2000	2007	2011	2012	2018	2020	2021	2022	Oct. 2022	Dec. 2022	Feb. 2023	Apr. 2023	June 2023	Aug. 2023	Окт. 2023	Oct. 2022	Aug. 2023
Sex																	
Men	50.1	65.9	64.5	69.1	72.8	60.8	65.7	66.8	65.0	64.7	62.5	65.4	63.4	65.4	66.9	+2	+2
Women	43.3	61.7	62.0	65.8	69.8	61.2	67.4	67.9	63.3	66.5	62.7	63.4	64.7	65.3	69.4	+6	+4
Age																	
Under 30	59.1	71.3	70.0	72.3	80.0	67.6	73.5	77.6	74.5	78.7	70.6	72.9	72.9	76.2	79.4	+5	+3
30–55	44.2	64.8	62.5	67.9	72.6	61.8	69.5	69.4	65.2	68.5	63.9	67.7	68.6	69.2	71.1	+6	+2
Over 55	37.4	54.8	58.3	62.1	65.2	57.4	60.5	61.1	58.7	57.2	58.1	56.9	55.4	56.3	60.5	+2	+5
Education																	
Secondary and incomplete secondary	41.7	58.4	57.4	57.2	64.8	56.1	62.1	64.6	58.9	62.7	57.2	60.2	61.6	63.2	64.4	+6	+1
Secondary vocational	46.4	64.6	63.6	66.7	72.2	63.5	66.7	68.3	65.8	64.3	63.7	65.1	63.7	65.1	70.1	+4	+5
Higher and incomplete higher	53.3	68.6	68.3	77.0	76.8	63.3	71.5	69.5	67.5	70.6	67.3	67.3	68.2	67.4	70.0	+2	+3
Income group																	
Bottom 20%	28.4	51.6	45.3	51.5	57.3	43.4	54.6	57.0	50.7	55.4	46.2	47.8	50.4	49.6	52.5	+2	+3
Middle 60%	45.5	62.9	65.3	68.7	71.9	62.6	67.3	68.1	65.9	66.1	62.2	64.4	65.7	67.9	71.0	+5	+3
Top 20%	64.6	74.9	75.3	81.1	82.9	75.6	79.9	78.3	78.7	74.9	73.8	78.2	72.1	70.3	73.2	-6	+3
Territory																	
Vologda	49.2	63.1	67.1	73.6	71.0	60.9	60.3	59.8	55.7	57.2	54.5	56.0	57.8	60.8	63.8	+8	+3
Cherepovets	50.8	68.1	71.2	76.2	75.8	60.4	71.0	71.2	67.9	69.1	65.9	68.4	67.9	66.4	69.4	+1	+3
Districts	42.2	61.6	57.1	59.8	68.7	61.4	67.8	69.5	66.6	68.5	65.3	66.6	65.6	67.3	70.2	+4	+3
Oblast	46.2	63.6	63.1	67.3	71.2	61.0	66.6	67.4	64.1	65.7	62.6	64.3	64.1	65.3	68.3	+4	+3

RESUME

According to the results of the latest round of the monitoring conducted in the period from August to October 2023, there have been no significant changes in the dynamics of most indicators of public sentiment.

At the same time, we observe positive trends in the following major monitoring parameters:

✓ first, the level of support for the RF President's work increased (by 3 percentage points, from 60 to 63%); moreover, since April 2023, there has been a steady positive trend in assessments of the success of the head of state's efforts to address all key problems of the country;

✓ second, the share of positive assessments of social mood increased (also by 3 percentage points, from 65 to 68%); moreover, this happened in the majority (in 11 out of 14) of the main socio-demographic groups.

Also, we should note that similar positive trends have been recorded according to the results of all-Russian studies. Thus, according to VCIOM, the level of approval of the RF President's work from August to the first half of October increased from 73 to 74 percentage points, and the public sentiment index increased from 65 to 69 points in August – September 2023[5].

These changes in public opinion assessments generally correlate with how successfully Russia is coping with the range of external threats to national security that it has faced since the beginning of the SMO:

✓ according to the Minister of Defense of the Russian Federation S. Shoigu, the situation on the front line "appears stable and secure"; the actions of the Armed Forces of the Russian Federation inspire "confidence that they will not only hold their positions, but also continue to implement the plans we have outlined"[6];

✓ not only has the Russian economy under the sanctions pressure (as Russian President Vladimir Putin has repeatedly stressed) "overcome all the hardships of the past year, but we also achieved positive results…; its restructuring naturally began"[7];

✓ despite the desperate attempts of the Collective West to "cancel" Russia, its international ties continue to strengthen, and along with this process, the outlines of the contours of a multipolar world continue to appear more and more dynamically[8].

A clear illustration of these changes can be found, in particular, in the results of regional and municipal elections held in Russia on the Single Voting Day on September 10, 2023. As experts summed up, "the turnout has become a record-breaking over ten years – since 2013 at this level of elections, besides federal elections… All the current governors, as well as the acting ones, retained their posts. Of these, only two heads of regions were elected from the Communist Party, all the others were from United Russia"[9].

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[5] Social well-being indices. Official website of VCIOM. Available at: https://wciom.ru/ratings/indeksy-socialnogo-samochuvstvija

[6] Meeting on current issues under the RF President, October 16, 2023. Available at: http://www.kremlin.ru/events/president/news/72510

[7] Vladimir Putin's speech at the Valdai International Discussion Club meeting, October 5, 2023. Available at: http://www.kremlin.ru/events/president/news/72444

[8] Following the six countries that will become new BRICS members as of January 2024 (Argentina, Egypt, Ethiopia, Iran, Saudi Arabia and the United Arab Emirates), more than 40 countries have expressed interest in joining the BRICS, of which **22 have already submitted official applications** (source: *Rossiyskaya gazeta*. September 22, 2023. Available at: https://rg.ru/2023/09/22/strategicheskij-prioritet.html).

The 3rd Belt and Road International Forum, which was held in Beijing on October 17–18, 2023, hosted **130 countries and 30 international organizations**. The Russian President was the guest of honor at this event.

[9] Pamfilova said that the turnout of 46% was record-breaking. Available at: https://www.rbc.ru/politics/13/09/2023/6501c3fe9a7947ea85beaf37

There are no significant negative trends (according to the results of the latest round of surveys) in the dynamics of public sentiment. However, we should also note that some characteristics related mainly to people's self-assessment of financial situation still remain stable and quite alarming. For example:

- ✓ **the proportion of people subjectively classifying themselves as "poor and extremely poor" remains at a high level (43% for at least the past 12 months);**
- ✓ **the Consumer Sentiment Index (CSI) remains below 100 points (which indicates the predominance of pessimistic forecasts in terms of the development of national economy and personal well-being); and in October 2023, the CSI decreased slightly for the first time in the past 12 months (from 85 to 84 points, although it increased from 80 to 85 p. in the previous period from October 2022 to August 2023);**
- ✓ **there are certain positive changes in the assessments of the success of the head of state's efforts to boost the Russian economy and promote the welfare of citizens (there was an increase in the share of positive assessments by 3 percentage points, from 34 to 37%, over the past 12 months); however, the proportion of negative characteristics still significantly exceeds the share of positive judgments (48–50 and 35–37%, respectively).**

In these conditions, there remains a need for increased attention of authorities at all levels to the implementation of measures to maintain the standard of living and quality of life of citizens. Despite the fact that the successful achievement of all the goals of the SMO and the reduction of the tension caused by external threats around Russia are still the key factors influencing the trends of public sentiment, the solution of urgent pressing social problems also plays an important role in this regard. And it is likely that its importance will increase depending on how successfully the public administration system copes with external challenges and also in the context of the upcoming 2024 major election campaign, the presidential election.

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