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ECONOMIC AND SOCIAL CHANGES: FACTS, TRENDS, FORECAST

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

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

Founder: Vologda Research Center of the Russian Academy of Sciences

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

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

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

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

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- 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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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).

CONTENT

EDITORIAL

BRANCH-WISE ECONOMICS

REGIONAL ECONOMICS

SCIENCE, TECHNOLOGY AND INNOVATION DEVELOPMENT

THEORETICAL AND METHODOLOGICAL ISSUES

SOCIAL AND ECONOMIC DEVELOPMENT

MONITORING OF PUBLIC OPINION

EDITORIAL

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At an Intermediate Stage on the Way toward Cultural Sovereignty

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Abstract. The past two months of socio-political life in Russia have been rich in important events: the World Russian People's Council (November 27–28), the official approval on December 7 by the Federation Council of the date of the presidential election (March 17, 2024) and Vladimir Putin's announcement of his decision to run for president (December 8), his communication with Russian citizens in the live broadcast format, combined with a press conference with journalists (December 14). All these events at the end of Vladimir Putin's 4th presidential term sum up the events of the past six years and at the same time focus our attention on the tasks that society expects the head of state to address during his upcoming presidential term. The following issues are highlighted as being of increasing importance: achieving the goals of the special military operation, forming the national idea and ideology, nationalizing the elites, increasing the effectiveness of dynamic growth in the standard of living and quality of life; these events are analyzed in the paper. We consider in more detail the work of Vladimir Putin aimed at addressing the issue regarding the nationalization of elites throughout his presidential terms. Based on

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expert assessments, we analyze the factors that prevent the President from solving this problem promptly; most likely, the solution of the problem of nationalization of elites will be postponed for 2030–2036, that is, for the possible (according to the current Constitution of the Russian Federation) sixth presidential term of Vladimir Putin. Nevertheless, according to many experts, without qualitative ideological changes within the elites (primarily in the system of public administration, culture, education), as well as without achieving the goals of the special military operation, it is impossible to make significant progress in shaping the image of the country's future, achieving the consent of the majority of the population on the essence of a new Social Contract, which is based on the image of a just social state with equal opportunities for the main segments of the population on the territory of Russia. The article provides a comparative analysis of the most significant public statements that Vladimir Putin made throughout his presidential terms: his first program article "Russia at the turn of the Millennium" (1999), the RF President's speech at the conference on international security policy ("Munich speech" on February 10, 2007), all the speeches of the head of state at the World Russian People's Council (December 13, 2001, November 1, 2018 and November 28, 2023). The conclusion is made about Vladimir Putin's key personal qualities (perseverance, strategic foresight, courage in setting ambitious goals, systems approach to their implementation) necessary for a national leader to continue the development of Russia along the path of strengthening cultural and, in general, national sovereignty.

Key words: World Russian People's Council, 2024 presidential election, nationalization of the elites, "direct line", ideology.

The Special Military Operation (SMO) has been underway for almost two years (22 months), and during that period (as we have repeatedly noted in previous articles[1]) a comprehensive transformation of the country has been going on in its economic vector, defense potential, education system.... But the main thing, in our opinion, is the cultural and ideological vector.

First, because cultural sovereignty is a key component of full-fledged national sovereignty, the struggle for which is, in fact, the main goal of the SMO (at least of those larger geopolitical processes for which it has become a "trigger").

It is for a reason that on January 25, 2023, the President of the Russian Federation signed a decree that **unambiguously defines "cultural sovereignty"** as *"a set of socio-cultural factors that allow the people and the country* ***to form their identity, avoid socio-psychological and cultural dependence on external influence, be protected from destructive ideological informational influence, preserve historical memory, and adhere to traditional Russian spiritual and moral values***"; besides, "**the priority of culture is established**, *designed to ensure further development of the potential of society and the individual,* ***preservation of civil unity, protection of national interests, and achievement of national development goals of the Russian Federation***"[2].

[1] See, for example: Ilyin V.A., Morev M.V. (2022). The special military operation reveals new features of civil society. *Economic and Social Changes: Facts, Trends, Forecast*, 15(5), 9–32;

Ilyin V.A., Morev M.V. (2022). A framework for a new Social Contract is being formed in Russia. *Economic and Social Changes: Facts, Trends, Forecast*, 15(6), 9–34.

Ilyin V.A., Morev M.V. (2023). Unusual clarity. Russia is no longer the West. *Economic and Social Changes: Facts, Trends, Forecast*, 16(2), 9–34.

[2] On amendments to the fundamentals of the state cultural policy approved by Presidential Decree 808, dated December 24, 2014: Presidential Decree 35, dated January 25, 2023.

As experts point out, cultural sovereignty is the cornerstone of statehood. *"A country that has forgotten its past and abandoned its traditions will sooner or later perish, disappear"*[3]. ***This explains the fact that on January 25, 2023, the President included the protection of the cultural sovereignty of the Russian Federation in the goals of state policy***[4]**.**

Second, we should note that formulating the idea of the image of the future society and country launches the process of formation of a new Social Contract, which has been going on and will probably proceed much more actively after the final achievement of all the goals of the SMO.

"People make reality" as it is described by the person expressing the Idea (journalist, expert, ideological worker, etc." Therefore, "first there must be an Idea... and only then ... there is action"[7].

Emphasizing cultural sovereignty and the ideological component of full national sovereignty, we should note an important event that took place in Russia in November 2023, which, according to some experts, could "change the destinies of Russia and the world radically"[8].

"Cultural sovereignty is the basis for the formation of cultural identity and ***national security*** of the country***, the cornerstone of any statehood.*** The urgency of increasing attention to the sphere of cultural sovereignty today is associated with its being at the forefront of ideological and information-psychological confrontation, global competitive struggle... Cultural sovereignty is not only an integral part, but also **a necessary condition for ensuring state sovereignty...** It is culture that plays the role of the guardian of the civilizational code of the nation, its value base"[5].

"You can't have a society without an ideology, these are elementary concepts of state and law... I propose to seriously consider this. Taking into account our historical society, taking into account the modern realities in which we live, thinking about the prospects for the development of our society, **it is still necessary to formulate the ideology of our society, our goals and enshrine it in the Constitution of the Russian Federation"**[6].

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

[4] On amendments to the fundamentals of the state cultural policy approved by Presidential Decree 808, dated December 24, 2014: Presidential Decree 35, dated January 25, 2023. Available at: http://www.kremlin.ru/acts/bank/48855

[5] Dzyatkovskaya E.N. (2022). Cultural sovereignty of the country: The role of ecological culture. *Bulletin of the International Academy of Sciences (Russian section)*, special issue 1, 1–8.

[6] Speech by the Head of the Investigative Committee of the Russian Federation A. Bastrykin at the 17th International Scientific and Practical Conference "Derzhavin Readings". Available at: https://rg.ru/2023/11/22/bastrykin-schitaet-chto-nado-dobavit-v-konstituciiu-polozheniia-ob-ideologii-gosudarstva.html

[7] V. Korovin (journalist, politician, member of the Izborsk Club, Director of the International Nonprofit Foundation "Center for Geopolitical Expertise", member of the Eurasian Committee – deputy head of the International Eurasian Movement). Available at: https://vk.com/wall200837654_7679

[8] A. Dugin: Many people do not understand, but on Tuesday a zemsky sobor will be held in the Kremlin. Available at: https://katehon.com/ru/news/aleksandr-dugin-mnogie-ne-ponimayut-no-vo-vtornik-v-kremle-sostoitsya-zemskiy-sobo

November 27–28, Moscow hosted the 25th World Russian People's Council, its topic was "The Present and Future of the Russian World"[9].

> **"The World Russian People's Council is undoubtedly the main public organization of the Russian people.** This organization embodies the most important principle without which neither Russians nor Russia exist – the principle of the unity of the State, the Church and the people. Only "sobornost" can be the foundation for a new ideological platform on which the Russian state stands... In the end, the Council, despite all the diversity of topics, is concerned with one thing**: elaboration of solutions to protect the life of the Russian people itself"**[10].
>
> "The Council, which was attended by 6 thousand people, did not just confirm the status of the main public organization of Russia and the entire Russian world. **It defined the constants of our future"**[11].

The World Russian People's Council (WRPC) is the main public organization of the Russian people[12]. Its scale and the forces that were involved in this event in 2023 (state, political, public, military, economic, scientific, educational, cultural, religious, etc.) are best illustrated by the level and diversity of its participants: representatives of the authorities, the RF Presidential Administration, heads of regions, heads of security agencies, representatives of the business community and civil organizations, religious denominations and scientific institutions, and many others. According to TASS, about 1.5 thousand people took part in thematic sections, and about 6 thousand in the plenary session[13] *(Insert 1)*.

Russian President Vladimir Putin also took part in the plenary session of the WRPC, which in itself speaks about the importance of this event, since during all his presidential terms the head of state did not always participate in it personally.

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[9] **Brief note:** The World Russian People's Council (WRPC) was established in May 1993. Since February 1, 2009, His Holiness Patriarch Kirill of Moscow and All Russia has been the head of the Council (source: Official website of the WRPC. Available at: https://vrns.ru/).

The World Russian People's Council (WRPC; until 1995 – the World Russian Council, WRC) is an international public organization formed under the auspices of the Russian Orthodox Church to discuss national issues, as well as the "unity of the Russian people". The meetings of the WRPC are attended by representatives of the authorities, the highest clergy of traditional religions of Russia, leaders of public associations, figures of science, education and culture, delegates of Russian communities from near and far abroad. The goals of the WRPC are to promote the spiritual, cultural, social and economic revival of Russia and the Russian people, strengthen Russian statehood and strengthen the role of the Orthodox Church in the life of society, etc.

In 2005, the World Russian People's Council was granted special consultative status with the United Nations (UN), and a representative office of the WRPC was established at the United Nations.

In the first ten years, meetings were held irregularly: they were not convened in 1994, 1996, 1998, 2000 and 2003. At the same time, in 1995 they were held twice – in February and December. Since 2004, the Council meetings of the WRPC have been held once a year. However, due to the COVID-19 pandemic in 2020 and 2021, it was decided not to convene them (source: https://tass.ru/info/19390441).

[10] Available at: https://tsargrad.tv/articles/russkie-uvideli-obraz-budushhego-otvety-na-glavnye-voprosy-gotovy_916061

[11] D.V. Lyubomudrov. Available at: https://proza.ru/2023/12/12/110

[12] Malofeev K. Victorious word – empire. Available at: https://vk.com/wall-75679763_6334419

[13] Available at: https://tass.ru/info/19390441

Insert 1

Some participants of the 25th World Russian People's Council, November 27–28, 2023[14]

Legislative, judicial power	**Scientific organizations**
Valery Zorkin, Chairperson of the Constitutional Court of the Russian Federation, Inna Svyatenko, Deputy Chairperson of the Federation Council, heads of factions of political parties in the State Duma of the Federal Assembly of the Russian Federation: G.A. Zyuganov of the Central Committee of the Communist Party, L.E. Slutsky of the LDPR, V.A. Vasiliev of the United Russia, Aleksei Zhuravlev, leader of the Rodina party, Olga Timofeeva, Chairperson of the State Duma Committee for the Development of Civil Society, on issues of public and religious associations, Pyotr Tolstoy (member of the Bureau of the Presidium of the WRPC), Deputy Chairperson of the State Duma of the Russian Federation, Mikhail Delyagin, Deputy Chairperson of the State Duma Committee on Economic Policy, Nikolay Nikolaev, Deputy Chairperson of the State Duma Committee on Property, Land and Property Relations, Anna Kuznetsova, Deputy Chairperson of the State Duma of the Russian Federation	Olga Vasilyeva, President of the Russian Academy of Education (member of the Presidium of the WRPC), Sergey Glazyev, Member of the Board/Minister for Integration and Macroeconomics of the Eurasian Economic Commission (member of the Presidium of the WRPC), Aleksandr Dugin, Director of the Tsargrad Research Institute (member of the Bureau of the Presidium of the WRPC), Nikolai Kropachev, Rector of St. Petersburg State University, Vladimir Shatokhin, Corresponding Member of the Academy of Military Sciences, Lieutenant General (member of the Bureau of the Presidium of the WRPC), Elena Panina, Director of the Institute of International Political and Economic Strategies (member of the Bureau of the Presidium of the WRPC), Valentin Katasonov, Chairperson of S.F. Sharapov Russian Economic Society, Ruslan Korchagin, Acting Director of RANEPA under the President of the Russian Federation, Alekandr Sokolov, Rector of Tchaikovsky Moscow State Conservatory (member of the Presidium of the WRPC)
Executive power	**Religious, nongovernmental organizations, etc.**
Olga Lyubimova, Minister of Culture of the Russian Federation, Elena Mukhtiyarova, Deputy Minister of Labor and Social Protection of the Russian Federation, Andrey Ilnitsky, Adviser to the Minister of Defense of the Russian Federation, Governors of Sevastopol, Nizhny Novgorod Region, Kaliningrad Region, Kaluga Region, Chelyabinsk Region, Transbaikal Territory, Novosibirsk Region, Kurgan Region; heads of the Republic of Mordovia, Komi Republic, Donetsk People's Republic, Aleksandr Kharichev, Head of the Department Administration of the President of the Russian Federation for ensuring the activities of the State Council, Igor Levitin, Presidential Aide Maria Lvova-Belova, Commissioner for Children's Rights under the President of the Russian Federation, Igor Shchegolev, Plenipotentiary Representative of the President of the Russian Federation in the Central Federal District, Maria Zakharova, Director of the Information and Press Department of the Ministry of Foreign Affairs of the Russian Federation, Oleg Veselkov, Head of the Department for Interaction with Religious Organizations of the Ministry of Defense of the Russian Federation, Lieutenant General, Aleksandr Bastrykin, Chairperson of the Investigative Committee of the Russian Federation	Valery Fadeev, Chairperson of the Presidential Council for the Development of Civil Society and Human Rights, Aleksandr Galushka, Deputy Secretary of the Civic Chamber of the Russian Federation (member of the Bureau of the Presidium of the WRPC), Sergey Rybalchenko, Chairperson of the Commission of the Civic Chamber of the Russian Federation on Demography, Protection of Family, Children and Traditional Family Values, Konstantin Malofeev, Chairperson of the Tsargrad Society (Deputy Head of the WRPC), Aleksandr Borodai, Chairperson of the Donbass Volunteer Union, Kirill Kabanov, Chairperson of the National Anti-Corruption Committee, Yuri Polyakov, Chairperson of the National Association of Playwrights, Nikolai Ivanov, Chairperson of the Board of the Union of Writers of Russia, Anna Tsivileva, Chairperson of the Defenders of the Fatherland Foundation, Patriarch Kirill of Moscow and All Russia (Head of the WRPC), Alexander Shchipkov, First Deputy Chairperson of the Synodal Department for Church–Society Relations and the Media of the Moscow Patriarchate (Deputy Head of the WRPC), Grigory, Metropolitan Voskresensky, Managing Director of the Moscow Patriarchate (Deputy Head of the WRPC), Anna Shafran, head of the Directorate of analytical radio programs of the Zvezda media holding, Sergey Perevezentsev, historian (member of the Bureau of the Presidium of the WRPC), Gennady Alekhin, war correspondent, etc.

[14] Sources: Official website of the WRPC. Available at: https://vrns.ru/news/prezident-rossii-v-v-putin-i-svyateyshiy-patriarkh-kirill-vystupili-na-plenarnom-zasedanii-xxv-vsemi/; Ivanov A. The 25th World Russian People's Council. "The time is coming for a new big imperial style". Available at: https://zavtra.ru/events/hhv_vsemirnij_russkij_narodnij_sobor_nastupaet_vremya_novogo_bol_shogo_imperskogo_stilya

In total, Vladimir Putin participated in the World Russian People's Council three times, and each time his speech reflected the historical period that Russia, which is part of the world community, was going through.

For the first time it was on **December 13, 2001**. Back then, the RF President focused on the danger of international terrorism and the need to consolidate the efforts of world powers to combat it.

"The events of September 11 did not just shake the planet. Not only did they change the world and remind all of us of its fragility. **They also made us think about the enormous responsibility that rests on all of us. Responsibility for the future, for the creation of a democratic, fair and secure world order system ...** I am convinced that to create such a system, it is not enough to combine the efforts of states. We need public unity in the rejection of xenophobia and violence. Everything that feeds the ideology of terrorism"[15].

For the second time Vladimir Putin took part in the World Russian People's Council on **November 1, 2018** and spoke about the destructive trends of spiritual and value transformations taking place in the world, and in this regard, about the need to preserve the civilizational identity of Russia and other civilizations.

"We see what efforts are being made today to "reformat" the world, to destroy traditional values and those cultural and historical spaces that have been taking shape for centuries. The goal is to create all sorts of faceless "protectorates". After all, divided peoples, deprived of national memory, reduced to the level of vassals, are easier and more convenient to manage, use as a bargaining chip in their interests ...

There are still, of course, as they say, more questions than answers. **I have no doubt about one thing for sure: Russia's voice in the world of the future will sound dignified and confident. This is predetermined by our tradition, our inner spiritual culture, self-awareness and, finally, the very history of our country as an original civilization, unique, but not self-confidently and boorishly claiming to be exceptional. Because it is impossible to imagine the history of humankind without the same unique civilizations as India, China, Western Europe, America and many others.** This is really a multifaceted complexity, each facet of which complements and enriches each other"[16].

Finally, on **November 28, 2023**, taking part in the World Russian People's Council for the third time, Vladimir Putin briefly and meaningfully summed up the main results of today's historical stage: the global situation, Russia's role in the coming multipolar geopolitical future, threats to national security the country is facing, and

[15] Vladimir Putin's speech at the opening of the 6th World Russian People's Council, December 13, 2001. Available at: http://www.kremlin.ru/events/president/transcripts/21442

[16] Vladimir Putin's speech at the Meeting of the World Russian People's Council, November 1, 2018. Available at: http://www.kremlin.ru/events/president/news/59013

the potential that will allow Russia not only to successfully to pass this historical stage, but also to ensure its sovereignty in the future (*Insert 2*).

> **"... we defend the security and well-being of our people, the supreme, historical right to be Russia – a strong, independent power, a civilization state...**
>
> **We are fighting now for the freedom not only of Russia, but of the whole world...** It is our country that is now at the forefront of shaping a more just world order. And I want to emphasize: **without a sovereign, strong Russia, no lasting, stable world order is possible..."**[17]

Some experts drew attention to the fact that **"it was, of course, a confrontational speech. The speech of a person who understands that there is nothing more to lose, despite the fact that the situation at the front is getting better..."**[18]

We should emphasize that Vladimir Putin in his speech at the World Russian People's Council in 2023 repeated much of what he had spoken about in 1999 in the article "Russia at the turn of the Millennium"[19], assessing the internal situation in the country, the key problems and potential of Russian society (*Insert 3*), as well as much of what he had noted during his Munich speech in 2007[20], addressing, first of all, the international establishment, expressing his view of the situation in the world (*Insert 4*).

Both in the past and in the present, it was about Russia's sovereignty; about the importance (and even priority) of ideological content over practical measures in addressing the country's pressing problems; about the lessons that Russia should learn from its own past; as well as about the inevitability of the collapse of the unipolar world and specifically about the threats posed to Russia from the US side.

This succession of public statements by the President, stretching over decades, testifies to a systematic, consistent approach, and the commitment of the head of state to the course of national development, which he has been implementing for almost 25 years.

Thus, at the World Russian People's Council in 2023, the President actually outlined the contours of the image of the future of Russia, shared not only by him personally, but also by representatives of the highest levels of state, political, public, and religious circles; that is, those people who first of all have to implement this image of the future in practice. As M.G. Delyagin, one of the participants of the Council, State Duma deputy and a member of the Izborsk Club, very aptly noted, "**in order to win, we need to show an image of the future that will be attractive to everyone. And this is our main task! Because a person always chooses the future, even if it is blurred and unclear. And we need to create this "future" in Russia right now so that people want to live in it. And so that people enjoy living in it"**[21].

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[17] Vladimir Putin's speech at the plenary session of the World Russian People's Council. Available at: http://www.kremlin.ru/events/president/news/72863

[18] Kolesnikov A. New jet installations. Available at: https://www.kommersant.ru/doc/6365612

[19] Putin V. Russia at the turn of the Millennium. *Nezavisimaya gazeta*. December 30, 1999. Available at: https://www.ng.ru/politics/1999-12-30/4_millenium.html

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

[21] Delyagin M. The Russia of the future should come today. Available at: https://delyagin.ru/articles/183-sobytija/105921-rossija-budushhego-dolzhna-nastupit-uzhe-segodnja

Insert 2

Key theses of Russian President Vladimir Putin's speech at the plenary session of the World Russian People's Council (November 28, 2023)[22]

1. ...our fight for sovereignty and justice is, without exaggeration, one of national liberation, because we are upholding the security and well-being of our people, and our ***supreme historical right to be Russia – a strong independent power, a civilization state.*** *It is our country, it is the Russian world that has blocked the way of those who aspired to world domination and exceptionalism, as it has happened many times in history.*

We are now fighting not just for Russia's freedom but for the freedom of ***the whole world****. We can frankly say that the dictatorship of one hegemon is becoming decrepit. We see it, and everyone sees it now. It is getting out of control and is simply dangerous for others. This is now clear to the global majority. But again****, it is our country that is now at the forefront of building a fairer world order. And I would like to stress this: without a sovereign and strong Russia, no lasting and stable international system is possible…***

2. ***The West has no need for such a large and multi-ethnic country as Russia as a matter of principle.*** *Our diversity and unity of cultures, traditions, languages, and ethnicities simply do not fit into the logic of Western racists and colonizers, into their cruel plans for total depersonalization, separation, suppression, and exploitation. That is why they have started their old rant again: they say that Russia is a "prison of nations" and that Russians are a "nation of slaves." We have heard this many times throughout the centuries. Now we have also heard that Russia apparently needs to be "decolonized."* ***But what do they really want? They want to dismember and plunder Russia. If they cannot do it by force, they sow discord.***

3. I would like to emphasize that ***we view any outside interference*** *or provocations to incite ethnic or religious conflict* ***as acts of aggression against our country,*** *and an attempt to once again wield terrorism and extremism as a weapon against us,* ***and we will respond accordingly…***

4. ***We have a large and diverse country.*** *This diversity of cultures, traditions and customs creates greater strength****, a tremendous competitive advantage and potential.***

5. I believe we all remember, and must remember, the lessons of the 1917 revolution, the subsequent Civil War, and the disintegration of the USSR in 1991... ***We will never forget these mistakes and should not repeat them…***

[22] Vladimir Putin's speech at the plenary session of the World Russian People's Council, November 28, 2023. Available at: http://www.kremlin.ru/events/president/news/72863

End of Insert 2

6. The Russian world embraces all generations of our predecessors and our descendants that will live after us. The Russian world means Ancient Rus, the Tsardom of Muscovy, the Russian Empire, the Soviet Union, and modern Russia that is reclaiming, consolidating, and augmenting its sovereignty as a global power. ***The Russian World unites all those who feel a spiritual affinity with our Motherland****, who consider themselves Russian speakers, and carriers of Russian history and culture regardless of their ethnicity or religion...* ***Being Russian is more than a nationality.*** *By the way, this has always been the case throughout our country's history. Among other things, it includes cultural, spiritual, and historical identity. Being Russian is, above all, a responsibility. To reiterate, it is about the enormous responsibility to safeguard Russia,* ***and this is what true patriotism is all about…***

7. ***What does sovereignty mean for our state,*** *for each family, and for each person? What is its value and true essence? Primarily, it is freedom. Freedom for Russia and our people and, therefore, for each one of us... A free nation that understands its responsibility before current and future generations is the only source of power...*

8. The sovereign development of the country, its economy, business, the social sector should bring well-being to all people, all Russian families, and, thus, ***be fair.*** *This is not about a primitive one-size-fits-all approach.* ***Justice means primarily decent living conditions, modern facilities for culture, healthcare and sports in all regions of the country****. This means a qualified and well-paid job and high public prestige for workers, engineers, teachers, doctors, artists, cultural figures, entrepreneurs, every responsible specialist and master. Justice means equal, broad opportunities for study, for a start in life and self-fulfillment for youth... I am convinced that the country's sovereignty and strengthening its role in the world are impossible without a flourishing, distinctive culture in all of its manifestations.*

9. ***We will not overcome the daunting demographic challenges facing us solely with money****, social benefits, allowances, privileges, or dedicated programs. True, the amount of the budget's demographic spending is extremely important, but that is not all there is to it.* ***A person's points of reference in life matter more****. Love, trust, and a solid moral foundation are what the family and the birth of a child are built on. We must never forget this...*

10. ***Preserving and increasing the population of Russia is our goal for the coming decades and even generations ahead.***

Insert 3

Vladimir Putin's assessment of the internal situation in the country

Article "Russia at the turn of the Millennium" (1999)	Vladimir Putin's speech at the World Russian People's Council (2023)
I think I would not be mistaken if I said that our people have especially strong feelings of anxiety and hope. For there are few states in the world that in the passing twentieth century would have faced as many trials as Russia did... For almost three quarters of the past century, Russia has lived under the sign of the implementation of the communist doctrine. It would be a mistake not to see, much less deny, the undoubted achievements of that time. **But it would be an even greater mistake not to realize the enormous price that society and the people have paid in the course of this social experiment... Russia has exhausted its limit on political and socio-economic upheavals, cataclysms, and radical transformations. Only fanatics or deeply indifferent political forces, indifferent to Russia and the people, are able to call for another revolution...** **The experience of the 1990s eloquently testifies that a truly successful, cost-free renewal of our Homeland cannot be achieved by simply transferring abstract models and schemes drawn from foreign textbooks to Russian soil...** Fruitful creative work, which our Fatherland so much needs, is impossible in a society that is in a state of division, internally divided. In a society where the main social strata, political forces adhere to various basic values and fundamental ideological guidelines. **Over the past century, Russia has been in this state twice: after October 1917 and in the 1990s.**	I believe we all remember, **and must remember, the lessons of the 1917 revolution, the subsequent Civil War, and the disintegration of the USSR in 1991... We will never forget these mistakes and should not repeat them...**
Now Russia is faced with the question of what to do next. How can new market mechanisms be made to work at full capacity? **How can we overcome the deep ideological and political split in society that is still making itself felt? What strategic goals can consolidate the Russian people? How do we see the place of our Fatherland in the world community in the 21st century?** What frontiers of economic, social, and cultural development do we want to reach in 10, 15 years? **What are our strengths and weaknesses? What material and spiritual resources do we have today? The questions that life itself poses. Without a clear and understandable answer to them to all the people, we simply will not be able to move forward at such a pace and to such frontiers that are worthy of our great country.**	True, the amount of the budget's demographic spending is extremely important, but that is not all there is to it. **A person's points of reference in life matter more.** Love, trust, and a solid moral foundation are what the family and the birth of a child are built on. We must never forget this... The Russian World unites all those who feel a spiritual affinity with our Motherland.
It is impossible not to see that for Russia, any transformations and measures that involve a deterioration in people's living conditions are practically excluded. Here, as they say, we have reached the extreme line. Poverty has become especially widespread in the country... This is the most acute social problem. The Government is developing a new income policy, which is aimed at ensuring sustainable growth in the well-being of the population based on an increase in real disposable incomes of citizens. Despite all the difficulties, the Government is determined to strengthen measures of state support for science, education, culture, and healthcare. **For a country where people are physically and mentally unhealthy, poorly educated and ignorant will never rise to the top of world civilization.**	The sovereign development of the country, its economy, business, the social sector **should bring well-being to all people, all Russian families, and, thus, be fair.** This is not about a primitive one-size-fits-all approach. **Justice means primarily decent living conditions,** modern facilities for culture, healthcare and sports in all regions of the country.

Insert 4

Vladimir Putin's assessment of the international situation

Munich speech (2007)	Vladimir Putin's speech at the World Russian People's Council (2023)
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.	...our fight for sovereignty and justice is, without exaggeration, one of national liberation, because we are upholding the security and well-being of our people, and our **supreme historical right to be Russia – a strong independent power, a civilization state...**
The unipolar world that had been proposed after the Cold War did not take place either... I consider that the unipolar model is not only unacceptable but also impossible in today's world. And this is not only because if there was individual leadership in today's – and precisely in today's – world, then the military, political and economic resources would not suffice. What is even more important is that the model itself is flawed because at its basis there is and can be no moral foundations for modern civilization...	We can frankly say that the **dictatorship of one hegemon is becoming decrepit.** We see it, and everyone sees it now. It is getting out of control and is simply dangerous for others. This is now clear to the global majority.
Today many talk about the struggle against poverty. What is actually happening in this sphere? On the one hand, financial resources are allocated for programs to help the world's poorest countries – and at times substantial financial resources. But to be honest — and many here also know this – linked with the development of that same donor country's companies... And let's say things as they are – one hand distributes charitable help and the other hand not only preserves economic backwardness but also reaps the profits thereof. **The increasing social tension in depressed regions inevitably results in the growth of radicalism, extremism, feeds terrorism and local conflicts.**	**We are now fighting not just for Russia's freedom but for the freedom of the whole world...** it is our country that is now at the forefront of building a fairer world order.
Together with the United States of America we agreed to reduce our nuclear strategic missile capabilities to up to 1700–2000 nuclear warheads by 31 December 2012. Russia intends to strictly fulfil the obligations it has taken on. We hope that our partners will also act in a transparent way... And if today the new American Defense Minister declares that the United States will not hide these superfluous weapons in warehouse or, as one might say, under a pillow or under the blanket, then I suggest that we all rise and greet this declaration standing. **It would be a very important declaration... Plans to expand certain elements of the anti-missile defense system to Europe cannot help but disturb us.** Who needs the next step of what would be, in this case, an inevitable arms race? I deeply doubt that Europeans themselves do... NATO countries openly declared that they will not ratify this treaty, including the provisions on flank restrictions (on deploying a certain number of armed forces in the flank zones)... But what is happening at the same time? Simultaneously the so-called flexible frontline American bases with up to five thousand men in each. It turns out that **NATO has put its frontline forces on our borders...** I think it is obvious that NATO expansion does not have any relation with the modernization of the Alliance itself or with ensuring security in Europe. **On the contrary, it represents a serious provocation that reduces the level of mutual trust. And we have the right to ask: against whom is this expansion intended?**	**The West has no need for such a large and multi-ethnic country as Russia as a matter of principle... But what do they really want? They want to dismember and plunder Russia.**

Experts on Vladimir Putin's decision to participate in the presidential election on March 17, 2024[23]**:**

B. Kamkiya (political scientist): "Vladimir Putin's decision to run for a new presidential term **is very important for Russia, as well as on the scale of international relations...** He is a person who has accumulated huge political capital and huge opportunities to lead Russia forward. Vladimir Putin has concentrated his practical potential, and **he is really second to none...** Under the current conditions, with the threat hanging over Russia, Putin has become the leader **who can respond to these challenges with his decisions**".

P. Danilin (political scientist, associate professor at the Financial University under the Government of the Russian Federation, director of the Center for Political Analysis): **"Putin feels that he has a huge burden of responsibility for the country... And the presidential election itself is actually becoming a struggle for Russia's victory..."**

A. Asafov (first deputy Chairperson of the Commission of the Civic Chamber of the Russian Federation on public examination of draft laws): "Society has different motives. First of all, the motives of patriotism and trust, because **in the current situation, only Putin can make decisions**".

E. Minchenko (president of the communication holding "Minchenko Consulting"): "In the context of a large-scale geopolitical confrontation, there is no reason to change an experienced leader... **Therefore, hardly anyone thought that Putin would not nominate his candidacy**".

Ten days after his speech at the WRPC on December 8, 2023, **Vladimir Putin announced that he would participate in the presidential election to be held on March 17, 2024**[24]. The head of state pointed out: "I had all kinds of thoughts on this matter at different times. However, **you are right – the time to decide has come. I will run for President of the Russian Federation"**[25].

And we should note that for most experts Vladimir Putin's decision did not come as a surprise: on the one hand, there is simply no alternative to the role of national leader in Russia today; on the other hand, there is a high demand in Russian society for a new presidential term of Vladimir Putin. This is evidenced not only by the opinions of experts, but also by the results of all-Russian sociological research.

According to the results of a VCIOM poll conducted on December 7, 2023, **78% of Russians are going to participate in the 2024 presidential election, 61% of them stated this with full confidence** (for comparison, 8% do not plan to vote yet, 14% haven't made up their mind so far)[26]. Therefore (taking into account the current high level of support for the head of state in society, as well as the results of the last elections held after the start of the SMO[27]), **we can predict with a high degree of probability that the presidential election will take place on March 17, 2024.**

[23] Sources: *Vzglyad*. December 8, 2023. Available at: https://vz.ru/politics/2023/12/8/1243372.html; *Sputnik-Abkhazia*. December 11, 2023. Available at: https://sputnik-abkhazia.ru/20231211/politolog-o-reshenii-putina-vydvigatsya-v-prezidenty-vazhno-i-dlya-abkhazii-1049411089.html

[24] December 7, 2023, the Federation Council approved the final date of the presidential election; December 8, Vladimir Putin announced his participation as candidate.

[25] Conversation with participants in the ceremony marking Heroes of the Fatherland Day, December 8, 2023. Available at: http://www.kremlin.ru/events/president/news/72935

[26] RF presidential election – 2024: Before the start. VCIOM analytical review, December 7, 2023. Available at: https://wciom.ru/analytical-reviews/analiticheskii-obzor/vybory-prezidenta-rf-2024-pered-startom

[27] On the Single Voting Day, which took place from September 9 to September 11, 2022, at the elections of the heads of RF constituent entities, "in all 14 regions, acting governors and acting representatives of United Russia or self-nominated candidates supported by United Russia were re-elected" (source: Skorobogaty P. New consolidation: Results of the Single Voting Day. *Ekspert*, 2022, no. 38, p. 50).

On the Single Voting Day, September 8–10, 2023, "all current governors, as well as 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" (source: Pamfilova called the turnout of 46% record-breaking. Available at: https://www.rbc.ru/politics/13/09/2023/6501c3fe9a7947ea85beaf37).

P. Danilin: "Russians would like Putin to run as a candidate. This is the request of the citizens"[28].

E. Minchenko: "There is a high public demand for Putin's candidacy".

According to VCIOM:

✓ **approval level for the President's performance has been stable at 73–75% since June 2023** (according to the latest data as of December 3, 2023 – 75.8%; the share of negative characteristics – 14.9%);

✓ **level of trust in Vladimir Putin during the same period was stable at 77–79%** (as of December 3, 2023, 78.5% trust the RF President, 17.3% do not)29.

According to the FOM:

✓ **70% of Russians believe that Vladimir Putin should run for a new term;**

✓ **67% say that "Vladimir Putin's work as President of the Russian Federation meets their interests"**[30].

What do the broad strata of Russian society expect from Vladimir Putin's next presidential term?

This question can be answered if we look at the results of the **"direct line" combined with the press conference that Vladimir Putin held on December 14, 2023.**

In terms of duration, it was the longest event of this format since 2018[31]. The "direct line" received more than 2.5 million questions. The key topics among those voiced in the live broadcast concerned the rights and social support of the participants of the SMO, the situation on the front line and the likelihood of the second wave of partial mobilization, healthcare, housing and utilities, agriculture, increase in price for certain goods and services, support for the domestic car industry and aviation, Russian sports, regulation of the information environment and education of future generations of Russians, prospects for the development of artificial intelligence, and much more.

"The number of questions is really enormous... **probably the largest all-Russian sociological survey took place...** it is physically impossible to answer all the millions of questions, but there are, of course, common topics. And which of them are in the lead? **No doubt, the main topic is the special military operation...** Payments, certificates, supplies... Well, there are also traditional questions about housing and communal services, sports and what not.

Many problems were solved even proactively, but there remain many unresolved ones! And most importantly, **we all now live in a completely different world, and, of course, people are concerned not only about social issues"**[32].

E. Glushakova (RIA-Novosti): **"Generally, the grand agenda includes extensive discussions on both the special military operation and the new regions. In principle, today's news conference reflects this agenda".**

[28] *Vzglyad.* December 8, 2023. Available at: https://vz.ru/politics/2023/12/8/1243372.html

[29] Ratings of trust in politicians, assessments of the work of the President and the Government, support for political parties. VCIOM Analytical Review. December 8, 2023. Available at: https://wciom.ru/analytical-reviews/analiticheskii-obzor/reitingi-doverija-politikam-ocenki-raboty-prezidenta-i-pravitelstva-podderzhka-politicheskikh-partii-08122023

[30] Vladimir Putin: prospects – 2024. FOM Presentation (the survey was conducted October 21 – November 13, 2023). Available at: https://fom.ru/Politika/14955

[31] In 2023, the "direct line" with the President lasted 4 hours and 4 minutes. In 2018 – 4 hours and 20 minutes.

[32] Introduction by the hosts of the program "Results of the Year with Vladimir Putin", December 14, 2023. Available at: http://www.kremlin.ru/events/president/news/72994

The international agenda was also touched upon: the present and future of Russia's relations with the USA, China, CIS countries and Western Europe; the geopolitical situation around the conflicts in Ukraine and the Middle East, the functioning of the Russian economy under sanctions pressure from the Collective West, Russia's presidency in BRICS and CIS countries in 2024, etc.

We should note that, just as during his communication with war correspondents on June 13, 2023 (especially when answering questions concerning Russia's internal problems), the President repeatedly had to use such expressions as "there is a problem, of course. I agree"; "these are gaps that should not have been allowed"; "it is not always enough, not everything works out", "this is a failure in the work of the Government", etc.[33]

This indicates, first of all, that the relevance of problems related to ensuring the effectiveness of public administration in the "manual mode" is still high.

And if, with the advent of Vladimir Putin's new presidential term it is indeed possible to expect the achievement of SMO goals and a more active process of normalization of geopolitical relations in the world, **then for tangible shifts in solving internal issues of improving the effectiveness of public administration, as well as for significant progress in solving more global issues related to achieving public agreement on the image of the future and the formation of a new Social Contract, which is based on the idea of a just social state, most likely (according to many experts), It will take the next (sixth) presidential term of Vladimir Putin[34], that is, the period 2030–2036.**

At least, we can agree that "in the next 4–5 years (2022–2027), under the conditions of the world catastrophe, Russia's ruling stratum and elite will be forced to change", and only by the early 2030s, perhaps, "all balances will be found and consensus will be achieved".

> **"In the next 4–5 years (2022–2027)...** structures and hierarchical pyramids will be destroyed within the framework of the intra-elite struggle... A new series of people from the "first waves" will make their way into Russia's upper ruling stratum and elite to become, if they succeed, the heads of power/elite groups and clans...
>
> **Another five years will pass (until the early 2030s), and the boundaries of spheres of influence will be defined, balances will be found, consensus will be consolidated.** And only after that will the principles and rules... regain relevance, adjusted for the distortion of the basis and idealization. But this will be a different time and a different story"[35].

[33] A complete list of similar expressions from the President of the Russian Federation, voiced in response to questions from the "direct line" (source: "Results of the Year with Vladimir Putin", December 14, 2023. Available at: http://www.kremlin.ru/events/president/news/72994):

– "There is a problem, of course. I agree";
– "Of course, you are right, it is not always enough, not everything works out";
– There must be failures somewhere else";
– "I think these are gaps that should not have been allowed by the Ministry of Defense;
– "We will definitely achieve this. Anyway, I promise, we will strive for this";
– "I'm sorry and I apologize for this. This is a malfunction in the work of the Government"
– "We will definitely look into it, analyze it";
– To be honest, I've never really paid attention to it, this is the first time I've heard that such a problem exists";
– "This is the first time I've heard that this exists";
– "A lot has actually been done, but judging by what we see now, it's clearly not enough";
– "Of course it has to be done. We will definitely strive for this. I will definitely see to it that all this is properly regulated";
– "This is a problem that we must solve. It is being solved, but we will solve it definitively".

[34] We recall that after the adoption of amendments to the Constitution in 2020, Vladimir Putin has the opportunity to run for the post of head of state two more times: in 2024 and 2030.

[35] Shkolnikov A. Rotation of the Russian elite in the next 10 years. Available at: https://shkolnikov.info/articles/136-chelovek-i-obshhestvo/98670-rotatsija-rossiyskoy-jelity-v-blizhayshie-10-let

"...who in Russia is capable of ordering the sovereignty strategy?.. The main customer for the sovereignty strategy is Putin and a few people in his entourage"[36].

"We believe that all the players in politics and the economy **must have a level playing field so that nobody can gain any advantages by cozying up to the authorities from the left or the right.** This is very important for the domestic and the potential foreign investor. **Nothing can be accomplished without solving this issue.** That is why the building of a legal structure and the fight against corruption take on such importance. This is not just routine work in the law enforcement field. **It is, in effect, about creating a new image of the country...** Keeping all the players on the market at an equal distance from the authorities, on the one hand, and guaranteeing property rights, on the other, is a cornerstone of the political and economic spheres"[37].

Today, unfortunately, one cannot but recognize that the President, in fact, continues to be the only "customer for sovereignty" for the time being. Although Vladimir Putin has been dealing with the problem of nationalization of the elites since the very beginning of his presidential term. If one were to describe this long-term, multi-year work in a few words, it would include the following:

1. The principle of "equidistance of all market subjects from the authorities" announced by the RF President on February 28, 2000[38]**;** as a result of its practical implementation the most odious representatives of the so-called *Semibankirshina* were either arrested or forced to leave the country[39].

2. The anti-corruption campaign initiated by Vladimir Putin at the beginning of his third presidential term (after the 2008–2011 presidential term of D.A. Medvedev), has limited the possibilities of activity (criminal cases were initiated against some officials, others left the country or were removed from office "due to loss of confidence of the head of state", etc.) of such persons as Defense Minister A. Serdyukov, former Minister of Agriculture E. Skrynnik, acting Minister of Economic Development of the Russian Federation A. Ulyukayev, coordinator of the Expert Council under the Government of the Russian Federation (where he was appointed by the former Chairperson of the Government of the Russian Federation

[36] Khaldei A. Transfer and the strategy of sovereignty: Customers and performers. Available at: https://zavtra.ru/blogs/transfer_i_strategiya_suvereniteta_zakazchiki_i_ispolniteli

[37] Vladimir Putin's opening address at a meeting with high-level campaign workers, February, 28, 2000. Available at: http://www.kremlin.ru/events/president/transcripts/24146

[38] Ibidem.

[39] The term "Semibankirshina" ("seven bankers") was used in the Russian media in 1996 and several subsequent years to name a group of the largest representatives of the Russian financial business (oligarchs) who played a significant political and economic role, owned the media, and informally united, despite internal disagreements, in order to ensure the re-election of Boris Yeltsin for the next term in the 1996 presidential election.

November 1, 1996, an interview with Boris Berezovsky was published in the Financial Times newspaper, in which he named seven people who control more than 50% of the Russian economy and jointly influence the most important domestic political decisions in Russia:

1. Vladimir Potanin (ONEXIM Bank),
2. Vladimir Gusinsky (Most-bank),
3. Mikhail Khodorkovsky* (MENATEP),
4. Pyotr Aven (Alfa-Bank),
5. Mikhail Fridman (Alfa-Bank),
6. Alexander Smolensky (Capital Savings Bank, since 1997 – SBS-Agro),
7. Boris Berezovsky (United Bank).

According to some media, *Semibankirshina* also included Vladimir Vinogradov (Inkombank) and Vitaly Malkin (Russian Credit) (source: https://ria.ru/20111108/483944714.html).

* Included in the register of foreign agents.

> **"With Putin's assuming office as President once again, the power clans have regained some of the influence they lost during Medvedev's presidency and will not miss an opportunity to use the anti-corruption campaign in their own interests...** The theme of the fight against corruption was chosen because of its popularity among the people... Repressions are still of a pinpoint nature".
>
> **"There is no example in the whole world when the fight against corruption does not have an element of intra-elite struggle for power and influence... Putin needs, on the one hand, to stay on the edge of the anti-corruption blade, and on the other hand, not to scare the elites, because there is no one to replace them with,** the social elevators in the country are almost inoperative" (opinion of Evgeny Minchenko, director of the International Institute for Political Expertise)[40].

D. Medvedev[41]) A. Voloshin (a man whom some experts call the "ideologue of the Family"[42] and the "brain of the liberal clan"[43]), as well as a huge number of officials at the regional level[44].

3. Amendments to the Constitution of the Russian Federation initiated by the President in early 2020[45]**,** among them were such as the priority of the Constitution of the Russian Federation over the norms of international law, the prohibition to have foreign citizenship for persons holding positions "critically important for ensuring the security and sovereignty of the country", etc. Some experts very mildly stressed that this "offended quite a large number of quite influential people. From Medvedev to very, very high-status liberals"[46]. However, in fact, new "rules of the game" were being established for the liberal elites; the new Constitution, according to some estimates, "cut off market liberals from power", but even if it did not "cut them off" completely, it at least created conditions under which they were forced to turn in the direction of patriotic moods.

> "...The draft Constitution under discussion, with all amendments, **cuts off market liberals from power in the long run.**
>
> **The ruling elite was completely satisfied with the current liberal version of the Constitution, it interpreted the laws as it wanted.** The changes were needed when the end of Putin's fourth term loomed on the horizon. The elite, apparently, wanted to get a mandate to change the Constitution in such a way that would allow the current system of power distribution to be preserved through a new configuration of state institutions... **But it received an actual request for a new Constitution, and of a paternalistic, Soviet type..."**[47]

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[40] Vinokurova E. Clan cleansing: What lies behind the Kremlin's anti-corruption campaign. Available at: https://www.gazeta.ru/politics/2012/11/28_a_4871461.shtml

[41] Aleksandr Voloshin became coordinator of the Expert Council under the Government of the Russian Federation. Available at: https://www.ng.ru/economics/2019-12-12/4_7751_news1.html

[42] "Music of the spheres": Why Aleksandr Voloshin returns to power. Available at: https://newizv.ru/news/politics/14-12-2019/muzyka-sfer-zachem-vozvraschaetsya-vo-vlast-aleksandr-voloshin

[43] Delyagin M. Voloshin came out of the shadows – the liberal clan is preparing for an offensive. *IA Realist*. December 18, 2019.

[44] Among them: Governor of the Sakhalin Region A. Khoroshavin, head of the Republic of Mari El L. Markelov, head of the Republic of Komi V. Geyser, head of the Republic of Udmurtia A. Solovyov, ex-head of the Tula Region V. Dudka, ex-head of the Kirov Region N. Belykh, ex-head of the Republic of Karelia A. Nelidov, ex-head of the Republic of Komi V. Torlopov, head of the Bryansk Region N. Denin, ex-governor of the Ivanovo Region, vice-governor of the Moscow Region and vice-mayor of Moscow M. Men, etc.

[45] Presidential Address to the Federal Assembly on January 15, 2020. Available at: http://www.kremlin.ru/events/president/news/62582

[46] Khazin M. Putin is burning bridges. Available at: http://zavtra.ru/blogs/putin_szhigaet_mosti

[47] Who needs a new Soviet-style Constitution (editorial). *Nezavisimaya gazeta*. February 12, 2020. Available at: https://yandex.ru/turbo?text=http%3A%2F%2Fwww.ng.ru%2Feditorial%2F2020-02-12%2F2_7792_editorial.html

4. The beginning of the SMO, announced by the President on February 24, 2022[48]**;** after which many representatives of the liberal elites left the country, and many of the important people who did not do this, but could not give up their liberal worldviews, also lost their positions. For example, Presidential Adviser V. Yumashev is Boris Yeltsin's son-in-law, a member of the executive board and the board of trustees of the Yeltsin Center; according to experts, Yumashev is "one of the few remaining links between the Putin administration and the Yeltsin government... strategist and policy guide for the remnants of the Family [actually beneficiaries of the unipolar world in Russia]"[49].

However, from the "equidistance of the oligarchs from power" to the beginning of the SMO, the solution to the problem of nationalization of the elites was complicated by the need for the head of state to "maneuver" between the interests of the general population and the interests of the ruling elites, who since the 1990s were associated with the interests of Western countries, lobbied them, tried to live and actually lived in the "fairway" of the liberal the course.

"First, a former PREMIER (Kasyanov*) and eight (!) former deputy prime ministers have fled there [abroad]. At the same time, three more former deputy prime ministers and at least one acting deputy prime minister live in two countries.

Second, if we count the ex-heads of the Presidential Administration (!) - Yumashev, Voloshin and Chubais, as well as all the ministers and their deputies (like Kozyrev, Skrynnik, Vavilov, Chuyan, Reimer, etc.) who have fled Russia, that's another 50 people. And I am not talking about dozens of ex-governors and vice-governors and hundreds of officials of the federal government alone.

Third, if we count those high-ranking officials of the Russian Federation who have sent their children abroad and, consequently, are preparing to go there themselves in one way or another, that's dozens and dozens more people.

Fourth, despite the SMO, former deputy prime ministers and former ministers continue to flee, unhindered (Chubais, Kudrin) along with stolen money and state secrets.

The list of former deputy prime ministers and their current location: Ilya Klebanov – in Israel, Alfred Kokh – in Germany, Arkady Dvorkovich – in the USA, Aleksandr Khloponin – in Israel, Yakov Urinson – in Israel, Maksim Akimov – in Israel, Anatoly Chubais – In Italy, Andrei Kudrin – in Israel..."[50].

[48] Address of the President of the Russian Federation to the citizens of Russia on February 24, 2022. Available at: http://www.kremlin.ru/events/president/news/67843

[49] Yeltsin's son-in-law ("enforcer on the part of the Family") resigned as Putin's adviser. *Zavtra*. May 31, 2022.

[50] Ivanov A. Israel, Italy, Germany, the United States, etc. Where the former deputy prime ministers of the Russian Federation fled. Available at: https://zavtra.ru/events/izrail_italiya_germaniya_shtati_i_t_d_kuda_svalili_bivshie_vitce-prem_eri_rf

* Included in the register of foreign agents.

After the beginning of the SMO, when the so-called "former Western partners" began aggressive actions against Russia (in the broadest sense: economic, political, military), the need to always take into account the interests of elites associated with the West in the system of public administration has significantly decreased, although **it has not disappeared completely**. This was clearly demonstrated by the attempt of an armed rebellion by E. Prigozhin, which, as experts noted, was an attempt "to remove the statespersons and, above all, President V. Putin from power" by a certain "group of oligarchs" and which eventually brought the country to the brink of a "failure of Russian statehood"[53].

Nevertheless, the further process of forming new elites in the country, capable of working more effectively and guided solely by national interests, is complicated by other factors: **first, the need to nurture a new generation of elites** (to this end, the President is taking many steps to raise not just a new, nationally oriented elite, but a new generation of Russians, from among which this elite will be subsequently created);

"The main part of the oligarchy was dissatisfied with these actions of the statespersons [SMO], as it suffered from the economic sanctions imposed by the West. Someone has demonstrated their dissatisfaction with the flight from Russia and the withdrawal of capital from it. And someone began to look for an opportunity to remove the statespersons, and above all President Vladimir Putin, from power. **It was this group that played on the political ambitions of the head of the Wagner Group Yevgeny Prigozhin"**[51].

"It should be understood that Prigozhin, **of course, is not an independent figure...** since the days of his very active activity in Saint Petersburg, **he certainly had partners, companions, and curators in various government bodies of the Russian Federation, including the Presidential Administration.** And later, when he started a very large business in Africa, which concerned not only his private military company (the campaign associated with Prigozhin was engaged in politics there, **lobbying for the interests of big business,** etc.; **a campaign in which a large number of those in power and those who make decisions were involved). And, of course, after he joined the SMO, these connections did not vanish... he has his own clear role; in this sense, he is connected to many persons"**[52].

"...A genuine elite can be reproduced only if its concentration in power exceeds 50%... Where will the president find such a large number of necessary personnel at one time? Even if we assume that the entire Izborsk Club will be called up for public service, then in this case **a second problem arises – experience, the need to understand the essence and details of the organizational work of the state machine.** And this means that it will not work right to the very top; and if they do not make it to the very top right away, then they will either be devoured or face such strong resistance and sabotage that the president will have to manually guide everyone personally through all levels of government to the very top"[54].

[51] Gaponenko A. The Stalinist Revolution. Available at: https://zavtra.ru/blogs/voprosi_stalinizma_8

[52] Skorobogaty P. (Deputy editor-in-chief, editor of the Policy Department of the journal *Ekspert*, expert of the Center for Applied Research and Programs). Video interview in the Neutral Zone program (video blog by Israeli journalist A. Waldman). June 26, 2023. Available at: https://www.youtube.com/watch?v=vt2qH1Sk4dc

[53] Dugin A. After the mutiny. The bifurcation point. Available at: https://izborsk-club.ru/24505

[54] Korovin V. Where are you, Putin's commissars? Available at: https://izborsk-club.ru/23998

Second, the need to "adjust" the effective operation of social and personnel "elevators", so that they could be used by people who, for example, have proven themselves in the implementation of tasks in the course of the SMO (it is no coincidence that Vladimir Putin was asked about this during his meeting with war correspondents, and the head of state's answer makes it clear that this task has not been solved yet);

Excerpt from the meeting with the war correspondents[55]:

S. Pegov: "Unfortunately, the existing bureaucratic system is set up in such a way that those who are good at serving on the parquet floor.... There are a lot of talented people now, good daring guys, but the system prevents them from rising the top. How can we resolve this issue so that we get new gems in our military affairs and in the art of war?"

V. Putin: **"Of course, we need to look for people like that. There are many of them, you are absolutely right. The Defense Minister and the Chief of General Staff completely share my position, I have mentioned this issue many times, and they say: "Of course, we must do this".** You are right in saying that, just like in any ministry, they have a multi-layered bureaucracy. Certainly, we need to create social mobility mechanisms, including those that locate such people and elevate them to the required level in the army and society".

"The downside of this scenario, **like any other revolutionary one, is the inevitable weakening of the state and the emergence of so many vulnerabilities, which, with the current civilizational confrontation with the West, will give the latter a lot of opportunities to take advantage of the situation** and come with all chances to seize power, control over nuclear facilities and part of the regions, provoke civil conflict, famine, dysfunction of centralized government, separatism and the annexation of regions with a weakening of the center and a lot of smaller problems, **because the West does not need Russia at all.** And whether it will be possible to rebuild it again and by what forces is the big question that stands above this whole scenario, filled with so many costs that a true statesperson and patriot of Russia will decide on it only as a last resort"[56].

Third, a rapid change of the elites in the near future is impossible due to the ongoing civilizational confrontation between Russia and the Collective West. The revolutionary scenario (rather than the conservative one, which Vladimir Putin is implementing) of reassembling the personnel base of the public administration system creates additional risks to it, which external forces that prevent the strengthening of Russia's sovereignty will certainly take advantage of, and there is no doubt about it.

[55] Meeting with war correspondents. Available at: http://kremlin.ru/events/president/news/713911
[56] Korovin V. Where are you, Putin's commissars? Available at: https://izborsk-club.ru/23998

Insert 5

Monitoring of regulatory legal acts (laws, decrees) signed by the President of the Russian Federation in the period from October 23 to December 25, 2023[57]

MEASURES TO SUPPORT THE PARTICIPANTS OF THE SMO AND THEIR FAMILY MEMBERS, TO DEVELOP THE MILITARY-INDUSTRIAL COMPLEX, MOBILIZATION ISSUES, ORGANIZATION OF MARTIAL LAW, IMPROVEMENT OF ANTI-TERRORIST PROTECTION OF FACILITIES
November 2 – Federal Constitutional Law "On amendments to Article 37 of the Federal Constitutional Law "On the state of emergency" and Articles 7 and 22 of the Federal Constitutional Law "On the martial law". The provision is excluded that the Russian Federation informs the Secretary General of the Council of Europe about deviations from its obligations under international treaties related to the restriction of the rights and freedoms of citizens in the event of a state of war or emergency on the territory of the Russian Federation or in certain areas thereof, as well as the cancellation of these deviations.
November 2 – Federal Law "On amendments to the Federal Law "On ratification of the Comprehensive Nuclear-Test-Ban Treaty". Article 1 providing for the ratification of the Treaty has been repealed.
November 2 – Federal Law "On amendments to the Federal Law "On the contract system in the field of procurement of goods, works, services for state and municipal needs". The procedure for renting residential premises for military personnel has been simplified.
November 27 – Federal Law "On amendments to Articles 71 and 14 of the Federal Law "On compulsory state life and health insurance for military personnel, citizens called up for military training, ordinary and commanding officers of the internal affairs bodies of the Russian Federation, the state fire service, employees of institutions and bodies of the penal enforcement system, employees of the National Army Guards of the Russian Federation, employees of the enforcement agencies of the Russian Federation". A law is aimed at forming a unified approach to the implementation of social support measures for family members of deceased military personnel.
November 27 – Federal Law "On amendments to the Federal Law "On the state defense orde". A federal product cataloging system for federal needs is being created, which includes a federal catalog of products for federal needs, classifiers, reference books and other regulatory documents that are necessary for cataloging work, as well as information technologies that ensure the formation and maintenance of a federal catalog of products for federal needs.
December 1 – Decree 915 "On the establishment of the regular strength of the Armed Forces of the Russian Federation". The full-time strength of the Armed Forces of the Russian Federation has been established in the amount of 2,209,130 units, including 1,320,000 military personnel.

[57] This 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. Thus, it has been going on for 19 months; its results have been published in 10 articles (the first issue of the monitoring is presented in the article: Ilyin V.A., Morev M.V. (2022). A difficult road after the Rubicon. *Economic and Social Changes: Facts, Trends, Forecast*, 15(3), 9–41).

Continuation of Insert 5

December 12 – Federal Law "On ratifying the Protocol between the Russian Federation and the Republic of Belarus on Amendments to the Agreement between the Russian Federation and the Republic of Belarus on Joint Provision of Regional Security in the Military Sphere dated December 19, 1997". The Protocol between the Russian Federation and the Republic of Belarus on Amendments to the Agreement between the Russian Federation and the Republic of Belarus on Joint Provision of Regional Security in the Military Sphere dated December 19, 1997, signed in Minsk on December 3, 2022 is ratified. The Protocol updates the content of the preamble of the Agreement, clarifies the terminology, including the term "functioning of a regional grouping", which refers to the daily and combat activities of headquarters, troops (forces) from the regional grouping.

December 12 – Federal Law "On ratifying the Agreement between the Russian Federation and the Republic of Belarus on the establishment and operation of combat training centers for joint training of military personnel of the Armed Forces of the Russian Federation and the Republic of Belarus". The Agreement between the Russian Federation and the Republic of Belarus on the establishment and operation of combat training centers for joint training of military personnel of the Armed Forces of the Russian Federation and the Republic of Belarus, signed in Minsk on March 28, 2023, is ratified. The Agreement defines the procedure for interaction between the Parties on the establishment and operation of combat training centers in the territories of the parties.

December 12 – Federal Law "On amendments to Article 241 of the Federal Law "On the development of small and medium-sized enterprises in the Russian Federation". The list of socially vulnerable categories of citizens is expanding, the provision of employment for which allows small and medium-sized businesses to acquire the status of a social enterprise. It includes persons who have served in military service, in the internal affairs bodies, the state fire service, institutions and bodies of the penal enforcement system, the troops of the National Guard of the Russian Federation, enforcement agencies of the Russian Federation and took part in the special military operation in the territories of Ukraine, the Donetsk People's Republic, the Lugansk People's Republic, the Zaporozhye Region and the Kherson Region and (or) those who performed the tasks assigned to them in the specified territories during the period of the special military operation, as well as combat veterans.

December 12 – Federal Law "On amendments to Article 83 of the Federal Law "On the State Defense Order" and Article 31 of the Federal Law "On amendments to certain legislative acts of the Russian Federation and suspension of certain provisions of legislative acts of the Russian Federation". It is stipulated that, as part of the execution of the state defense order, the amount of expenses of the head contractor (contractor), payment of which can be made by writing off funds from a separate account in an authorized bank to other bank accounts, should not exceed five million rubles per month. The specified amount is increased for the next financial year based on the value of the consumer price index determined by the Ministry of Economic Development of the Russian Federation.

Continuation of Insert 5

MEASURES TO PROTECT INFORMATION SECURITY AND REGULATE THE ACTIVITIES OF FOREIGN AGENTS, EDUCATION AND UPBRINGING OF THE YOUNGER GENERATIONS
November 2 – Federal Law "On amendments to Article 153 of the Federal Law "On information, information technologies and information protection" and Article 16 of the Federal Law "On freedom of conscience and on religious associations". It provides for restricting access to information disseminated in violation of the law and containing a proposal to finance the enemy in armed conflict, military operations, counter-terrorism operations or other actions involving weapons and military equipment in which the Russian Federation participates, as well as information on possible ways to carry out such financing.
November 14 – Federal Law "On amendments to the Federal Law "On the election of the President of the Russian Federation". The provisions of the Federal Law "On the Election of the President of the Russian Federation" are brought into line with the provisions of the Federal Law "On basic guarantees of electoral rights and the right of citizens of the Russian Federation to participate in a referendum". In particular, it is stipulated that if martial law is imposed on a part of the territory of the Russian Federation, presidential elections in such part of the territory may be held in accordance with Article 10.1 of the Federal Law "On basic guarantees of electoral rights and the right of citizens of the Russian Federation to participate in a referendum". The CEC may establish the specifics of the preparation and conduct of the presidential elections of the Russian Federation during the period of martial law in part of the country's territory.
November 14 – Federal Law "On amendments to the Federal Law "On basic guarantees of electoral rights and the right to participate in a referendum of citizens of the Russian Federation" and Article 1 of the Federal Law "On the contract system in the field of procurement of goods, works, services for state and municipal needs". Changes are being made regarding the procedure for organizing and holding elections at various levels, a referendum of a constituent entity of the Russian Federation and a local referendum during the period of martial law.
November 22 – Decree 875 "On holding the Year of the Family in the Russian Federation". 2024 is declared the Year of the Family in the Russian Federation. In this regard, the Government of the Russian Federation has been instructed to form an organizing committee for the Year of the Family in the Russian Federation and approve its composition by December 27, 2023; to ensure the development and approval of a plan for the main events for the Year of the Family in the Russian Federation; to determine sources of financing for the main events for the Year of the Family in the Russian Federation. Deputy Prime Minister of the Russian Federation T.A. Golikova has been appointed Chairperson of the Organizing Committee for the Year of the Family in the Russian Federation.
November 27 – Federal Law "On amendments to certain legislative acts of the Russian Federation". The concepts of "organizers of volunteer activities", "volunteer organization" are clarified and the concept of "resource center of volunteerism" is introduced. In addition, the legal conditions for the implementation of their activities by the specified subjects of legal relations are established.

Continuation of Insert 5

MEASURES TO PROVIDE SOCIO-ECONOMIC SUPPORT TO THE GENERAL POPULATION, STRENGTHENING THE COUNTRY'S ECONOMY, INCLUDING IN THE INTERNATIONAL ARENA
November 2 – Federal Law "On amendments to Articles 2 and 3 of the Federal Law "On gas export". The changes are aimed at granting the exclusive right to export natural gas in a liquefied state to users of subsurface areas on land located north of 67 degrees north latitude. The implementation of the Federal Law will make it possible to monetize large gas reserves located in territories significantly remote from the Unified Gas Supply System and create conditions for increasing the production and export of natural gas in a liquefied state.
November 2 – Federal Law "On amendments to Article 3 of the Federal Law "On gas export". The law is aimed at developing projects for the production of liquefied natural gas and expanding the list of LNG exporters.
November 2 – Federal Law "On amendments to the Federal Law "On electric power industry" and certain legislative acts of the Russian Federation". The law is aimed at removing administrative barriers in the field of electric power industry development.
November 2 – Federal Law "On amendments to Articles 5 and 105 of Part One of the Tax Code of the Russian Federation". Taxpayers who are residents of special economic zones are included in the list of taxpayers for whom the Tax Code of the Russian Federation establishes guarantees that the provisions of legislation on taxes and fees that worsen their situation will not be applied to them.
November 13 – Decree 855 "On the transfer to the ownership of the Republic of Crimea of federally owned shares of Krymenergo Joint Stock Company".
November 27 – Federal Law "On amendments to Parts One and Two of the Tax Code of the Russian Federation, certain legislative acts of the Russian Federation and invalidation of certain provisions of legislative acts of the Russian Federation". The federal law is aimed at improving the legislation of the Russian Federation on taxes and fees in terms of taxation of excise taxes, corporate income tax, mineral extraction tax, collection of state duties, in order to generate additional sources of income to finance the expenditure obligations of the state. Additional grounds for recognizing persons as interdependent are established, as well as the procedure for applying methods for determining income (profit, revenue) in transactions to which interdependent persons are parties, and the procedure for tax control in connection with transactions between such persons are clarified. Fines are increased for violations of certain provisions of the Tax Code of the Russian Federation, including for failure to submit documentation in relation to an international group of companies.
November 27 – Federal Law "On amendments to Articles 15 and 51 of the Federal Law "On compulsory medical insurance in the Russian Federation". Intergovernmental transfers are provided from the budget of the Federal Compulsory Medical Insurance Fund to the budgets of territorial funds for the formation of a normalized insurance reserve in order to co-finance the expenses of medical organizations for the remuneration of doctors and paramedical personnel, as well as for the implementation of stimulating monetary payments to medical workers.

End of Insert 5

November 27 – Federal Law "On amendments to Article 1 of the Federal Law "On the minimum wage" and invalidation of Articles 2 and 3 of the Federal Law "On amendments to Article 1 of the Federal Law "On the minimum wage" and on suspension of its individual provisions". The federal law sets the minimum wage from January 1, 2024 in the amount of 19,242 rubles per month. Also, from 2025, the ratio of the minimum wage to the median wage, which is taken into account when setting the minimum wage for the next year, is determined at being no less than 48 percent.

November 27 – Federal Law "On amendments to Article 10 of the Federal Law "On amendments to certain legislative acts of the Russian Federation on the appointment and payment of pensions". The Federal Law is aimed at increasing the level of pension provision for citizens, taking into account the level of inflation: from January 1, 2024, the cost of one pension coefficient will be 133.05 rubles, the amount of a fixed payment to an insurance pension will be 8,134.88 rubles.

November 27 – Federal Law "On the federal budget for 2024 and for the planning period of 2025 and 2026". The Federal Law is based on the basic version of the forecast of the socio-economic development of the Russian Federation for 2024 and for the planning period of 2025 and 2026. The main characteristics of the federal budget for 2024 are determined based on the projected gross domestic product of 179,956 billion rubles and an inflation rate not exceeding 4.5 percent. The projected total amount of federal budget revenues is 35,065.3 billion rubles, expenditures – 36,660.7 billion rubles, the deficit is 1,595.4 billion rubles.

December 12 – Federal Law "On amendments to the Federal Law "On industrial policy in the Russian Federation". The peculiarities of the application of measures to stimulate industrial activity in the territories of the Donetsk People's Republic, Lugansk People's Republic, Zaporozhye Region and Kherson Region are determined.

December 12 – Federal Law "On ratification of the Agreement between the Government of the Russian Federation and the Government of the Sultanate of Oman on the Elimination of Double Taxation with respect to Income Taxes and the Prevention of Tax Avoidance and Evasion and its Protocol". The Agreement between the Government of the Russian Federation and the Government of the Sultanate of Oman on the Elimination of Double Taxation with respect to Income Taxes and the Prevention of Tax Avoidance and Evasion and its Protocol, signed in Muscat on June 8, 2023, are ratified. The Agreement provides that it applies to persons who are residents of one or both of the Contracting States and to income taxes levied on behalf of a Contracting State, its subdivisions or local authorities, regardless of the method of their collection.

December 12 – Federal Law "On employment in the Russian Federation". The Federal Law provides for a new legal regulation of employment relations from January 1, 2024, taking into account the current situation the labor market and the current system of state support measures for citizens looking for a job. The basic concepts in the field of employment promotion are defined, including: "citizens looking for a job" "unemployed citizens", "citizens at risk of dismissal", and the grounds for recognizing citizens as unemployed are established. The measures of state support in the field of employment promotion are systematized, the procedure for their provision is clarified, and special measures of state support aimed at promoting the employment of disabled people, persons who have completed military service, and youth are provided. The minimum and maximum amounts of unemployment benefits and the condition for their annual indexation, taking into account the consumer price growth index for the previous year, are established. The issues of the organization and activities of the employment service bodies are also regulated.

We should also note that the public administration system, which will eventually be filled with new personnel, should contain mechanisms for self-defense against "undesirable elements". As the experience of the collapse of the USSR and, in general, the experience of the collapse of "big empires" has shown, "the collapse is based on one common reason – **the inability of political elites to ensure sustainable development …" when "the accumulation of wealth begins to displace virtue and service to the state as the main indicator of success"**[60].

For example:

September 8, 2023, Sber published the report "The Future 2035+"[58]: "no less than the forecast of Russia's development until 2035", analyzing which some experts summarized: "This essay (which the whole Sberbank was not ashamed to sign with its name!) clearly **demonstrates the absolute mental dependence of all these experts, analysts, futurists, sociologists, economists, forecasters and whatever else they are called there – on Western thought. Russia has been and remains a colony of the West in the field of thought. We are far from embarking on the difficult path of decolonizing our own consciousness... Sberbank futurologists demonstrate this dependence in a ridiculous and caricatured form, other do it in a more veiled way, but it's still so far from liberation"**[59].

In other words, the nationalization of elites is a long process that requires maximum caution and endurance, the traits that Vladimir Putin has always shown; and, by and large, these qualities of his largely allow him to still be the head of state. **But "there are still a sufficient number of liberal habits in certain departments (although they are gradually disappearing)"**[61].

Therefore, during the new presidential term, Vladimir Putin is expected to take more vigorous actions with regard to solving the tasks of his country; with regard to bringing the real situation in the country in line with the basic provisions of the Constitution, which proclaims that "Russia is a social state" (Article 7); **finally, with regard to the further implementation of the task of nationalizing the elites and raising the effectiveness of public administration,** without which a sovereign (that is, not fixated on Western paradigms) future of Russia is simply impossible.

[58] Available at: https://generation-startup.ru/analytics/budushchee-2035/

[59] Vojvodina T. We will burst the void, or our tomorrow from Sberbank. Available at: https://zavtra.ru/blogs/budem_lopat_pustotu_ili_nashe_zavtra_ot_sberbanka

[60] Arbatova N. Twenty centuries of the rise and decline of empires. Available at: https://www.ng.ru/ideas/2022-07-13/7_8485_empires.html

[61] Dvinsky K. Russia has one last chance left. Available at: https://dzen.ru/a/ZUj8auL0CB6pV_Xc

The victory in the election on March 17, 2024 will allow the head of state to more confidently (as required by the "historical time") "move forward faster" in realizing the expectations and hopes of the general population.

The President will not only have to withstand the onslaught of all the numerous problematic aspects of global turbulence and defend all the constituent elements of the country's full national sovereignty (political, economic, territorial, cultural, etc.), but also continue the systematic provision of positive dynamics in the standard of living and quality of life, restoring order in the public administration system.

And most importantly, Vladimir Putin will have to achieve broad public agreement on the image of the future of Russia and a new Social Contract, which is based on a socially just organization of society, as well as protective mechanisms capable of preventing the historical tragedies of 1917 and 1991 and the mistakes of former leaders of the country (Joseph Stalin, Nikita Khrushchev, Leonid Brezhnev, Mikhail Gorbachev, Boris Yeltsin), which led to considerable losses: in social relations, in human capital, in the deterioration of cultural and moral norms, in the worldview of the ruling elites and often, as a result, in the loss of public confidence in the authorities...

It is no coincidence that in his first program article, which in fact set goals and guidelines for the development of the country for decades to come, the RF President wrote: "*There should be no forced civil consent in a democratic Russia. Any public consent here can only be voluntary.* ***But that is why it is so important to achieve it on such fundamental issues as goals, values, and development milestones, which are desirable and attractive to the vast majority of Russians***"[63].

> "Probably, the thinking public agrees that the state in Russia was seized in the 1990s by enemies who established external control over it, over our entire society. The generalizing name for it is liberalism... **Putin has been gradually getting the country out of this situation since he came to power in 2000. Very slowly. Slowly. Almost imperceptibly. And we are still on this path... The networks of liberals are so impressive and powerful that it is difficult to deal with them,** especially since Putin has chosen a strategy of very gradual squeezing them out. It's not even clear who will die out first – they or the Russian population... **Maybe Putin wins in general, avoiding dramatic turns;** carrion leaves Russia by itself and in portions. And there are no reprisals, no responsibility for what they did. **But we are definitely losing the historical time allotted to our people for rebirth, for coming to ourselves.** Delaying the deliberation is tactically justified (maybe), but strategically it becomes dangerous... Therefore, we need to move forward faster. Along Putin's way. But still faster"[62].

Today, Vladimir Putin often admits mistakes he made in the past, and does so publicly: in the media, in his public speeches, in direct communication with people. For example, in his recent interview on

[62] Dugin A. De-liberalization. Available at: https://zavtra.ru/blogs/pokonchit_s_liberalami_nadezhdi_naroda_na_izmeneniya

[63] Putin V. Russia at the turn of the Millennium. *Nezavisimaya gazeta*. December 30, 1999. Available at: https://www.ng.ru/politics/1999-12-30/4_millenium.html

Rossiya-1 TV channel, he admitted that in the early stages of his presidential activity he had a largely naive idea about the attitude of the countries of the Collective West toward Russia, that there was no "basis for confrontation" in this regard.

However, recent decades have shown that this is not the case; and in this sense, of course, one cannot look to the future without a certain degree of anxiety in anticipation of how effectively Vladimir Putin will cope with all the tasks facing him. **He's human, and it is human to err**.

"...at the initial stage, after all, I had a **naive idea** that the whole world, and above all the so-called (now I speak with absolute conviction) "civilized" world understands what happened to Russia, that it has become a completely different country, that there is no longer an ideological confrontation. This means that **there is no basis for confrontation. And if something negative happens in the policies of Western countries in relation to Russia... I naively believed that this was just the inertia of thinking and acting.** They are used to fighting the Soviet Union and continue to do so...

It was a naive idea of reality. And the realities are as follows, later I was absolutely, 100% convinced that after the collapse of the Soviet Union, they believed that they had to be patient a little bit so that they could ruin Russia entirely"... Only later did this realization come to me"[64].

An excerpt from Vladimir Putin's speech during the "direct line" on December 14, 2023, characterizing some of his personal traits:

"It would be good if whatever I say would happen but, unfortunately, this is not always the case. Such is the world's practice... We talk about something, we want something to happen, and some things happen and others do not. This is normal, but it is certainly necessary to strive to reach one's goals".

* * *

"Over many years, I have taught myself that I need to strive to choose the most important thing and do everything to achieve my goals, without paying attention to all the fluff. Of course, this field of vision must nevertheless be wide; everything must be understood and analyzed. But you need to confidently move towards your goal if you believe in what you are doing, and I believe in what I am doing".

* * *

"One should think today about what will happen tomorrow... I would also add, always set ambitious goals. Set goals that may look unachievable. Having set such goals, a person will strive to achieve them and will certainly succeed".

[63] Vladimir Putin's interview with P. Zarubin in the framework of the program "Moscow. Kremlin. Putin" on Rossiya-1 TV channel. Available at: https://zavtra.ru/events/prezident_rf_priznalsya_v_prezhnej_naivnosti_otnositel_no_kollektivnogo_zapada

At the same time, it is precisely certain human qualities inherent in the President (purposefulness, strategic foresight, courage in setting ambitious goals and a systematic approach to achieving them) that allow us to look into the future with positive hopes and expectations.

Indeed (as Vladimir Putin stressed during the "direct line" with the Russians on December 14, 2023), it is necessary to set ambitious goals", "choose what is most important", "be sure of what you are doing" and "think today about what will happen tomorrow".

It is today that we need to think about how to get rid of the "liberal hegemony" in the country and among those who surround the head of state. Because the longer this problem remains relevant, the more stringent actions will be required to solve it.

In our opinion, the current situation in the country, characterized by the "deep penetration" and "totalitarian domination" of liberal forces in society, was most systematically described by A. Dugin, one of the most active participants of the Izborsk Club and a participant of the 2023 World Russian People's Council.

We think that A. Dugin is absolutely right that it is the President "who is the main and only hope for getting rid of the liberal yoke…", and in this sense, society expects concrete actions from him: "it's time to open another front – in the field of ideology, worldview, social consciousness".

"…the liberal hegemony is still very strong in Russia… Everything in our country is liberal, starting with the Constitution. Even the ban on ideology itself is a purely liberal ideological thesis…

The SMO brought many changes, because the beginning of hostilities in Ukraine finally came into conflict with liberal dogma… However, **liberal hegemony in Russia still persists. It has penetrated so deeply into our society that it has begun to reproduce itself in new generations of managers, officials, scientists and educators…**

We have now entered a new cycle of Putin's re-election as a national leader. There is no doubt about it… After all, he is our main and only hope for getting rid of the liberal yoke… **But the bulk of Putin's opponents are not on that side, but on this side of the barricades. The liberal totalitarian sect does not even think of giving up its position. It is ready to fight for them to the end… The liberals are restrained only by Putin, with whom they will not dare to have a head-on collision. Systemic liberals are concentrated in his camp, because there is simply no other camp…**

Something similar to SMERSH is needed in the field of ideas and humanitarian paradigms… right now it is time to open another front – a front in the field of ideology, worldview, and social consciousness. The totalitarian domination of liberals in Russia – primarily in the field of knowledge, science, education, culture, and the definition of values of upbringing and development – must come to an end"[65].

[65] Dugin A. Against liberal totalitarianism. Available at: https://zavtra.ru/blogs/protiv_liberal_nogo_totalitarizma

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The Impact of Geographical Factors on Expanding Trade Interactions between Countries (on the Example of the Asia-Pacific Region)

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Abstract. The aim of the study is to assess the impact of geographical factors on trade in the Asia-Pacific region. We show that physical distance is the key parameter in assessing the influence of geographical factors on trade within the framework of gravity dependence. The estimates obtained confirm the validity of the hypothesis concerning a long-term reduction in the negative impact of physical distance calculated in various ways on trade in the Asia-Pacific region, indicating the invariance in the choice of values of this parameter to determine the general trend of the influence of geographical factors on commodity exchange in the subglobal region. It is determined that the use of an arithmetic mean physical distance is more acceptable for obtaining correct estimates of the influence of geographical factors on trade in the Asia-Pacific region in terms of compliance with formal criteria for gravitational modeling. The negative impact of physical distance on trade in the Asia-Pacific region has decreased by almost 13% by 2021 compared to 1993, indicating a high intensity of commodity exchange in the subglobal region. The estimates obtained confirm the assumption that the land border has a positive impact on trade turnover in the Asia-Pacific region, which increased by 56% in 1993–2021. We find that the presence of a land border contributed to the expansion of trade between border economies in comparison with other countries of the Asia-Pacific region by 208.3% in 2021. The assessment shows the absence of a statistically significant impact of other factors – the colonial past and linguistic community – on trade in the Asia-Pacific region; this indicates the leveling of ties formed in the past due to the dominance of gravitational attraction between economies in terms of

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reducing barriers in interactions between them. It is shown that against the background of a decrease in comparative transport costs in the Asia-Pacific region, the current sanctions against Russia are able to limit the geographical distribution of Russian exports, reducing it to the neighborhood markets of the subglobal region, where the Russian economy will experience an increasing gravitational pull from China.

Key words: trade, geographical factors, physical distance, transport costs, land border, linguistic community, colonial past, gravity model, Asia-Pacific region.

Introduction

Over the past three decades, the global economy has been growing due to the expansion of international trade and economic interactions, including on the basis of integration processes. In this regard, the influence of geographical factors on trade relations is an important indicator in studying the dynamics of intensification of interactions between national economies.

Gravitational modeling is highlighted as a theoretically substantiated method to conduct quantitative analysis of the influence of geographical factors on trade interactions (Yotov, 2022); this method is the most common tool for assessing the impact of various factors on trade, including physical distance and land borders[1]. Nevertheless, one of the lingering methodological problems of gravitational models has been the "distance puzzle", which manifested itself in the high negative impact of physical distance on trading even after taking into account many factors and controlling various effects (Lin, Sim, 2012).

We should note that over the past decade and a half, significant progress has been made in the methodology of gravitational modeling, allowing for a more accurate assessment of the impact of geographical factors on trade between and within national economies. In the framework of a modern methodological approach that takes into account the deviation of trade in favor of home markets (Yotov, 2012; Baier et al., 2018), the scientific problem of the "distance puzzle", which existed for a long time (Bosquet, Boulhol, 2015; Buch et al., 2004), has been successfully solved, thus allowing us to obtain correct estimates of the influence of physical distances on trade. This circumstance is an important aspect in assessing the impact of geographical factors on trade, in particular the comparative costs that exporters and importers spend on overcoming the spatial distance between markets. Along with solving the above methodological problem, spatial remoteness can differentially affect the exports of various firms (Chaney, 2014); therefore, there is also the task of adequately representing physical distances to assess trade flows between countries. This ultimately leads to the need for the correct selection of this parameter to obtain appropriate quantitative estimates (Head, Mayer, 2010).

Solving the "distance puzzle" within the framework of gravitational modeling also contributed to obtaining a consistent assessment of the impact of "border area" on trade between countries (Borchert, Yotov, 2017). Despite the fact that a large share of traded goods in the global economy is transported by sea and transoceanic transport, there are a number of countries for which commodity exchange through checkpoints[2] on the land border is an important component for expanding their cooperative ties with foreign markets. In addition, if integration ties between countries expand, their

[1] In addition to these parameters, some researchers consider the island, inland position of countries, their belonging to a continent, to a time zone, etc. as geographical factors (among others) affecting trade interactions between economies. For more information, see: (Wei, Frankel, 1997; Lopez, Ezcaray, 2015; Bista, Tomasik, 2019).

[2] Some countries, such as those belonging to the European Union, do not have checkpoints along their land border.

border territories receive an impetus in economic development through the creation and operation of joint trade and production infrastructure (Starr, Thomas, 2002). On the other hand, the presence of unresolved conflicts (Carter, Poast, 2017), noticeable differences in socio-economic development between countries (Hassner, Wittenberg, 2015) become insurmountable barriers to increasing mutual trade, leveling the natural advantages of "border area" or the factor of having a joint land border. Therefore, the presence of land borders between countries can either promote or hamper mutual trade.

Despite methodological progress in the assessment of gravity models, the impact of geographical factors on trade in general remains controversial. The available empirical ex-post assessments of the impact of geographical factors on trade within the global economy, on the one hand, indicated a reduction in the negative impact of physical distance, as well as the positive impact of land border on trade (Yotov, 2012; Borchert, Yotov, 2017); on the other hand, they indicated the cases of constant (time-invariant) influence of geographical factors on trade due to a proportional increase in trade and reduction of transport costs (Buch et al., 2004).

We should note that over the past three decades, the Asia-Pacific region (APR) has become one of the most dynamically developing economies in the world, accounting for more than half of global GDP, and its share of intraregional trade accounted for about 40% of global trade turnover[3]. By this indicator, the APR surpasses any other subglobal region. The estimates obtained (Izotov, 2020a; Izotov, 2023) revealed a noticeable increase in trade turnover in the APR in connection with integration processes, i.e. due to the implementation of WTO mechanisms and preferential trade agreements.

The expansion of trade interactions between the APR countries became possible due to the manifestation of economies of scale in trade between the economies in terms of leveling some tariff and nontariff barriers, as well as reducing the cost of moving products between countries, indirectly indicating the positive impact of geographical factors on trade in the subglobal region, due to the dominance of relatively cheap sea transportation4 and creating appropriate infrastructure to expand trade between border countries in the absence of active military and political confrontations in the region.

At the same time, accumulated empirical estimates of the influence of geographical factors on trade in the APR show rather contradictory results, primarily due to methodological problems associated with the presence of the "distance puzzle" (Filippini, Molini, 2003; Yu et al., 2014). The importance of assessing the impact of geographical factors on trade turnover in the APR lies in the fact that these factors are among the key elements in studying the dynamics of economic connectivity of a subglobal region, in favor of which Russia has been striving to intensify its foreign trade in recent years. The above allows us to formulate the following hypotheses: first, the APR has been facing a decrease in the negative impact of physical distance on trade in the long term; second, it is assumed that over the past three decades there has been a positive impact of the presence of a land border on trade turnover in the subglobal region.

Thus, the aim of the study is to assess the impact of geographical factors on trade in the APR. According to the research algorithm, the following tasks are addressed: 1) analyzing the dynamics of trade interactions in the APR, assessing the values of physical distances between trading economies of the subglobal region; 2) selecting an assessment methodology and forming a data set; 3) assessing the impact of physical distances, land borders and other factors on trade in the APR. The assessment

[3] Calculated on the basis of World Bank and IMF statistics.

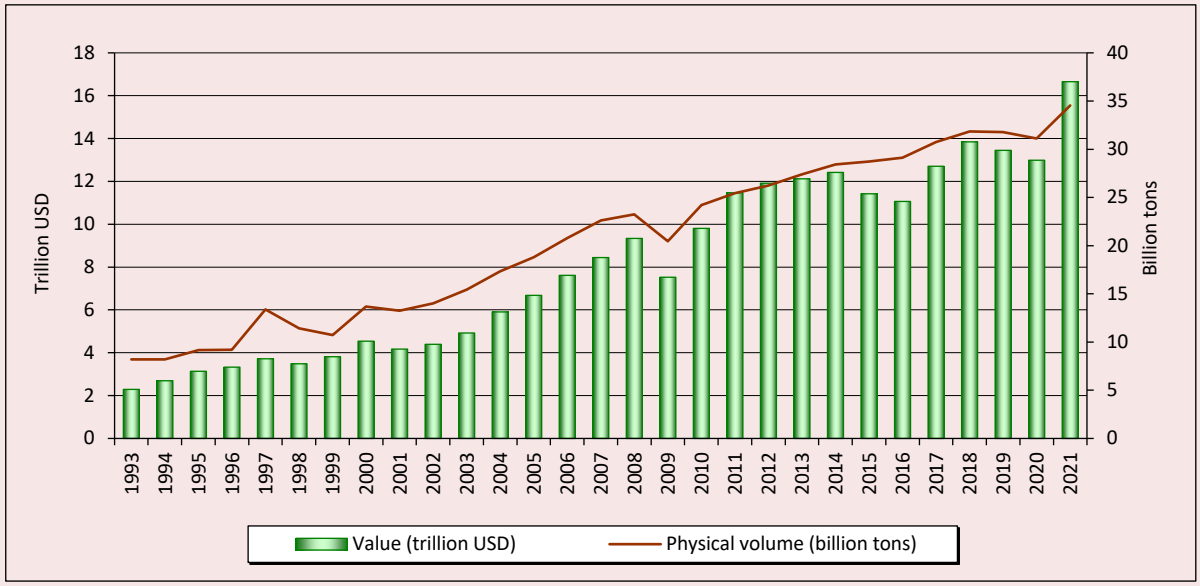
[4] *Review of Maritime Transport 2022.* UNCTAD. Available at: https://unctad.org/publication/review-maritime-transport-2022

is carried out for a long-term period covering 1993–2021. As in the previous study (Izotov, 2023), the APR includes the countries and economic territories of East Asia[5], Australia and Oceania[6], as well as the countries of the Pacific coast of North, Central and South America[7].

Trade interactions and spatial remoteness within the APR

The value of trade within the APR has increased significantly: from 2.2 trillion US dollars in 1993 to 16.7 trillion US dollars in 2021. During the period under consideration, the share of trade between the Asia-Pacific countries amounted to more than 70% of their total trade turnover, indicating a high degree of connectivity between the economies of the subglobal region. With the exception of some episodes related to global and subglobal crises[8], there was a noticeable trend of long-term expansion of trade interactions in the APR *(Fig. 1)*.

Figure 1. Trade turnover within the APR: value and physical characteristics



Note: we calculated the data on the physical volume of trade turnover for 2002–2021 on the basis of UNCTAD physical volume indices for exports and imports and statistics provided by the World Bank, RIETI, CEPII, CEIC[9].

Sources: UNCTAD, World Bank, RIETI, CEPII, CEIC, own calculations.

[5] Brunei, East Timor, Vietnam, Hong Kong (SAR of the People's Republic of China), Indonesia, Cambodia, China, Laos, Macau (SAR of the People's Republic of China), Malaysia, Mongolia, Myanmar, Papua New Guinea, Republic of Korea, Russia, Singapore, Thailand, Taiwan, Philippines and Japan.

[6] Vanuatu, Kiribati, Marshall Islands, Nauru, New Zealand, New Caledonia, Palau, Samoa, Solomon Islands, Tonga, Tuvalu, Wallis and Futuna, Federated States of Micronesia, Fiji and French Polynesia.

[7] Guatemala, Honduras, Canada, Colombia, Costa Rica, Mexico, Nicaragua, Panama, Peru, El Salvador, USA, Chile and Ecuador.

[8] Asian financial crisis (1997–1998); "dot-com bubble" (2001); world economic crisis (second half of 2008 – first half of 2009); financial crisis (late 2014 – 2015); recession of the world economy due to COVID-19 (late 2019 – 2020).

[9] The statistics reflecting the dynamics of physical volumes of trade between the Asia-Pacific countries for 1993-2021 are not fully reflected in the public domain. We accumulated the values of physical volumes of trade between the Asia-Pacific countries for 1993–2001 from World Bank, RIETI, CEPII, CEIC databases. As a starting point for evaluating earlier data, the values of physical volumes of trade in the Asia-Pacific region for 2001 were used, which, by multiplying by the indices of the physical volume of exports and imports of UNCTAD for trade between the countries of the subglobal region, allowed calculating the values of the corresponding indicator for 2002–2021.

One of the points characterizing the expansion of mutual trade is the increase in the physical volume of trade in the APR from at least 8.2 billion tons in 1993 to 34.5 billion tons in 2021. An estimate of the value of one ton of goods traded in the APR in 2021 prices indicated its reduction from 523 US dollars in 1993 to 482 US dollars in 2021. This circumstance suggests that the restraining influence of spatial remoteness on trade flows has weakened in the APR over the period under consideration. This assumption needs to be confirmed by assessing the impact of physical distances on trade in the APR.

To obtain such an estimate, it is important to choose the values of physical distances between countries, which is a separate research task due to the lack of reliable aggregated statistics based on real transport routes for this indicator. One of the widely used ways to estimate physical distances between trading countries is to calculate this indicator based on their coordinates on the Earth's surface. In this case, the *basic value*s of physical distances between countries are calculated as follows:

$$d_{kl} = 6381 \times \arccos \times \left(\left[\sin\left(Y_i\right) \times \sin\left(Y_j\right)\right] + \right.$$
$$\left. + \left[\cos\left(Y_i\right) \times \cos\left(Y_j\right) \times \cos\left(X_i - X_j\right)\right]\right),$$

where d_{kl} – physical distance between agglomerations k and l of countries i and j, respectively (in kilometers), X – longitude in degrees, Y – latitude in degrees[10]. The values d_{kl} are reflected in the CEPII database; they are based on the calculation of the shortest distances between two points on the Earth's surface[11], which use the geographical coordinates of the largest agglomerations of trading partner countries.

Physical distances within the countries were calculated as follows (Head, Mayer, 2010): $d_{ii} = 2/3 \times \sqrt{area/\pi}$, where d_{ii} – physical distance within country i; area – *area* of the country; π – pi value. Applying this technique to estimate physical distances within countries is based on the theoretical assumption (Head, Mayer, 2010) that in the economic space production is significant in a central location, and consumers are distributed at even distances from it, which greatly simplifies finding the values of this parameter and is a widespread way to estimate d_{ii} in gravitational modeling (Baier et al. al., 2018; Yotov, 2022).

Using basic values of physical distances to determine transport costs is controversial (Head, Mayer, 2010) due to the fact that the size of the markets of trading economies is not taken into consideration, which is important for constructing a gravity dependence. For this reason, to assess the impact of spatial remoteness on trade, effective values of physical distances can be used, obtained by adjusting the basic values of this indicator for the population of trading economies and bringing it to an arithmetic mean or harmonic mean value[12]:

$$\left(\sum_{k \in i}\left(pop_k / pop_i\right) \times \sum_{l \in i}\left(pop_l / pop_j\right) \times d_{kl}^{\rho}\right)^{1/\rho},$$

where pop_k – population of metropolitan area k in country i; pop_i – population of country i; pop_l – population of metropolitan area l in country j; pop_j – population of country j; ρ – elasticity of trade flows between countries to the physical distance between them. In the case of $\rho = 1$, the effective distance is expressed as an arithmetic mean (Anderson, van Wincoop, 2003); if $\rho = -1$, – harmonic mean (Head, Mayer, 2010), respectively. The obtained values of physical distances within the countries and economic territories of the APR are also adjusted for the corresponding parameters of the elasticity of trade flows to distance.

The values of physical distances between the APR countries, calculated by the above methods (basic, arithmetic mean and harmonic mean), differ

[10] Provided that Y is measured in degrees of west longitude, the values of X and Y are converted to radians by multiplying by 57.3 and -57.3, respectivelyю

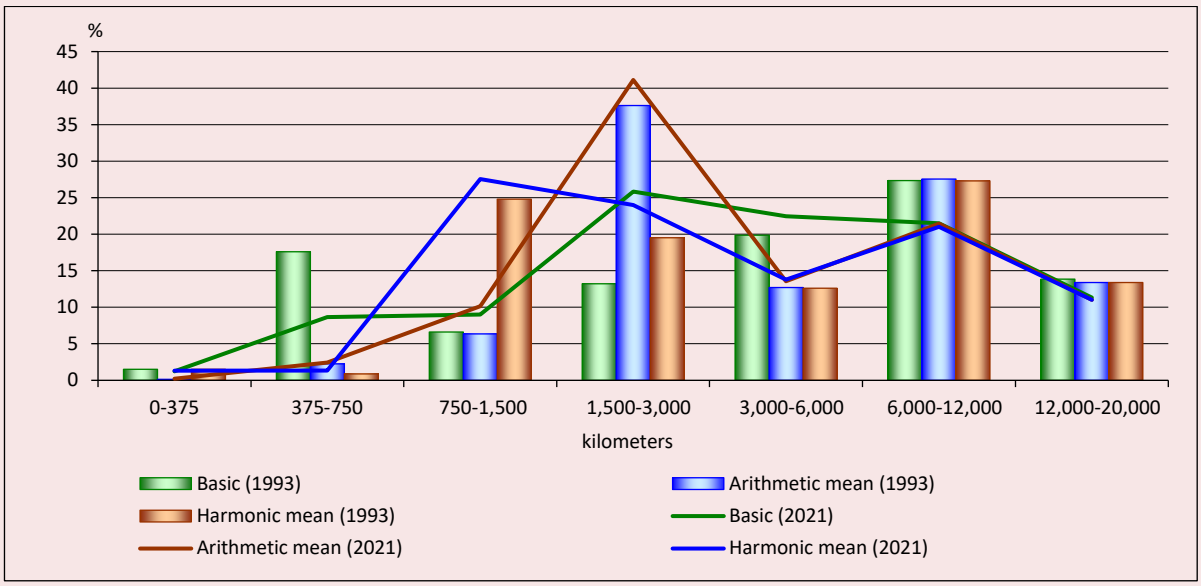
[11] Head K. *Gravity for Beginners*. October 22, 2000. Available at: https://artnet.unescap.org/tid/artnet/mtg/gravity10_reading1.pdf

[12] Conte M., Cotterlaz P., Mayer T. *The CEPII Gravity Database*. CEPII Working Paper No 2022-05. Available at: http://www.cepii.fr/CEPII/en/publications/wp/abstract.asp?NoDoc=13432

from each other. These discrepancies may affect the assessment of the impact of physical distance on trade in the APR. To visually reflect the correspondence between the values of bilateral trade and the physical distance between the trading countries of the subglobal region, we constructed a diagram *(Fig. 2)* reflecting the structure of trade turnover in the APR depending on the intervals of values of physical distances. The allocation of physical distance intervals is used for the purpose of distributing trade flows between countries of the subglobal region: between geographically close countries (0–375 km – high level of proximity; 375–750 km – average level of proximity; 750–1,500 km – low level of proximity); between geographically remote countries (1,500–3,000 km – low level of remoteness; 3,000–6,000 km – average level of remoteness; more than 6,000 km – high level of remoteness). Physical distance intervals were constructed on the basis of previously conducted empirical studies (Eaton, Kortum, 2002; Head, Mayer, 2013) with the following exception: to analyze the change in the comparative share of trans-Pacific trade, the distance interval exceeding 6 thousand km was decomposed into two intervals: from 6 to 12 thousand km; from 12 to 20 thousand km.

The analysis showed that, regardless of the considered values of physical distances, the distribution of trade turnover in the APR by 2021, compared to 1993, has changed due to an increase in trade in the range from 0.75 to 6 thousand km, i.e. between economies located within the western and eastern parts of the APR, respectively. At the same time, the share of trans-Pacific trade in intraregional trade decreased during the period under consideration, indicating a clear fragmentation of the Asia-Pacific economic space, in which the countries and economic territories of East Asia and, noticeably lagging behind them, the countries of the North American Free Trade Area (USA, Canada and Mexico) began to play a leading role

Figure 2. Structure of trade turnover in the APR depending on the intervals of different values of physical distances



Note: the trade turnover structure in the APR is presented according to the following values of physical distances: basic; arithmetic mean and harmonic mean effective distances.

Source: own calculation based on statistics from UNCTAD, World Bank, RIETI, CEPII, CEIC.

in intensifying trade. This circumstance indicates that, all other things being equal, in the long term, the growth of large and geographically neighboring economies contributed to a comparative increase in the concentration of trade in the APR in favor of close and capacious markets.

Regarding the array of different values of physical distances (basic, arithmetic mean and harmonic mean values) used in the study, we can point out that for the transport distance between the APR countries exceeding six thousand km, the values of trade turnover between them are similar. Moreover, the analysis of the structure of trade turnover in the APR, depending on the physical distances between the countries, confirmed the presence of discrepancies in the ratio between the values of physical distances and trade within 0–6 thousand km. Thus, as of 2021, according to the basic and arithmetic mean values of physical distance, the largest share of trade between the APR countries was recorded in the range of a low level of remoteness – 1.5–3 thousand km, and according to the harmonic mean value – in the range of 0.75–1.5 thousand km, i.e. within the low level of proximity. Accordingly, such discrepancies may affect the assessment of the impact of physical distance on trade in the APR. For this reason, in order to obtain more accurate estimates, we will use all three types of the above values of physical distances.

Assessment methodology and data

Assessment methodology. The assessment of the factors determining trade in the APR is based on the theoretical form of gravitational dependence between countries i and j, which is expressed as follows (Anderson, van Wincoop, 2003):

$$X_{ij} = \frac{E_j Y_i}{Y} \times \left(\frac{t_{ij}}{P_j \Pi_i}\right)^{1-\sigma}, \quad (1)$$

where: X_{ij} – cost of delivering goods from the point of departure (country) i to the destination (country) j; E_j – total expenses in j from all points of departure (countries); Y_i – sale of goods from point (country) i to all destinations (countries); Y – world output; $t_{ij} > 1$ – factor of variable trade costs when moving goods from i to j; $\sigma > 1$ – constant elasticity of substitution between domestic and foreign goods; P_j – internal multilateral resistance reflecting the costs of consumers j if they purchased goods on the world market, i.e. $P_j^{1-\sigma} = \sum_i \left(\frac{t_{ij}}{\Pi_i}\right)^{1-\sigma} \times \frac{Y_i}{Y}$; Π_i – external multilateral resistance reflecting the trade costs faced by manufacturers in i if they supplied their products to the world market, i.e. $\Pi_i^{1-\sigma} = \sum_j \left(\frac{t_{ij}}{P_j}\right)^{1-\sigma} \times \frac{E_j}{Y}$.

It follows from formula (1) that trade between countries i and j negatively depends on t_{ij} in comparison with multilateral external and internal resistance. This relationship is explained as follows: the more difficult the trade of countries i and j with other countries, the more incentives are created for mutual trade between i and j. Taking into account multilateral resistance in gravitational modeling significantly improved the quality of subsequent econometric estimates of foreign trade factors, and also led to a revision of previously obtained quantitative results (Baier et al., 2018). Therefore, taking into account external and internal multilateral resistance in gravitational modeling is one of the key procedures necessary to obtain correct estimates of the impact of factors on trade (Yotov, 2022).

The theoretical form of gravity dependence (1) includes domestic trade and domestic costs of country i, i.e. parameters X_{ii} and t_{ii}, respectively (Yotov, 2012). It is necessary to include domestic trade and domestic costs in the model so as to obtain a correct assessment of the consequences of expanding trade interactions, taking into account the deviation of trade in favor of the domestic market, which affects barriers to international trade, i.e. the spatial distance of countries from each other (physical distance) and other fundamental factors (Yotov, 2012). To obtain a correct assessment, the comprehensive accounting of the costs of domestic trade is similar to the accounting of fixed effects for a particular country, including not only the costs associated with overcoming internal distances, but also any other barriers, e.g. the deviation of trade

in favor of the domestic market (Borchert, Yotov, 2017). Under this approach, the trade costs of interaction with foreign countries for country *i* will be relative to its domestic costs.

Taking into account the accumulated recommendations for the assessment of modern gravity dependencies, the following algorithm is used. First, the gravity model is evaluated based on panel data (as a single panel). The panel data array, in addition to trade and physical distances between countries, includes domestic trade and domestic physical distances (Borchert, Yotov, 2017), and is also represented by time intervals (Egger et al., 2022), allowing to avoid underestimation due to the manifestation of effects delayed within a particular time interval. Second, external and internal multilateral resistance is controlled by fixed effects for the exporting/importing country, taking into account time factor (Baier et al., 2018). Third, the impact of all time-independent bilateral trade costs is controlled by fixed effects for the pairs of countries engaged in trade (Yotov, 2022). Fourth, in order to avoid the problem of heteroscedasticity, model specification errors caused by an incorrectly selected functional form, and in order to include "zero" trade flows, the gravity equation is estimated in multiplicative form by the Poisson quasi-maximum likelihood estimator (Santos Silva, Tenreyro, 2006).

To address the tasks set in our study and complying with the above recommendations, the empirical form of model (1) is based on the method of solving the "distance puzzle" for gravity dependencies (Yotov, 2012; Borchert, Yotov, 2017), i.e. by including internal physical distances for trading countries in the panel. In addition to physical distances, in order to obtain correct estimates in the empirical model, it is recommended (Yotov, 2012) to include other factors fundamental to gravity dependence, reflected as dummy variables, namely: land border; language commonality; colonial past. The influence of other variables, unchanged and changing over time, is taken into account in fixed effects.

As a result, the estimated gravity dependence is based on Y. Yotov's specification (Yotov, 2012). Since, in accordance with the objectives of the study, it is necessary to assess the dynamics of the influence of physical distance and land border on trade between the APR countries, the calculation of the effects of these parameters is carried out for each year (Borchert, Yotov, 2017), and the estimated gravity dependence is as follows:

$$X_{ij,t} = \\ = \exp\begin{bmatrix}\beta_0 + \beta_1 LANG_{ij} + \beta_2 CLNY_{ij} + \sum_{T=1993}^{2021} \beta_T \ln DIST_{T_{ij}} + \\ + \sum_{T=1993}^{2021} \beta_T \, CNTG_{T_{ij}}\end{bmatrix} \times \exp\left[\pi_{i,t} + \chi_{j,t} + \mu_{ij}\right] \times \\ \exp[\varepsilon_{ij,t}], \quad (2)$$

where: X_{ij} – exports from country *i* to country *j* (this indicator also includes X_{ii} – trade within country *i*); $LANG_{ij}$ – dummy variable that takes a value equal to one if countries *i* and *j* have a common language, and zero if otherwise; $CLNY_{ij}$ – dummy variable that takes a value equal to one if countries *i* and *j* were part of any colonial system (both as a dependent territory and a mother country) and zero if otherwise; $\ln DIST_{T_{ij}}$ – natural logarithm of the physical distance between countries *i* and *j* for each year *T* (this indicator also includes $\ln DIST_{T_{ii}}$ – natural logarithm of the physical distance in the framework of country *i* for each year *T*); $CNTG_{T_{ij}}$ – dummy variable that takes a value equal to one, for the presence of land border between countries *i* and *j* for each year *T* and zero in its absence; β_0 – constant; *T* – year; *t* – time period; π_i – fixed effects for the exporting country taking into account the year; χ_j – fixed effects for the importing country taking into account the year; μ_{ij} – fixed effects for pairs of trading countries; ε – error vector.

Data. Our study used panel data with a lag of four years (1993, 1997, 2001, 2005, 2009, 2013, 2017 and 2021). Within the framework of the dependent variable, statistics were used reflecting the value volumes of domestic trade of the Asia-Pacific economies and their trade with each other. In order to avoid incorrect estimates (Baldwin, Taglioni, 2006), trade statistics were presented in

current prices, as well as in billions of US dollars to simplify calculations within the framework of the multiplicative model.

The availability of statistics on domestic trade (X_{ii}) was a key parameter for obtaining correct estimates. The study used one of the most common ways to calculate the value of domestic trade in national economies, which is to determine the difference between the value of goods produced in the national economy and exports (Bergstrand et al., 2015). The cost volumes of products produced in the economies of the APR were collected from special statistical databases (UNIDO, CEPII, CEIC, FAO (UN)), as well as statistical agencies of the countries of the subglobal region. However, for some countries and economic territories of the APR, it was not possible to determine the value of their domestic trade: Vanuatu, East Timor, Kiribati, North Korea, Marshall Islands, Nauru, New Caledonia, Palau, Samoa, Solomon Islands, Tuvalu, Wallis and Futuna, French Polynesia. Therefore, these economies were excluded from the estimated panel; this fact is not essential, since their total share in the intraregional trade turnover of the APR by 2021 did not exceed 0.1%. As a result, 36 Asia-Pacific economies were selected to form the data array: Australia, Brunei, Vietnam, Guatemala, Honduras, Hong Kong (SAR of the People's Republic of China[13]), Indonesia, Cambodia, Canada, China, Colombia, Costa Rica, Laos, Macau (SAR of the People's Republic of China), Malaysia, Mexico, Mongolia, Myanmar, Nicaragua, New Zealand, Panama, Papua New Guinea, Peru, Republic of Korea, Russia, El Salvador, Singapore, USA, Thailand, Taiwan, Tonga, Fiji, Philippines, Chile, Ecuador and Japan.

Statistical data on trade between the Asia-Pacific countries (X_{ij}) were taken from the databases of UNCTAD, World Bank, RIETI, CEPII, CEIC. In occasional cases, if export data for some Asia-Pacific countries were not available, we used "mirror statistics" of imports from their partner countries, which were reduced to FOB prices.

The colonial past ($CLNY_{ij}$) is taken into account for the period of the 19th – mid-20th century, covering the affiliation of certain modern countries and economic territories of the APR to the following empires: the Spanish Empire (Guatemala, Honduras, Colombia, Costa Rica, Mexico, Nicaragua, Panama, Peru, El Salvador, Chile, Ecuador); British Empire (Australia, Brunei, Hong Kong, Canada, Malaysia, Myanmar, New Zealand, Papua New Guinea, Singapore, Tonga, Fiji); Qing Empire (Hong Kong, China, Macau, Mongolia, Taiwan); Empire of Japan (Republic of Korea, Taiwan, Japan); French Empire (Indochina: Vietnam, Cambodia, Laos). Also, within the framework of the period under consideration, the "mother country – dominion" interaction between the United States and the Philippines was taken into account, which, according to the CEPII database, was included in the "integration field" of the British Empire. The belonging of a number of countries and economic territories of the APR to other colonial systems was not considered in the array, since some mother countries controlled either one country (while not belonging to the region geographically), or, for a short time, only part of the territories of modern countries of the subglobal region[14], despite their notable attempts at active military and political participation in one or another part of the Pacific Ocean at the specified time.

In the course of the study, when forming an array of dummy variables to evaluate the $LANG_{ij}$ parameter, we found that linguistic communities in the APR were formed under the influence of past economic and political processes, which sometimes superimposed on each other (for example, large-scale migrations, as well as the existence of colonial systems that united various peoples within a single "language field"). In the APR as a whole, there are several dominant languages, either official or

[13] Special Administrative Region of the People's Republic of China.

[14] The Russian Empire – Northeast China, the Dutch Empire – Indonesia, the Portuguese Empire – Macau, the German Empire – the northern part of Papua New Guinea.

used along with official ones: Chinese, English and Spanish. Some countries of the APR are characterized by the presence of large Chinese diasporas; this fact allows them to be attributed to the "language field" of the Chinese language, the hieroglyphic script of which is common, despite the various dialects of the language and some simplification of writing that occurred in the 1960s in the PRC. In the study, Singapore and Malaysia are classified as the "language field" of the Chinese language in addition to China, Hong Kong, Macau and Taiwan as countries with a significant proportion of the Chinese diaspora in the total population. The "language field" of the English language includes those countries and economic territories of the APR, which were previously either part of the British Empire (Australia, Hong Kong, Canada, New Zealand, Singapore, USA), or were "under the care" of English-speaking countries, which allowed them to form a single language for communication (Papua New Guinea, Tonga, Fiji, Philippines). Spanish within the framework of the former Spanish possessions is the official language in all Latin American countries geographically belonging to the APR[15]; this fact was taken into account when forming the array of the corresponding dummy variable.

Physical distance is the key parameter in assessing the impact of geographical factors on trade. Statistics on physical distances included data on the distances between countries and economic territories of the APR ($DIST_{ij}$) and within them ($DIST_{ii}$) so as to record transport costs in domestic markets. To determine the more accurate effect of this parameter on trade, three arrays of physical distances are used: basic distance values; arithmetic mean effective distance; harmonic mean effective distance.

The study took into account data on the presence of land border ($CNTG_{ij}$) between the following countries and economic territories of the APR: Brunei – Malaysia; Cambodia – Laos; Cambodia – Thailand; Cambodia – Vietnam; Canada – USA; Chile – Peru; PRC – Hong Kong; PRC – Macao; PRC – Laos; PRC – Mongolia; PRC – Myanmar; PRC – Russia; PRC – Vietnam; Colombia – Ecuador; Colombia – Panama; Colombia – Peru; Costa Rica – Nicaragua; Costa Rica – Panama; Ecuador – Peru; El Salvador – Guatemala; El Salvador – Honduras; Guatemala – Honduras; Guatemala – Mexico; Honduras – Nicaragua; Indonesia – Malaysia; Indonesia – Papua New Guinea; Laos – Myanmar; Laos – Thailand; Laos – Vietnam; Malaysia – Singapore; Malaysia – Thailand; Mexico – USA; Mongolia – Russia; Myanmar – Laos; Myanmar – Thailand.

As a result, the descriptive statistics of the data array have the following characteristics *(Tab. 1)*.

Table 1. Descriptive statistics of the data array we used

Variable	Mean	Standard deviation	Min.	Max.
Exports (X_{ij}), billion USD	3.31	0.20	0	577.13
Domestic trade (X_{ii}), billion USD	541.73	114.33	0.03	11245.77
Distance between countries ($DIST_{ij}$), km	–	–	–	–
Basic value of distance	9390.38	6014.67	60.77	19812.04
Arithmetic mean effective distance	9323.25	5987.45	60.77	19650.13
Harmonic mean effective distance	9273.27	6015.29	60.77	19649.83
Distance inside countries ($DIST_{ii}$), km	–	–	–	–
Basic value of distance	337.76	387.50	1.88	1554.24
Arithmetic mean effective distance	408.87	444.38	1.88	1853.80
Harmonic mean effective distance	78.43	69.73	0.22	305.74
Source: own calculation.				

[15] From the point of view of dummy variables for the Spanish-speaking countries of the Asia-Pacific region, their language commonality coincides with the fact that they were in the past within the framework of the Spanish Colony.

Table 2. Assessment results for model (2)

Variable	1	2	3
LANG	0.05 (0.14)	0.12 (0.15)	0.08 (0.15)
CLNY	-0.13 (0.09)	-0.18 (0.11)	-0.16 (0.11)
$\ln DIST_{1993}$	-0.56* (0.04)	-0.66* (0.05)	-0.61* (0.04)
$\ln DIST_{1997}$	-0.53* (0.04)	-0.63* (0.05)	-0.57* (0.04)
$\ln DIST_{2001}$	-0.53* (0.04)	-0.62* (0.05)	-0.57* (0.04)
$\ln DIST_{2005}$	-0.52* (0.04)	-0.62* (0.05)	-0.56* (0.04)
$\ln DIST_{2009}$	-0.54* (0.04)	-0.63* (0.05)	-0.58* (0.04)
$\ln DIST_{2013}$	-0.52* (0.04)	-0.62* (0.05)	-0.56* (0.04)
$\ln DIST_{2017}$	-0.51* (0.04)	-0.61* (0.05)	-0.55* (0.04)
$\ln DIST_{2021}$	-0.48* (0.04)	-0.58* (0.05)	-0.52* (0.04)
$CNTG_{1993}$	0.83* (0.13)	0.85* (0.14)	0.65* (0.15)
$CNTG_{1997}$	1.16* (0.13)	1.14* (0.13)	0.95* (0.13)
$CNTG_{2001}$	1.21* (0.12)	1.18* (0.11)	1.00* (0.12)
$CNTG_{2005}$	1.17* (0.12)	1.15* (0.11)	0.97* (0.12)
$CNTG_{2009}$	1.07* (0.13)	1.04* (0.12)	0.85* (0.12)
$CNTG_{2013}$	1.20* (0.12)	1.16* (0.11)	0.99* (0.11)
$CNTG_{2017}$	1.20* (0.13)	1.16* (0.11)	0.99* (0.12)
$CNTG_{2021}$	1.18* (0.13)	1.13* (0.12)	0.98* (0.12)
Constant	8.07* (0.72)	7.42* (0.79)	6.81* (0.79)
Pseudo log-likelihood	-9158	-9069	-9096
Pseudo R^2	0.99	0.99	0.99
RESET-test (Prob > chi2)	0.04	0.05	0.02
Number of observations	10368	10368	10368
$\Delta\ln DIST_{1993\text{-}2021}$, %	-14.72* (1.96)	-12.73* (1.67)	-13.93* (1.84)
$\Delta CNTG_{1993\text{-}2021}$, %	73.69** (26.00)	56.04** (28.88)	80.41** (38.52)

Note: * $p < 0.01$; ** $p < 0.05$. 1–3 – different dependencies within the framework of model (2): 1 – dependence with the basic value of physical distance; 2 – dependence with the arithmetic mean effective physical distance; 3 – dependence with the harmonic mean effective physical distance. Robust values of standard errors are indicated in parentheses.
$\Delta\ln DIST_{1993\text{-}2021} = ([\ln DIST_{2021} - \ln DIST_{1993}] / \ln DIST_{1993}) \times 100\%$. $\Delta CNTG_{1993\text{-}2021} = ([[e^{CNTG_{2021}} - 1] - [e^{CNTG_{1993}} - 1]] / [e^{CNTG_{1993}} - 1]) \times 100\%$.
Source: own calculation.

Assessment results

The assessment of the coefficients of model (2) indicated a statistically significant dynamic impact of land border and physical distance on trade in the APR (for both basic and effective values; *Tab. 2*).

The calculations show that the negative impact of distance (*DIST*) on trade in the Asia-Pacific countries gradually decreased for all the dependencies obtained: from -0.56 in 1993 to -0.48 in 2021 for the basic value of physical distance (column 1 of Tab. 2); from -0.66 to -0.58 – for the arithmetic mean effective physical distance (column 2 of Tab. 2); from -0.61 to -0.52 – for the harmonic mean effective physical distance (column 3 of Tab. 2). This circumstance indicates the invariance of the choice of values of physical distances for the purpose of identifying a long-term tendency to reduce the negative impact of distance on trade in the APR and confirms the manifestation of gravitational attraction between the economies of the subglobal region in the long term.

The comparative analysis of the Ramsey test (RESET-test) criteria showed that the dependence with the arithmetic mean effective physical distance is generally the most acceptable of all the considered cases (column 2 of Tab. 2). We should note that the estimated values of the arithmetic mean effective physical distance are close to the basic values of the physical distance, confirming the great importance of maritime transportation carried out on linear transport routes[16] in trading between the APR countries (Bertho et al., 2016). As a result, the costs of overcoming physical distance in the APR by 2021, compared with 1993 ($\Delta \ln DIST_{1993-2021}$) decreased by 12.73%, and the estimates obtained confirmed the validity of the hypothesis stated, according to which the negative impact of physical distance on trade in the APR decreased in the long term. The attraction between the economies, which is increasing against the background of the reduction of various kinds of tariff and nontariff barriers due to integration processes, the growth of national economies and the increasing economies of scale of trade in the APR, has contributed to a noticeable reduction in the costs of moving goods between the countries within the subglobal region. As more and more economies were included in trade interactions in the subglobal region, commodity groups that had never been exported from one country or another in the early 1990s began to move within the APR in the 2010s.

The estimates obtained give grounds to assert that in the long term, with the expansion of commodity exchange of international corporations, the changing specialization of the economies in the subglobal region, the expansion of production and consumption of goods, there was a weakening of the deviation of trade in favor of the home market, reducing barriers to trade interactions between the APR economies. We should also note that the recent restrictions in trade interactions in connection with the COVID-19 pandemic did not affect the overall trend of reducing the deterrent effect of spatial remoteness on trade in the APR, indicating the close interdependence between the economies in the subglobal region. Besides, tough competition between maritime carriers in the APR is an important process, which, apparently, had a positive effect on reducing the cost and time of cargo delivery, contributing to the intensification of trade between the economies of the subglobal region (Hummels et al., 2009; Khuziyatov, 2010). If the domestic transportation market is not isolated by serious barriers, then competition between domestic and foreign transport companies can be carried out not only on international routes, but also on the domestic market (Novoseltsev, Kholosha, 2011).

The expansion of trade in the global economy in general and in the APR in particular is, among other things, a consequence of technological progress in transportation (Filina, 2009). Economies of scale,

[16] *Review of Maritime Transport 2022.* UNCTAD. Available at: https://unctad.org/publication/review-maritime-transport-2022

the introduction of innovations and competition between carriers contributed to the fact that the share of transport costs in the total value of traded goods in the APR, estimated rather approximately as the difference between imports in CIF prices and "mirror" exports in FOB prices, decreased from more than 6.0% in 1993 to 1.8% in 2021, confirming the fairness of the estimates obtained and reflected in *Table 2*.

Despite the fact that the bulk of trade turnover in the APR was carried out by sea, the land border had a positive impact on trade interactions in the subglobal region during the period under consideration: from 0.85 in 1993 to 1.13 in 2021 (column 2 of Tab. 2). In 2021, the presence of a land border contributed to an increase in trade turnover between the Asia-Pacific countries by 208.3% ($(e^{1.13} - 1) \times 100\%$) compared to the trade between the countries that do not have a common border, which was similar to the reduction of barriers in tariff equivalent by 28.1% $\left[e^{1.13/(1-\sigma)} - 1\right] \times 100\%$, at $\sigma = 5$ (Anderson, van Wincoop, 2003). In the long term, the positive impact of the presence of a land border increased by more than 56.0% ($\Delta CNTG_{1993-2021}$), or by 74.8 percentage points (208.3% – 133.5%[17]) by 2021 compared to 1993. As a result, the assessments confirmed the validity of the second hypothesis – in the long term we observed a positive impact of the presence of a land border on trade turnover in the APR.

The result obtained is supported by the fact that in the period under consideration, despite the tightening of measures for border migration control by some APR countries, in general, the infrastructure of checkpoints in the border countries of the subglobal region expanded and the time for customs procedures decreased, in particular, within the North American market (Barajas et al., 2014; Olayele, 2019), as well as for the interaction of the PRC with border countries (Izotov, 2020b). The positive impact of the presence of a land border on trade in the APR can also be explained by the absence of military and political confrontations in the region, with the exception of the Korean Peninsula (the DPRK was not included in the analyzed data panel) (Carter, Poast, 2017). Exogenous processes of a crisis nature restrained the positive impact of the presence of a land border on trade interactions between the APR countries: it happened during the 2009 global crisis due to a reduction in global trade and during the COVID-19 pandemic in 2021, when checkpoints were occasionally closed in order to ensure national security measures to localize the spread of coronavirus, especially in the case of the border with China. For this reason, the positive impact of the presence of a land border on trade between the APR countries in 2021 decreased compared to 2017.

The assessment indicates that the colonial past (*CLNY*) did not have a statistically significant impact on trade in the APR. This supports the findings of several empirical studies (Head et al., 2010; Jacks et al., 2011) according to which the processes of relatively free exchange of goods, integration at the global and regional levels, the disappearance of the formerly unified "institutional framework" characterized by some features of a closed trading bloc, lead to the gradual weakening and subsequent destruction of the close economic interactions formed in the past between the former mother country and its dominions or between former dominions within the framework of the former colonial system.

The parameter of language commonality (*LANG*) also had no statistically significant impact on trade interactions in the APR in the period under review[18]. We should note that in the modern world,

[17] $(e^{0.85} - 1) \times 100\% = 133.5\%$.

[18] The exclusion of the CLNY and LANG factors from model (2) leads to a noticeable decrease in the values of the Ramsey test (RESET-test), indicating the need to include language commonality and colonial past in the model, despite their statistical insignificance.

language commonality as a whole has little or no effect on trade turnover between countries, since over the past three decades procedures for export-import operations have been significantly simplified and are effectively serviced by relatively small professional groups. As for the APR, trade interactions in this region are mainly carried out between the three major world economies (the United States, China and Japan), which use different official languages. In addition, the APR has economies such as Hong Kong and Singapore, which successfully perform intermediary functions between the countries of Southeast Asia, China and the United States, thereby leveling the negative effects of the lack of a common language in the largest economies of the subglobal region. In turn, the Spanish-speaking countries of the APR mainly trade with the United States and East Asian countries, rather than with each other.

Conclusion

Over the past three decades, trade between the countries and economic territories of the APR has significantly intensified due to the high level of connectivity of the economies. In 1993–2021, the growth of large and geographically close economies contributed to an increased deviation of trade in the APR in favor of relatively close and capacious markets, indicating the manifestation of fragmentation of the economic space in the subglobal region. At the same time, in general, there was a reduction in the transportation costs by an average of one ton of traded goods in the APR in real prices.

Physical distance is the key parameter in assessing the impact of geographical factors on trade in the APR. To determine the more accurate effect of this parameter on trade, several types of values were used: basic; arithmetic mean effective and harmonic mean effective values of physical distances.

The estimates obtained within the framework of the modern methodological approach to the construction of gravity models, on the one hand, confirmed the validity of the hypothesis about the long-term reduction of the negative impact on trade between the APR economies; on the other hand, the estimates proved the invariance in the choice of values of physical distances to determine the trend of the influence of geographical factors on trade in the subglobal region. In addition, based on formal criteria, it was determined that using the arithmetic mean effective physical distance as a key parameter of the gravity model is more acceptable for obtaining correct estimates of the influence of geographical factors on trade in the APR compared with other types of distance. As a result, the assessment showed that the cost of overcoming physical distance in the APR by 2021, compared with 1993, decreased by almost 13%, which is higher than the previously obtained values for the global economy as a whole (Borchert, Yotov, 2017). This confirms the high intensity of commodity exchange and the presence of dynamic characteristics of the impact of geographical factors on trade in the subglobal region.

Further, the estimates obtained confirmed the validity of the second hypothesis about the presence of a long-term positive impact of the land border on trade turnover between the Asia-Pacific countries, despite the fact that the bulk of trade in the subglobal region was carried out by sea. In 2021, the presence of a land border contributed to an increase in trade turnover between the Asia-Pacific countries by 208.3%. The positive impact of the land border has increased by more than 56% by 2021 compared to 1993, which may be explained by the development of the capacity of the border infrastructure, the absence of serious military and political confrontations in the APR. At the same time, exogenous processes of a crisis nature restrained the positive impact of the presence of a land border on trade in the APR.

As for other factors, such as the colonial past and language commonality, the assessment did not

show their statistically significant impact on trade in the APR. First, in a relatively barrier-free environment for the movement of goods, as well as in conditions when relative costs of transporting goods decrease due to the dominance of gravitational attraction between countries, economies began to converge in terms of expanding trade interactions both between natural trading partners located nearby and with geographically remote economies. Thus, the colonial ties that existed in the recent past, formed in some cases on a non-economic basis, were leveled. Second, gravitational and integration processes in the APR helped to overcome the barrier such as the lack of a single language and, in general, did not contribute to the manifestation of special advantages from language commonality for expanding trade in the subglobal region, which is partly confirmed by empirical studies for long-term periods at the global economic level (Borchert, Yotov, 2017; Jacks et al., 2011).

Assessing the impact of geographical factors on trade turnover in the APR is an important aspect for studying the dynamics of economic connectivity in the subglobal region, in favor of which Russia has been striving to intensify its foreign trade over the past decade. In fact, the assessment of the influence of geographical factors on trade indicated the manifestation of long-term fundamental processes in the subglobal region associated with the intensification of trade interactions in conditions of reduced barriers and the dominance of gravitational attraction between the Asia-Pacific economies. Prerequisites are being created for the formation of a highly competitive commodity exchange in the subglobal region and its desire for effective Pareto equilibrium within one or another part of the APR in conditions of inevitable fragmentation of the economic space. Accordingly, the reduction in exports by any small economy to the APR, which includes Russia due to its modest share in intraregional trade, while reducing comparative transport costs, in most cases can be offset by supplies from any other country in the subglobal region. Since the cost of transportation of raw materials for the end user is more noticeable in comparison with products with high added value, the comparative reduction of transport costs for the transportation of such goods becomes an important element of competitive advantages for the Asia-Pacific countries specializing in the export of raw materials, which includes Russia.

Within the framework of the current severe restrictions on Russian products on foreign markets from developed countries, in the context of the general dynamics of reducing comparative transport costs in the APR, an increase in such costs can limit the geographical distribution of exports from Russia; thus, Russian exports will be focused more and more on the country's neighboring markets, where significant barriers to the admission of these goods have not yet been created. Despite Russia's being among the top eight countries – the largest owners of naval vessels in the world (Fan et al., 2018), which, all other things being equal, allows it to maintain close interactions with global markets for a long time, the Russian economy within the APR will increasingly be influenced by the gravitational pull of the Chinese economy due to the creation of barriers to medium and long-distance maritime transport in the Pacific region by narrowing the possibilities for transportation and insurance of supplies, in fact de-diversifying the geography of its trade in favor of the nearby markets of East Asia. On the other hand, the expansion of trade with China through land border checkpoints may soon become one of the main components in maintaining the functioning of a number of traditional sectors of the Russian economy, even despite the risks associated with the negative effects of monopsony.

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Catching-up and Outstripping Development of the Russian Pharmaceutical Industry

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Abstract. The paper assesses the effectiveness of the Russian pharmaceutical industry so as to determine the prospects for achieving self-sufficiency in drug provision and pharmaceutical leadership in the domestic market, more than half of which is occupied by foreign drugs. Effectiveness is considered in terms of achievements in import substitution (catching-up scenario), and in the development of domestic drugs (outstripping scenario). A comparison of the main economic indicators for leading foreign and Russian pharmaceutical companies reflects a disadvantaged position of the latter. The governmental target setting for domestic pharmaceutical production is compromised by interdepartmental inconsistency in the lists of essential drugs. A selective analysis of the implementation of the import substitution plan by the Ministry of Industry and Trade of Russia since 2015 has revealed that, even on formal grounds, Russia still has not established a full-fledged production of many drugs (in particular, the dependence on foreign active pharmaceutical substances still remains, and there are very few domestic manufacturing

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companies). The premise concerning fundamental impossibility to implement the outstripping scenario is substantiated by the fact that there is an insignificant number of original drugs for which Russian developers initiated clinical trials in 2020–2022. The results obtained show that the current situation in the Russian pharmaceutical industry does not promote the achievement of drug self-sufficiency. A proposal to consolidate assets, coordinate production programs and research agendas for accelerated and full-fledged import substitution was put forward. Prospects for research in the field of import substitution are related to deepening the analysis of production indicators, increasing sales, as well as enhancing clinical characteristics of reproduced drugs compared to foreign analogues. In the sphere of analyzing the innovativeness of pharmaceutical production, it seems advisable to methodologically elaborate on identifying original drugs and include this indicator in the industry management.

Key words: drug self-sufficiency, pharmaceutical industry effectiveness, pharmaceutical import substitution, public administration.

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Introduction

Foreign drugs have seized more than half of the Russian pharmaceutical market, virtually ousting Russia's state-owned enterprises from the pharmaceutical industry and leaving Russian private companies with no other option but to function in a catching-up mode at best. The weak position of the Russian pharmaceutical industry in the domestic market generates major demographic risks to national security. The restoration of the industry is seen as a long-term governmental project, comparable in importance, for example, with the revival of civil aircraft or microelectronics. The paper continues the work (Gusev, Yurevich, 2023) in terms of analyzing the initial prerequisites and tactics of the anti-crisis mobilization model for the development of the Russian pharmaceutical industry.

As for the share of the pharmaceutical industry in its GDP, Russia, with an indicator of 0.4% (2020), lags behind Brazil (0.6% of GDP) and 12 times behind Switzerland (4.8% of GDP); this fact highlights significant potential for growth (Balatsky, Ekimova, 2023). We will not consider the scale of the industry in more detail here; rather, we will dwell on its internal structure and key performance indicators that help to see the available opportunities.

At the same time, we cannot say that federal authorities are not aware of Russia's significant lack of independence in the field of drug production. In 2010, the Russian Government issued a list of drugs that must be produced by Russian companies. Since 2015, the Ministry of Industry and Trade of Russia prepared and has been implementing import substitution plans in the pharmaceutical industry. The state program "Development of the pharmaceutical and medical industry"[1] has been in operation for almost 10 years. However, despite the efforts undertaken by the government, including financial investments, the dependence on foreign drugs is not being reduced in favor of Russia's national interests.

[1] RF Government Resolution 305, dated April 15, 2014.

The aim of our work is to assess the effectiveness of the Russian pharmaceutical industry in order to understand the prospects for achieving drug self-sufficiency[2] and pharmaceutical leadership[3].

The effectiveness of Russian pharmaceutical production is considered in two related areas. The first one is a catching-up scenario of import substitution, when the task is to reproduce foreign drugs used in Russia[4]. Such import substitution has technological and economic specifics.

We should emphasize that the production of drugs within the country, even if there is a registration certificate in the name of a Russian organization, is not considered import substitution if such drugs are made on the basis of foreign pharmaceutical ingredients. In this case domestic companies perform secondary operations: dispensing, packaging, and final quality control. Thus, from the technological viewpoint, it is a mandatory requirement to master the production of active pharmaceutical ingredients (APIs) in Russia. In turn, this affects independence from foreign supplies in terms of production equipment, components and materials.

Another technical criterion for successful import substitution is the preservation of consumer characteristics in the reproduced drug (API) in terms of effectiveness and safety, which is determined by a set of factors (purity of the substances used, adequacy of the substitutes used, production quality, etc.). The characteristics may be compared by performing laboratory tests and surveying people who take the drugs.

From an economic point of view, full-fledged import substitution, including in terms of API production, assumes that there is no shortage of domestic products on the internal market, minimizes or excludes the import of finished drugs (APIs). If the production of an essential API is mastered by small businesses and is invisible on an industry scale, then the full-fledged import substitution scenario has not been implemented so far.

Under a catching-up scenario it becomes important to bridge the gap between Russian and foreign manufacturers. Methodologically, this effect needs comprehensive elaboration. One of the most accessible possibilities is to analyze the implementation of state import substitution plans.

The second area to promote effectiveness is to implement an outstripping development scenario for the Russian pharmaceutical industry. This scenario is an accelerator of catching-up import substitution. Outstripping refers to innovation activities in the development of original (new) drugs, i.e. unique products both for Russia and the world[5]. Stable and consistent innovation activity confirms pharmaceutical leadership. The number of original drugs developed by companies can be identified at the stage of clinical trials. The multiphase nature of clinical trials helps to carry out additional screening of original drugs, allowing only the most successful developments in terms of effectiveness and safety to

[2] Drug self-sufficiency is understood as a situation when Russian-made full-cycle drugs (including production of active pharmaceutical ingredients), which are competitive with their foreign counterparts, cover at least 90% the domestic market by volume of consumption (in physical and value terms).

[3] Pharmaceutical leadership is understood as the pace of development of original drugs (new in the world) in number and in the context of areas of application, comparable to similar indicators for countries with developed pharmaceutical industry (USA, UK, Germany, Switzerland).

[4] Import substitution is a tool to ensure drug self-sufficiency. According to the authors, import substitution is considered successful when the condition of achieving at least a 90% share of domestic drugs in the domestic market (in physical and value terms of consumption) is implemented.

[5] According to Federal Law 61-FZ "On circulation of drugs", dated April 12, 2010, an original medicinal product means a medicinal product with a new active ingredient, which was first registered in the Russian Federation or in foreign countries based on the results of preclinical trials of medicinal products and clinical trials of medicinal products confirming its quality, efficacy and safety.

be used in practical healthcare. Thus, the portfolio of developments for original drugs should be very extensive at the preclinical stage already.

In the pharmaceutical industry, catching-up development and outstripping development are not mutually exclusive. However, finding a balance between them in the field of allocating available resources and expected commercial efficiency becomes an independent management task at the level of Russian companies. In the current paradigm of public administration of the domestic industry, the tactics of catching-up development becomes a more understandable subject of regulation than the tactics of outstripping development associated with the complexity of goal setting, a long-term perspective and increased risks of failure. We should emphasize that in conditions of high import dependence, the problem of outstripping development can be solved on a very local scale, giving priority and the bulk of resources to the catching-up development scenario, which allows bridging the product-related and technological gap.

Flaws in finding the optimal combination of catching-up and outstripping modes of functioning for the pharmaceutical industry will affect end users in the following ways: if priority is given to outstripping development, then widely used drugs will not be available or will be hard to purchase; on the other hand, under a lingering catching-up scenario that does not end within a reasonable time frame with a parity at least according to the list of key product positions, the effectiveness of replicated drugs will be comparatively lower, in addition to the lack of obvious opportunities for their improvement.

As for the methodological novelty of our work, we should note the tested approaches in the analytical use of industry sources of primary information about products, without which it is not possible to identify and analyze the specific results of the catching-up and outstripping mode of pharmaceutical industry development (the State Register of Medicines, the Register of Authorized Clinical Trials of Medicines, state sectoral import substitution plans).

The novelty of the research findings consists in assessing the success of the implementation of catching-up and outstripping vectors of development of the Russian pharmaceutical industry, as well as substantiating the need for a new paradigm for organizing the pharmaceutical industry to replace its current configuration, which has a range of administrative, structural, production and marketing flaws (decentralization of sectoral public administration, unreasonably minimized public pharmaceutical sector, fragmentation of the private sector, critical dependence on imported pharmaceutical ingredients, stable dominance of Big Pharma companies in the Russian market).

The long-term effectiveness of public administration in the pharmaceutical industry and, accordingly, industry performance can be assessed with a considerable degree of skepticism if we look at the provisions of the Strategy for the Development of the Pharmaceutical Industry of the Russian Federation for the period through to 2030[6]. According to the document, issued by the Ministry of Industry and Trade of Russia, the vector of development of the industry will ideologically repeat the past decade, which was not marked by major progress.

Before analyzing the pharmaceutical effectiveness of the Russian industry, let us look at the main economic indicators of Big Pharma companies and leading Russian organizations. This will allow us to compare resources and assess competitive capabilities of the parties.

[6] RF Government Resolution 1495-r, dated June 7, 2023.

Comparative research activity of pharmaceutical companies

With the exception of the generic drugs segment, the global pharmaceutical market establishes high barriers for new entrants; these barriers are related more to the accumulation of technological resources. As a result, real market power is concentrated in the hands of several major corporations, which are often called "Big Pharma" (Dosi et al., 2023). The pharmaceutical industry, in fact, is controlled by a narrow circle of foreign companies who take great pains to protect their production technologies and control sales flows.

The generic drugs market is becoming more accessible for countries with an emerging pharmaceutical industry, while achievements in the development and sale of original drugs are rather exceptions to the rules. The reason lies in the increasing cost of creating such drugs. Against the background of steady growth in R&D, preclinical and clinical trials costs, for many years there has been a trend toward a decrease in the number of original drugs approved by relevant agencies (U.S. Food and Drug Administration, etc.) (Paul et al., 2010). For example, in the 2000s the average cost of bringing drugs based on a molecular compound to the market was approximately 1.8 billion USD; almost 10 years later the sum reached 2.8 billion USD (DiMasi et al., 2016), and by 2020 – 6.2 billion USD (Schuhmacher et al., 2023). Despite the fact that the figures obtained are not fully comparable (different samples of companies, calculation methods, etc.), the trend toward an increase in the cost of creating original drugs is highlighted consistently in many works (Pammolli et al., 2011; Meier et al., 2013; Kruse et al., 2014; Pammolli et al., 2020). Moreover, by 2020, seven out of the 16 Big Pharma companies surveyed had negative R&D performance (the ratio of profits from new drugs to R&D costs) (Schuhmacher et al., 2023).

We should also note metamorphoses in the development of original drugs by Big Pharma companies. For instance, in 2009–2018, the top 10 pharmaceutical companies registered more than half of new drugs in just one year, and in 2017–2018, even the top 30 could not obtain half of the licenses[7]. Startups and medium-sized companies (with annual revenues of up to 1 billion USD) are gradually becoming sources of innovative drugs (at least at the initial stages of development). But pharmaceutical giants are using another advantage to maintain their positions. Huge internal capital and almost unlimited borrowing opportunities allow them to absorb competitors: in recent years, about 80% of such transactions have been completed by representatives of Big Pharma[8] (HBM, 2023). Thus, the risks associated with huge investments in the development of new drugs are balanced (Bereznoy, 2022; Redit, 2022; Keenan et al., 2023); this, in particular, allowed the abovementioned corporations with negative R&D performance to show positive financial results (Schuhmacher et al., 2023).

Big Pharma can be ousted from the national market, but this requires proactive approach on the part of governments. In addition to countries with a developing pharmaceutical industry, this task has been set even at the level of the European Union: a course toward strengthening industrial and technological sovereignty in the field of vaccines and other drugs has been approved (Groshkova et al., 2021). This was stimulated, among other things, by critical difficulties emerging in the vaccination campaign during the COVID-19 pandemic due to

[7] HBM (2019). New Drug Approval Report 2019. Available at: https://www.hbmpartners.com/media/docs/industry-reports/Analysis-of-FDA-Approvals-2018-and-Previous-Years.pdf

[8] HBM (2023). Pharma/Biotech M&A Report. Available at: https://www.hbmpartners.com/media/docs/HBM-M-A-Report/HBM-Biopharma-M-A-Report-2022.pdf

dependence on supplies from manufacturers located outside the European Union (Crespi et al., 2021).

In most cases, foreign drugs available on the Russian market are connected with large multinational pharmaceutical companies. Attempts to oust them from the Russian market as a result of competitive administrative struggle will inevitably lead to confrontation not only with the companies themselves, but also with the relevant countries.

Success in this struggle can be achieved when domestic drugs are at least comparable to foreign ones in terms of their effectiveness and safety. This places high, even global, demands on Russian developers, resources, and infrastructure. For example, it will be rather difficult to address complex pharmaceutical tasks in conditions worse than those of our competitors.

Table 1 shows economic indicators for some Big Pharma companies that have occupied the Russian market with multibillion-dollar sales, and for leading private Russian organizations.

First of all, we observe huge disparity in the scale of business of Russian and foreign companies by several orders of magnitude in favor of the latter.

Table 1. Commercial and innovative activity of Big Pharma and the most prominent Russian pharmaceutical companies, 2022, billion USD

No.	Pharmaceutical company	Country	Profit (year)	R&D expenditures (year)
1	Pfizer	USA	100,33	11,43
2	Johnson & Johnson	USA	94,94	14,6
3	Roche	Switzerland	66,26	14,71
4	Merck & Co	Germany	59,28	13,55
5	AbbVie	USA	58,05	6,51
6	Bayer	Germany	53,459	6,924
7	Novartis	USA	50,55	10,00
8	Bristol-Myers Squibb	USA	46,16	9,51
9	Sanofi	France	45,22	7,06
10	AstraZeneca	UK – Sweden	44,35	9,76
11	Abbott	USA	43,653	2,888
12	GlaxoSmithKline	UK	36,271	6,788
13	Takeda	Japan	31,764	4,682
14	Eli Lilly	USA	28,54	7,19
15	Gilead Sciences	USA	27,281	4,977
16	Amgen	USA	26,323	4,434
17	Novo Nordisk	Denmark	25,057	3,405
18	Boehringer Ingelheim	Germany	25,555	5,341
19	Regeneron Pharmaceuticals	USA	12,173	3,593
20	Biogen	USA	10,173	2,231
21	R-Pharm JSC	Russia	2,489*	0,003*
22	Pharmstandard JSC	Russia	1,971	Data not available
23	Generium JSC	Russia	1,609*	Data not available
24	Biocad JSC	Russia	1,262*	Data not available
25	Otisipharm JSC	Russia	0,646	Data not available

* Data as of 2021.

Compiled according to: Top 10 pharma R&D budgets in 2022. Available at: https://www.fiercebiotech.com/biotech/top-10-pharmard-budgets-2022#:~:text=Roche%20spent%2014.05%20billion%20Swiss,jumping%20ahead%20of%20Merck%20%26%20Co; Macrotrends. Available at: https://www.macrotrends.net/stocks/charts/GSK/gsk/revenue; Corporate Information Disclosure Center. Available at: https://e-disclosure.ru/portal/files.aspx?id=38473&type=3

The situation in the competition will be extremely unfavorable: "one small company against many large ones". Moreover, we note considerable difference in the values of research activity indicators: the share of R&D costs in the profit. Among Big Pharma companies, this figure was at least 10%, with Abbot being the only exception: 6.62% of 43.65 billion USD in 2022. Regeneron Pharmaceuticals was leader in research activity in 2022: 29.5% of 12.2 billion USD. Against this background, the annual R&D expenses of the Russian pharmaceutical leader (R-Pharm JSC) in the amount of 241 million rubles (0.13% of annual profit) do not indicate a desire to compete with anyone in at least one commodity position. By the way, in the pre-pandemic period, Russian pharmaceutical companies spent on average 1–2% of profit on R&D (Komarova, Petrov, 2016), but these are, most likely, optimistic estimates.

Effectiveness in import substitution

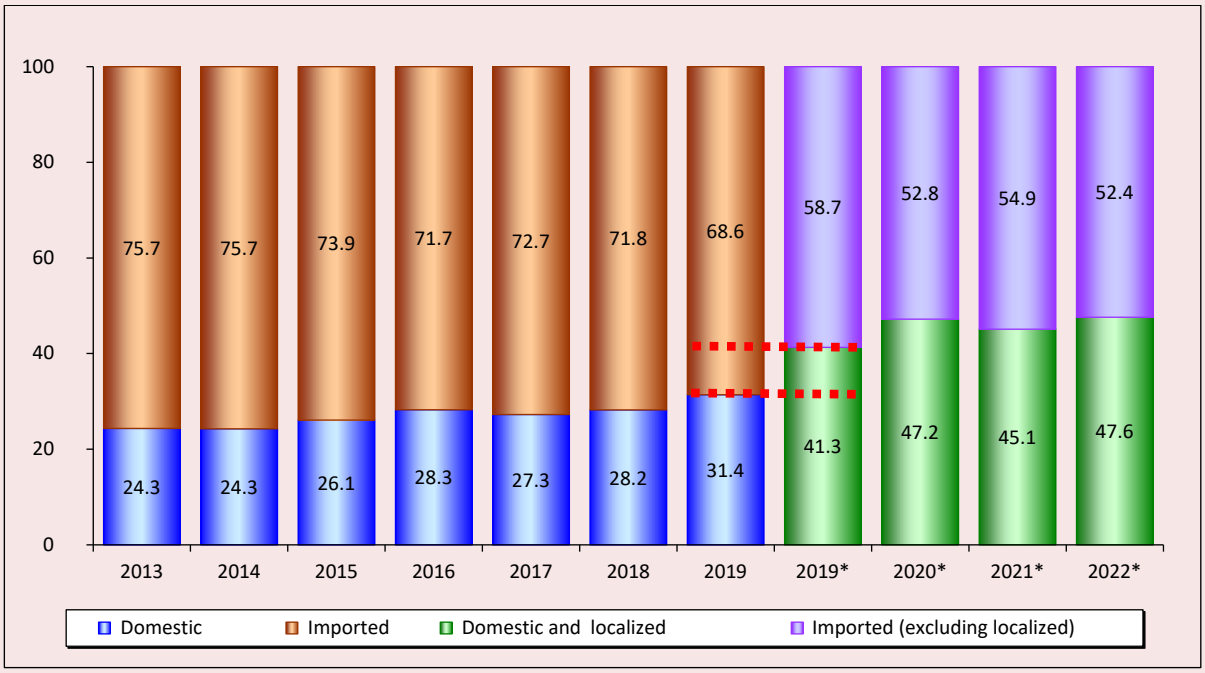
The restoration of domestic production of essential drugs in Russia is a strategic task that is being addressed, but that has not been solved for decades. Various quantitative assessments of the success of import substitution processes in the Russian economy in general and the pharmaceutical industry in particular indicate in favor of strengthening the positions of Russian manufacturers (Litvinova et al., 2019). But at the same time, the question of the necessary/sufficient level of production sovereignty for a particular market or product group is often left out. The pharmaceutical industry is usually regarded as one of the most vulnerable and dependent on external supplies of raw materials and equipment; nevertheless, according to some expert assessments, the transition to an import-substituting model, launched in 2014, proved quite successful, a critical mass of high-tech manufacturers emerged on the territory of Russia, etc. (for example, Dorzhieva, 2022).

An insufficiently active participation of the government is often considered one of the reasons hindering import substitution. It is noted that the role of the government, among other things (for example, subsidies, tax incentives, direct and indirect support for R&D, establishing a network of pharmaceutical clusters, etc. (Kotlyarova et al., 2017; Krestyaninov, 2018; Dorzhieva, 2023)), should consist in creating "anchor demand" for innovative drugs of Russian production (Mamedyarov, 2017). And in this context, the government is represented not only by federal agencies, but also by the authorities of RF constituent entities, which are strongly interested in the development of regional industry (Gulin et al., 2015).

Real assessment of import substitution processes is hampered by the lack of reliable and time-comparable information. The analytical reports of DSM Group, which are considered one of the most reliable sources of quantitative information about the Russian pharmaceutical market, also provide only an approximate idea of the displacement of foreign competitors *(Fig. 1)*. In particular, since 2020, localized drugs have been taken into account in the group of domestic drugs, and annual market estimates have been replaced by monthly ones. Nevertheless, in the period from 2013 to 2022, the market share of drugs of domestic production, apparently, increased by more than 10 p.p. According to other data, Russian drugs occupied almost two thirds of the retail market back in 2020 (Abdikeev, 2022).

RF Government Resolution 1141-r, dated July 6, 2010 approved and further updated the list of essential/strategically important drugs, the production of which should be established on the territory of the Russian Federation. As amended on August 1, 2020, this list includes 214 items. Nevertheless, the governmental document does

Figure 1. Imported and domestic drugs sales ratio in the retail commercial market of Russia, % of the total volume



* Data for December of the corresponding year.

Source: DSM Group analytical reports. Available at: https://dsm.ru/marketing/free-information/analytic-reports/

not contain any deadlines for the development of production (in case of its absence), or production volumes, or dosage forms. These issues are left to the Ministry of Industry and Trade of Russia.

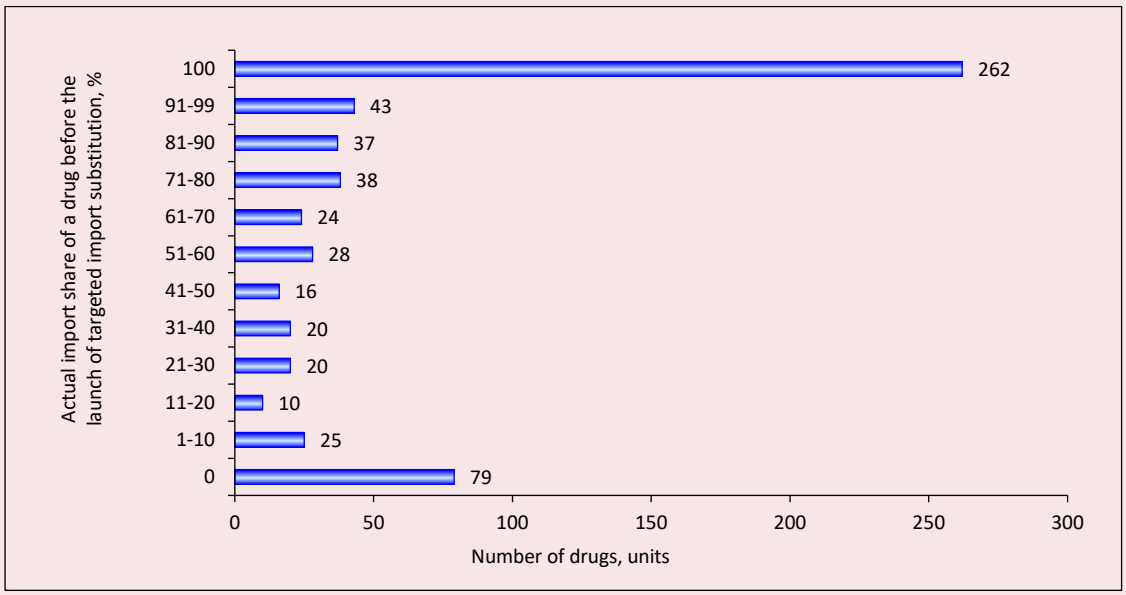
After the introduction of anti-Russian sanctions in 2014, Order 656 of the Ministry of Industry and Trade of the Russian Federation, dated March 31, 2015 approved an industry action plan for import substitution in the pharmaceutical industry, designed for the period up to 2020. This plan was updated only once (September 4, 2018). Currently, the document contains a list of 602 drugs with different values of two indicators: "actual indicator of the share of imports before the implementation of the project" and "maximum planned indicators of the share of imports until 2020".

The logic of the first "five-year plan" of pharmaceutical import substitution has significant flaws.

First, the term "medicinal product" combines a medicinal product and a pharmaceutical substance. Hence, it is not at all clear which category each of the 602 positions belongs to. Drugs are not grouped by any characteristics and, thus, are not systematized by application areas. The dosage forms have not been identified.

Second, the import substitution scenario, which consists in the development of analogues to foreign drugs, is combined with the scenario of loading additional capacities inside Russia in conditions of production development. Thus, 340 drugs belong to the production scenario, especially 104 items with

Figure 2. Initial conditions for drugs under the import substitution scheme



Source: Order 656 of the Ministry of Industry and Trade of the Russian Federation, dated March 31, 2015.

an actual import share of no more than 10%; and 262 drugs with an import share of 100% belong to the research scenario *(Fig. 2)*.

Third, the management parameter "maximum planned indicators of the share of imports until 2020" is very cunning, since it allows for a complete lack of progress in import substitution. From an administrative point of view, the applied parameter "maximum planned indicators of the share of imports until 2020" turns the lack of progress into a routine workflow.

For many import-substituting positions, goal setting cannot be interpreted in any way at all. In particular, for 37 drugs, the planned value of the import share for 2020 coincides with the value of the import share at the starting point (2015) – 100%.

Fourth, quantitative targets related to imports are very problematic in accounting and allow for the manipulation of figures. On the one hand, it has not been determined which values – monetary or natural – will be used in estimating import volumes. On the other hand, the size of imports may be unstable, especially in the five-year perspective, due to the development of production technologies, the appearance of substitute goods, including those of foreign origin; changes in the economic environment, strategies of importers and exporters, and for other reasons.

We should note that the official results of implementing the plan of the Ministry of Industry and Trade of Russia for 2015–2020 have not been announced. Technically, the results of import substitution can be verified using the State Register of Medicines (GRLS) by checking manufacturers for 602 items on the list of drugs and (or) pharmaceutical ingredients, which means a tremendous amount of work that may not necessarily provide unambiguous answers, taking into account the technological and economic aspects discussed above. In particular, this information should be supplemented with information that is not publicly available and that concerns the actual volumes and

Table 2. Information about drug manufacturers

No.	Name of drug	Project implementation timeframe	Actual import share before project implementation, %	Maximum planned indicators of import share until 2020, %	Availability of Russian manufacturer (according to GRLS data)*	
					API	MP**
1	Glatiramer acetate	2015–2020	100	50	+	-
2	Trastuzumab	2015–2020	100	50	-	-
3	Bevacizumab	2015–2020	100	50	+	-
4	Infliximab	2015–2020	100	50	+	+
5	Abacavir + lamivudine	2015–2020	100	10	-	-
6	Atazanavir	2015–2018	100	10	+	+
7	Octocog alpha	2015–2020	100	50	+	-
8	Budesonide + formoterol	2015–2020	100	50	-	-
9	Raltegravir	2015–2020	100	100	+	-
10	Poractant alfa	2015–2020	100	100	-	-

API – active pharmaceutical ingredient;
MP – medicinal product.
* "+" – registered with GRLS; "-" – not registered with GRLS.
** "+" may be indicated if the manufacturer of the active pharmaceutical ingredient for the medicinal product is a domestic company.

degree of localization of target drugs production, comparability with foreign analogues in terms of effectiveness and safety, physical and cost sales volumes in the Russian market.

A random check of the top ten drugs listed in Order 656 of the RF Ministry of Industry and Trade, dated March 31, 2015 shows that as of August 2023 no traces of even formal success in import substitution were found in GRLS for a number of drugs / active pharmaceutical ingredients *(Tab. 2)*.

Thus, for four out of ten drugs, it was not possible to find evidence of import substitution:

– trastuzumab (antitumor agent);

– abacavir + lamivudine (a drug for the treatment of HIV infection in combinations);

– budesonide + formoterol (a combined bronchodilator);

– poractant alfa (a remedy for the treatment / prevention of respiratory distress syndrome (RDS) in premature infants).

Chronologically, having completed the first five-year import substitution plan with quite limited success, the Russian Ministry of Industry and Trade adopted a second and more focused plan for the period up to 2024 (Order 2681 of the Ministry of Industry and Trade of Russia, dated July 20, 2021). The content of the document has undergone significant changes. The new list contains 65 items, including 38 drugs and 27 active pharmaceutical ingredients to them.

The annual demand for 27 active pharmaceutical ingredients subject to import substitution was estimated by the Ministry of Industry and Trade of Russia at a rather modest amount: 3.15 billion rubles. The volume of demand for APIs in physical terms is defined with great variation: from incomplete grams (buprenorphine (semi-synthetic opioid, analgesic): 0.1 g per year) to several tons (valproic acid (antiepileptic): 7.8 tons per year). According to RNC Pharma, in 2021, the total volume of APIs imports to Russia amounted to 195.4 billion rubles, and in physical terms – 15.8 thousand tons[9]. In the context of this information,

[9] Pharmprom. The volume of imports of pharmaceutical ingredients into Russia is growing more and more every year. Available at: https://phar mprom.ru/obyom-importa-farmsubstancij-v-rossiyu-s-kazhdym-godom-rastet-vse-bolshe-i-bolshe/

the goal of the RF Ministry of Industry and Trade in the field of import substitution of APIs looks very unambitious, since it covers 1.6% of the country's needs in value and a very negligible amount in kind.

For all items subject to import substitution, the values of the initial and target indicators coincide, and now they are in no way related to imports:

– the share of domestic products produced according to the full production cycle before the implementation of the import substitution plan: 0%;

– the share of domestic products produced according to the full production cycle, until 2024: 100%.

Thus, in the second plan of import substitution, the formal substantive mistakes of the predecessor have been largely eliminated; however, new ones, no less severe in their consequences, have been made in terms of slowing down the pace.

We should pay attention to the intersection of the first and second plans of the Ministry of Industry and Trade of the Russian Federation for import substitution: 32 of the 38 items of the second plan actually continue the agenda laid down in 2015, which indicates that the task regarding the relevant drugs is unresolved. Only six items are named as the new drugs (APIs) that are included in the targeted import substitution for the period up to 2024: buprenorphine, dapagliflozin, dimethyl fumarate, cabazitaxel, omalizumab, tenecteplase.

Comparing the lists of drugs included in the import substitution plans of the RF Ministry of Industry and Trade with the list of drugs established by the RF Government, we can find a number of intersections and "blind" zones. In general, the plans of the RF Ministry of Industry and Trade still do not cover 29 drugs listed in RF Government Resolution 1141-r, dated July 6, 2010 (13.5% of the total number of items), which makes the prospects for their production in Russia uncertain, and the tasks set by the government – not accepted for execution[10].

Problems of import substitution regarding socially significant drugs

Under the current regulatory framework, vital and essential drugs (VEDs) made up a special group; their list is established by RF Government Resolution 2406-r, dated October 12, 2019 (827 drugs, as amended on December 24, 2022)[11]. We should note that the focus of the governmental policy on the domestic production of drugs in Resolution 1141-r, dated July 6, 2010 seems to be minimalist, since it is four times less than the composition of VEDs.

The introduction of anti-Russian sanctions led to the formation of another drug group besides VEDs: drugs that are potentially in short supply. Their composition is determined by the inter-departmental commission of the Ministry of Health of the Russian Federation and, as of February 2023, includes 77 items[12].

The comparison of the two lists forms the most problematic segment – 51 VEDs in short supply, which is the subject of priority consideration from the point of view of the need for import substitution. The comparative analysis shows that only 43 (out of 51) drugs appeared in the import substitution plans of the RF Ministry of Industry and Trade (2015–2020). The remaining eight items are very diverse in areas of application; moreover,

[10] Abiraterone, Alirocumab, Apixaban, Aflibercept, Buprenorphine, Dapagliflozin, Daratumumab, Dimethyl-fumarate, Dolutegravir, Ibrutinib, Cabazitaxel, Maraviroc, Mitotane, Nimodipine, Nonacog alfa, Omalizumab, Pazopanib, Panitumumab, Pembrolizumab, Pertuzumab, Rilpivirine + Tenofovir + Emricitabine, Tenecteplase, Teriflunomide, Ticagrelor, Trastuzumab emtansine, Tumor necrosis factor alpha-1, Elsulfavirin, Empagliflozin, Eribulin.

[11] Import substitution plans of the Ministry of Industry and Trade of Russia cover 584 drugs from the list of VEDs.

[12] Pharmprom. A list of about a hundred drugs that are at risk of shortage has been issued. Available at: https://pharmprom.ru/defektura-lekarstvennyx-sredstv-spisok/

Table 3. VEDs in short supply that were not included in the import substitution program

No.	Name of drug	Description
1	Nivolumab	Antitumor monoclonal antibody
2	Dulaglutide	Used for the treatment of type 2 diabetes mellitus
3	Pembrolizumab	Immuno-oncological drug for the treatment of malignant tumors
4	Sapropterin	Used for the treatment of hereditary fermentopathies
5	Potassium acetate + Calcium acetate + magnesium acetate + sodium acetate + sodium chloride	Rehydrating agent
6	Naloxone + oxycodone	Opioid narcotic analgesic
7	Pegaspargaza	A remedy for the treatment of acute lymphoblastic leukemia
8	Peritoneal dialysis solution (CAPD/DPCA 2, 3, 4, 17, 18, 19)	Used for the treatment of kidney failure
Source: own compilation.		

they are not produced in Russia and are not even registered in GRLS on behalf of foreign companies *(Tab. 3)*.

Let us consider the information about manufacturers of active pharmaceutical ingredients for 43 drugs from the "VEDs in short supply" group, which are registered in GRLS in various dosage forms:

6 drugs are produced only by Russian manufacturers;

25 drugs are produced by Russian and foreign manufacturers;

12 drugs are produced only by foreign manufacturers[13].

This analytical information expands the knowledge about the effectiveness of the import substitution program of the RF Ministry of Industry and Trade on the example of another random sample of drugs. We can confirm that at present import substitution has not been implemented for 12 drugs for which APIs are not produced in Russia.

Despite the fact that 25 out of 43 drugs have not only foreign manufacturers of APIs, but are also produced by Russian firms, some items are in the area of unstable import substitution. Instability is characterized, first of all, by the presence of only one Russian manufacturer of APIs. A similar situation is observed with respect to APIs for a number of drugs produced only by Russian companies *(Tab. 4)*.

Industrial monopolism, including dwarf monopolism, is not the best situation for a country in the field of APIs production for many reasons. According to the form of ownership, monopolistic companies do not belong to the public sector of the economy, their product portfolio is independent. There is no backup in case of corporate changes in production; neither is there a possibility, if necessary, to increase production promptly. In addition, the scale of activities of individual manufacturing companies is so small that we can say that the import substitution of VEDs in short supply has actually failed (see "Amoxicillin" and "Retinol" in Tab. 4).

Considering the adoption of RF Government Resolution 1141-r, dated July 6, 2010 as the official launch of import substitution, we can conclude that achievements in this area have not been evident. Under the current import substitution paradigm,

[13] Levodopa + Benserazide (antiparkinsonian agent); Cisplatin (antitumor drug); Asparaginase (antitumor drug); Rabies immunoglobulin; Tetanus immunoglobulin; Doxycycline (antibiotic); Captopril (angiotensin-converting enzyme inhibitor); Loperamide (antidiarrheal agent); Hydroxyethyl starch (substitute for plasma and other blood components); Neostigmine methylsulfate (anticholinesterase agent); Cetrorelix (antigonadotropic agent); Amoxicillin + Clavulanic acid (semi-synthetic antibiotic)

Table 4. Drugs with unstable import substitution

No.	Name of drug	Name of the only domestic manufacturer of API	Information about the manufacturer's profit, billion rubles (year)
1	Amoxicillin (antibiotic)*	Biokhimik JSC, Saransk	0,025 (2021)
2	Acetylsalicylic acid (aspirin)*	Irbitskii khimfarmzavod JSC, Irbit	2,30 (2021)
3	Dextrose (glucose)*	Medsintez Plant, Yekaterinburg	3,65 (2021)
4	Retinol (vitamin A, antioxidant)**	JSC Pharmaceutical Factory of Saint Petersburg, Saint Petersburg	0,164 (2021)
5	Prednisolone (hormonal anti-inflammatory, anti-allergic drug)**	RENEWAL, Novosibirsk	9,03 (2021)

* Produced by Russian and foreign manufacturers.
** Produced only by Russian manufacturers.
Source: companies' profit according to TestFirm data. Available at: https://www.testfirm.ru

the implementation of a catching-up scenario can take an infinitely long time in the absence of a noticeable bridging of the gap. It is also necessary to take into account the aggravating circumstances of the pharmaceutical chase: the composition of foreign drugs on the Russian market is being updated at a pace set by world leaders, and the developments themselves are objectively becoming more complicated for reproduction.

There is a political slogan that the most successful strategy for a laggard is to avoid the "chase" and immediately move on to outstripping, that is, creating exclusively new products that no one in the world possesses. The work (Balatsky, Ekimova, 2019), using the methodology of expanded innovation and technology matrices, shows a combination of labor productivity and research and development costs by country (both macroindicators are given relative to the United States). Using the example of many countries, the authors prove that, in general, relative innovation activity does not exceed relative labor productivity, that is, the above slogan does not work.

At the same time, there is a very narrow circle of small countries (Israel, South Korea) that implement a proactive innovation strategy in short time periods when increased research and development costs become disproportionately higher than relative labor productivity (Balatsky, Ekimova, 2019). Potentially, due to this breakthrough, leadership in a single high-tech industry can be achieved for some time.

The modern market for generated pharmaceutical innovations is limited only by the objective parameters of the planet. Under these conditions, even very large investments in the development of drugs are fully recouped in a reasonable time when the clinical effectiveness of the development is achieved. Thus, the specifics of the pharmaceutical industry leave chances for individual countries to achieve industry leadership if they really strive for it and apply resources.

Let us consider the scenario of advanced development of the Russian pharmaceutical industry through the prism of clinical trials of original drugs conducted in the country.

Effectiveness issues in pharmaceutical innovation

Clinical trials of original drugs are the spearhead of pharmaceutical leadership. Trials test creativity and innovation of medical science and the pharmaceutical industry in terms of developing new drugs (Wouters, 2020; Vargason et al., 2021). The greater the number of original drugs, the more

powerful is the national pharmaceutical "machine". However, not every country has the right and opportunity to develop original drugs, like they develop other high-tech industries (Weigmann, 2015; Park et al., 2021).

The profile of clinical trials of drugs in the Russian Federation, initiated in the period 2009–2022, is shown in *Table 5*. We should note that the number of clinical trials in its bulk exceeds the number of drugs as products under development (including as a result of the introduction of new dosage forms for previously registered drugs, expansion of indications for their use).

The data in Table 5 allow us to draw the following conclusions.

First, for almost the entire observation period (2009–2021), the share of clinical trials of drugs associated with foreign companies, including IMCTs, exceeded 50%. In some years, this value was more than 60% (2009, 2011, 2013–2015). The maximum was reached in 2011 (74%). This fact testifies not only to the openness of this industry, but also to the weakness of Russian companies amid foreign players.

Second, the territory of the Russian Federation turned out to be given over to international multicenter clinical trials, which recruited a certain number of Russian personnel with medical education. The share of IMCTs in the total volume of initiated clinical trials steadily amounted to 40% (maximum in 2011 – 65%), with the exception of 2022. Strictly speaking, the involvement of the Russian Federation in IMCTs does not give any advantages to either domestic developments or domestic manufacturers. Compared, for example, with Ukraine and Georgia, where uncontrolled biological laboratories of foreign countries are located, the scenario under which many IMCTs are launched on the territory of the Russian Federation, at least under governmental control, looks like a more sparing form of colonial model of the pharmaceutical industry.

Table 5. Permits issued for clinical trials of medicinal products, 2009–2022, units

Year	Total	IMCTs	Foreign sponsors		Russian sponsors	
			Local CIs	Bioequivalence	Local CIs	Bioequivalence
2009	577	348	32	8	112	77
2010	482	246	30	6	123	77
2011	567	370	35	19	80	63
2012	915	369	62	107	165	212
2013	791	334	68	110	124	155
2014	750	282	62	123	142	141
2015	804	289	52	143	167	153
2016	897	302	82	146	197	170
2017	700	281	48	71	149	151
2018	653	287	26	69	130	141
2019	746	313	35	80	155	163
2020	734	322	18	56	139	199
2021	908	367	36	87	133	285
2022	740	124	16	71	162	367

IMCTs – international multicenter clinical trials; CIs – clinical trials.
Compiled according to: reports of the Association of Clinical Trials Organizations (ACTO) for 2009–2022.

Third, since 2012, we should note a sharp increase in the number of bioequivalence clinical trials of drugs funded by Russian companies. This vector for the creation of domestic drugs reproducing foreign analogues is synchronized with RF Government Resolution 1141-r, dated July 6, 2010 and emphasizes the tactics of following in the wake of foreign pharmaceutical developments.

In 2022, this strategy only intensified due to the withdrawal of some foreign companies from Russia, the cessation or restriction of sales of certain original drugs of foreign origin. Currently, counting on reproduced drugs is seen as having no alternative. The relatively quiet time to conduct own developments has been lost.

Fourth, the 2012–2016 period with a large number of bioequivalence clinical trials with foreign sponsorship highlights a certain stage in the history of the Russian industry. It can be assumed that it was about positioning the Russian Federation as a territory where some foreign companies clinically tested copied products of other pharmaceutical companies. Since 2017, activity in this area has decreased markedly, but has not disappeared entirely.

Let us consider original drugs once again. We should note that this term was legislated only in December 2019. This allows us to identify the innovativeness of Russian pharmaceutical production at the institutional level *(Tab. 6)*.

Despite the small number of original biological drugs that can be classified as high-tech, their composition and developers are not listed in ACTO analytical materials. We emphasize that the classification of drugs as original is the result of an expert assessment by ACTO authors. Strictly speaking, the number of original drugs of Russian developers for which clinical trials have been initiated is recommended to be tacitly considered at the official level as a key industry performance indicator.

Trusting the expert assessment of ACTO, let us compare the number of original drugs being developed that have entered the stage of clinical trials with the economic parameters of the Russian pharmaceutical sector, including private and state-owned companies. With a market share of domestic drugs of more than 1 trillion rubles per year, the number of original drug developments seems to be very low.

The stage of clinical trials is quite risky from the point of view of the further life cycle of a drug. Taking into account clinical trial failures, the number of original drugs that have reached the end user tends to zero. Thus, it is possible to talk about acceptable innovativeness of domestic companies on the condition that the number of original drugs they have developed and that have reached the stage of clinical trial will be several hundred per year, that is, at least an order of magnitude higher than the current level.

Table 6. Permits issued for clinical trials of original drugs, 2020–2022, units

Year	Total number of original drugs in initiated clinical trials	Including	
		with foreign sponsorship	with Russian sponsorship*
2020	15	5	10
2021	8	1	7
2022	20	1	19

* Original biological drugs.
Compiled according to: Association of Clinical Trials Organizations (ACTO).

Is it possible to achieve such effectiveness under the current situation in the Russian segment of the pharmaceutical industry? Most likely, it is not, due to the following reasons.

First, the dominant private business, striving for profit, tends to adhere to the strategy of reproduction of drugs and focus on their internal sales, rather than undertake investments in high-risk projects to create new products. It is not capable and not ready to enter the international market and compete with external players, since it does not even dominate the domestic market. Considering the scale of the largest private pharmaceutical company in Russia (R-Pharm JSC) and at least one company within Bayer (Germany), we see that the leader of the Russian industry is tiny in comparison (see Tab. 1). If we aggregate all the assets of public and private pharmaceutical companies in Russia (Gusev, Yurevich, 2023), then according to financial indicators their size will remain five times smaller than that of Bayer, but maybe it will approach the parameters of Teva (Israeli company).

Second, the public pharmaceutical sector does not have sufficient resources to innovatively ensure a qualitative shift in at least one segment of pharmaceutical development.

In addition to drugs, there is an area of high-tech developments of biomedical cell products (BMCP), for which separate regulation has been provided in Russia since 2016[14]. We should note that since 2021 a clinical study of the first and so far the only BMCP from the Russian developer Generium JSC has been conducted: BMCP "Spheroids of human autologous matrix-associated chondrocytes". Thus, there are no qualitative changes in the field of high-tech developments, which include BMCP.

[14] Federal Law 180-FZ, dated June 23, 2016 "On biomedical cell products".

Conclusion

Import substitution of drugs, which has been officially going on for more than 10 years, is latent. Currently, on the basis of open data, it is not possible to make unambiguous assessments concerning the achievements in this area due to the lack of significant production and marketing information.

The analysis allows us to conclude that, according to formal signs, the vector of outstripping development in the Russian pharmaceutical industry is much inferior to the vector of its catching-up development, and is largely nominal. The implementation of state import substitution plans for pharmaceutical products, which, as a rule, are based on centralized procurement of drugs and their widespread use, remains a priority for participating companies. Outstripping development of pharmaceutical production will not be launched in full until the majority of import substitution tasks are solved. The question of the timing of their solution by the current composition of domestic pharmaceutical companies remains open.

In general, both the catching-up scenario and the outstripping scenario that assumes the creation of a sufficient number of original drugs that surpass existing foreign analogues, involve large-scale and long-term investments, a long planning horizon, consolidation of resources and a mobilization mode of operation. On the basis of self-determination and self-regulation within the domestic pharmaceutical industry, such a strategy is not feasible. It will require state participation and the construction of state-controlled industry innovation giants capable of competing with Big Pharma, at least in the domestic market. One of the institutional scenarios for the mobilization of the industry, based on the creation of Rospharma, the state corporation for pharmaceutical activities, was proposed in the work (Gusev, Yurevich, 2023).

The vertically integrated model of the domestic pharmaceutical industry can be considered as a starting point in its new configuration. In order to comply with the market environment and the structure of manufacturers, this concept can be improved and developed in terms of conditions for the involvement of private companies in the orbit of Rospharma State Corporation, and the allocation of tasks and public resources. In order to promote the scientific and production potential, which for some reason remains outside the contour of the corporation, it seems advisable to consider the formation of state funds to support innovative pharmaceutical developments. We should emphasize that only large-scale and decisive actions in the industry can set it up to achieve technological self-sufficiency and leadership in the long term, and in the medium term – at least in certain sectors.

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Promising Economic Specializations within a Macroregion (the Case of the Northwestern Federal District)

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Abstract. The intensification of structural transformation of the economy in Russia and its regions in the context of geopolitical instability requires searching for the most promising types of economic activity that could become drivers of development in the new economic conditions. This premise is especially relevant for the Northwest of Russia due to the fact that the economy in this macroregion has been subjected to the strongest negative impact of foreign trade restrictions. Thus, the aim of our study is to determine sectoral priorities of regional development in the form of promising economic specializations within a single macroregion. To achieve the goal, we address the following tasks: to develop a methodology for searching for promising economic specializations at the macroregional level; identify existing sectoral specializations in the Northwest of Russia; outline the profile of promising economic specializations in the Northwestern Federal District, taking into account possible interregional interactions. Based on our own methodological approach, which is the novelty of the study, we identify promising value chains in the timber industry, machine-building industries and the chemical industry. According to the results of the study, we compile profiles of promising economic specializations for regions in the Northwest of Russia; this is also an original scientific result. Based on the analysis of global economic development trends, we identify potential market niches for the industries under consideration. In addition, we propose measures to promote the development of promising economic specializations in the macroregion. The findings of the study can be useful to a wide range of researchers in the field of sectoral and regional economics,

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as well as federal and regional authorities in the development and adjustment of various strategic and sectoral documents.

Key words: structural transformation, promising economic specializations, interregional cooperation, economic growth, value chains.

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Introduction

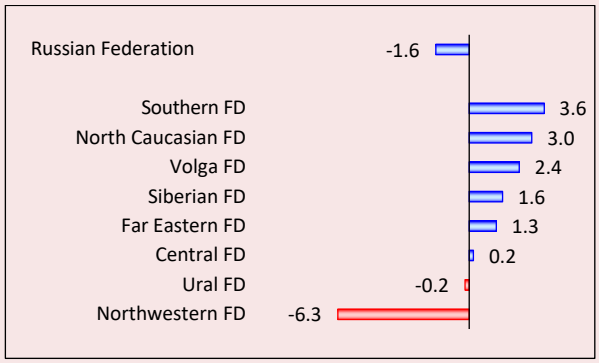
The Northwest of Russia is one of the macroregions most affected by the sanctions. Foreign trade restrictions have had a negative impact on the key industries of the constituent entities within the Northwestern Federal District (NWFD) – metallurgy, chemical industries, woodworking, and mechanical engineering. In conditions of high import dependence on the supply of investment products and a decrease in financial performance, investment processes in the macroregion have slowed down.

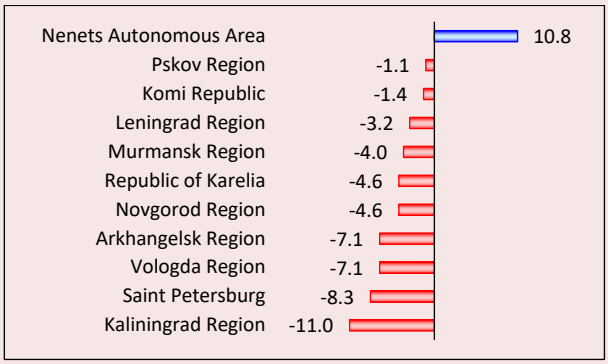
This thesis is confirmed by statistical data: for example, in the Northwest of Russia in 2022, the physical volume of output in the context of basic types of economic activity decreased by 6.3%, while the nationwide decrease was 1.6% *(Figure)*.

The most dramatic decline was observed in Saint Petersburg and the Kaliningrad Region; the Vologda and Arkhangelsk regions also suffered significantly. The indicator increased only in the Nenets Autonomous Area due to the high share of the mining industry, which was less affected by the sanctions.

At the same time, data from surveys of managers of enterprises in the manufacturing sector indicate the intensification of transformational processes. Business leaders predict a deterioration in economic conditions (90% of respondents). At the same time, the assessments of heads of manufacturing sector organizations regarding the impact of sanctions in the Northwestern Federal District are more negative than in the Russian Federation (71% of

Dynamics of output of goods and services in the context of basic types of economic activity in 2022, broken down by federal district, and by region of the Northwestern Federal District, % compared to the previous year





Source: Rosstat.

respondents in the Northwestern Federal District versus 59% in the Russian Federation reported a negative impact of foreign trade restrictions on the activities of enterprises). More than 82% of respondents expected transformation of their own supply chains in 2022; 62% named the search for supply and sales channels in the domestic market as the direction of restructuring, 20% were looking for import substitution opportunities, and 17% were ready to replace imported products on their own. It is also noted that the government should intensify economic policy by expanding the range of tools used and applying mainly indirect measures of economic regulation (this was noted by 66% of respondents) (Uskova et al., 2022).

All of the above brings to the fore the need for structural policy, in particular, the definition of its sectoral priorities in the form of promising economic specializations, which is the aim of the study. To achieve the goal, it is necessary to address the following tasks:

– develop a methodology for searching for promising economic specializations at the macroregional level;

– identify existing industry specializations at the macroregional level;

– determine the profile of promising economic specializations in regions of the Northwest of Russia, taking into account possible interregional interactions.

Scientific novelty of the research lies in the development of our own approach to the definition of promising specializations at the macroregional level, as well as the formation of profiles of promising industry specialization of regions in the Northwest under new economic conditions.

Review of scientific literature on the research topic

Scientific discourse on the influence of the structure of the regional socio-economic system on the trajectories of its development has been going on for a long time (Caragliu et al., 2016; Content, Frenken, 2016; Feldman, Audretsch, 1999).

Two types of external effects are discussed in scientific papers. The effect of specialization usually manifests itself when a certain number of industries with similar competencies and products are concentrated in a given area, which allows forming narrowly focused labor and knowledge markets, as well as generating innovations and technological solutions among a limited number of companies in isolated economic activities (Glaeser et al., 1992). The effects of specialization include higher labor productivity and increased innovation activity in companies that make up the specialization industries (Grashof et al., 2019).

The opposite effect, the diversification effect, or the Jacobs effect, is a consequence of the diversity of the economic structure of a territory. When there is a variety of developed industries, due to the accumulation of competencies, fundamentally new productions arise on the basis of restructured existing enterprises. This is due to cross-industry cooperation or a combination of old technologies in new products (Jacobs, 1969). One of the research papers contains conclusions that the recombination of existing competencies can form radically new products, technologies and skills (Essletzbichler, 2015).

At present there is no unambiguous consensus among researchers on the advantage of one or another effect – specialization or diversification – for the intensification and acceleration of economic growth of territories (Henderson et al., 1995; Duranton, Puga, 2000; Greunz, 2004).

Diversification involves a variety of economic sectors and activities in the territory, which reduces risks and increases the resilience of the economy to external influences. At the same time, the main focus is on the development of new industries and creation of conditions for attracting investment in various economic sectors. Diversification can be especially effective for regions that depend on one or more industries that may be vulnerable to changes in global markets.

On the other hand, the specialization strategy involves focusing on certain industries and activities that are competitive and bring high profits. Such an economic model is most effective for regions with unique resources or competitive advantages in certain industries.

Our position within the framework of the correlation of these concepts is as follows: at the federal level, it is necessary to adhere to diversification in order to ensure our own economic security (by localizing value chains in the country) and eliminate export and import dependence, which in turn requires specialization of individual territories with effective use of their competitive advantages. This requires intensification of interregional cooperation and coordination of the efforts of federal and regional authorities in the field of economic and, in particular, structural policy.

The formation of a new economic structure necessitates defining sectoral vectors of its development, as noted earlier. The concepts of searching for promising economic specializations are of considerable research interest in this direction. This concept appeared in Russian management practice in 2019, when the Spatial Development Strategy of the Russian Federation through to 20251 (hereinafter referred to as the Strategy) was adopted. It defines the category of promising economic specializations, forms their list for all 85 RF regions, and also states the need to develop a methodological approach to the search for promising types of economic activities based on "smart" specialization.

However, this strategic planning document has been subjected to some criticism in the works of researchers. Thus, it is noted that the concept of promising specializations in Strategy has a fairly general definition and does not take into account the imbalance in the spatial development of Russian regions that has formed over decades (Ivanov, Bukhvald, 2019). Researchers at the Higher School of Economics point out that the list of specializations, first, is very wide and does not have specifics, and second, contains a significant number of duplicate specializations ("... in the Strategy, 30% of the most common specializations are indicated for 71% of RF constituent entities (for example, "crop and livestock production, provision of appropriate services in these areas" – for 80 regions, and "production of other finished products" – for 84 regions). According to HSE estimates, one third of the most common specializations are objectively found in only 29% of territories"), and third, it includes nontradable industries whose products cannot be exported to other regions (Kutsenko et al., 2019).

We should note that the task set out in the action plan for the implementation of the Strategy to develop a methodological approach for identifying promising types of economic activity based on the concept of "smart" specialization has not been fulfilled. However, other approaches to the search for promising specializations are also used in economics. In addition to the "smart" specialization already mentioned, the most commonly used concepts include economic complexity and technological proximity.

Appropriate approaches are being developed by individual research groups. Thus, the formation of profiles of a promising specialization on the basis of "smart" specialization was carried out by scientists of the Russian Foreign Trade Academy of the Ministry of Economic Development of the Russian Federation (Kotov et al., 2019), and on the basis of the improved approach of the European Cluster Observatory – by researchers of the Higher School of Economics (Kutsenko et al., 2019).

In the foreign literature, the study of promising specializations within the framework of the concept of economic complexity is represented by works

[1] Spatial Development Strategy of the Russian Federation for the period through to 2025 (approved by RF Government Resolution 207-r, dated February 13, 2019).

on its analysis at the regional level. Thus, using the example of some Australian states, goods and services with a comparative advantage and capable of forming appropriate production capacities were identified (Reynolds et al., 2018). B. Tullio and C. Giancarlo identified a space in Europe within which regional technological proximity is characterized. In this work, seven clusters were analyzed, differing in competitive advantages, production characteristics and functional affiliation, and it was found that the more intense the dynamics of structural changes within the region, the higher the production capabilities due to the recombination of competencies of similar industries (Tullio, Giancarlo, 2018).

A Russian team of researchers representing RANEPA studied the issues of export diversification in Russian regions (Lyubimov et al., 2017). Major research results include the assessment of the levels of complexity of the export basket for 80 RF regions, the analysis of the potential for complication of exports of goods and services. According to the assessment results, the regions were divided into groups with low and high levels of foreign trade development.

In another study, these scientists examined the structure of export activity in the regions of the Russian Federation, and assessed the possibility of its diversification. According to the authors' calculations, an atlas of the economic complexity of exports of Russian regions was compiled (Lyubimov et al., 2018). The work confirmed the conclusions of previous studies: for example, it was proved that the western and central regions of Russia have a wider export basket and have more opportunities for its diversification, while the northern and eastern regions have the opposite. Another significant conclusion is that in order to expand the export basket, it is necessary to form interregional cooperative ties, as well as actively integrate into transnational value chains.

It is worth mentioning the research on economic complexity within regional systems. Russian science contains an example of a study of the complexity of the Kaliningrad Region's economy: methods and algorithms for searching and analyzing the source data system, an approach to assessing complexity are developed, recommendations for using the results of analysis in the system of regional management and managerial decision-making in the interests of industrial development in the Kaliningrad Region are formulated and substantiated (Roos et al., 2020).

The theory of economic diversity is one of the most well-known and significant concepts in the search for trajectories of the optimal path of economic development and structural transformations. Its key indicator can be called the indicator of technological proximity, which is also used to highlight related industries. Taking into account the disadvantages of the traditional approaches used, Hidalgo and co-authors (Hidalgo et al., 2007) developed a method for calculating the indicator of technological proximity based on comparative advantages. This indicator allows us to quantify the possibilities for developing new types of economic activities based on their technological prospects, taking into account the existing innovative and technological portfolio of territories. The work (Rastvortseva, Amanalieva, 2020), uses an example of high-tech economic activities within the EU countries and demonstrates the application of the indicator of technological proximity in order to analyze innovative systems and innovative industries' prospects.

The analysis of existing scientific papers allowed us to conclude that it is possible to combine methodological approaches to the search for promising specializations. However, it is worth noting that the concept of "smart" specialization is best suited for determining industry priorities due to its industry rather than product orientation, as

well as a more pronounced search for competitive advantages. In addition, it is possible to use some elements of other concepts when assessing the prospects of a particular type of economic activity.

Materials and methods

As the main methodological tools, we used the method of searching for promising specializations based on the criteria selection of types of economic activity. This technique was tested on materials from the Vologda Region for 235 types of economic activity (Rumyantsev et al., 2022). As part of the significant components of the assessment, within the framework of the proposed methodological approach, the effectiveness of industry specialization; market potential; innovation activity; patent security were analyzed.

As a final indicator, which is used to assess the prospects of economic activities in the region, a cumulative integral assessment is used, calculated on the basis of the sum of points assigned to each of the calculated indicators, according to the directions indicated above:

$$PC_i^{reg} = \left(EIS_i^{reg} + MP_i^{reg} + IA_i^{reg}\right) + PP_i^{reg},$$

where PC_i^{reg} – cumulative integral assessment of the prospects of the i-th type of economic activity in the region;

EIS_i^{reg} – sum of points according to the block of criteria "Efficiency of industry specialization", calculated for the i-th type of economic activity in the region;

MP_i^{reg} – sum of points according to the block of criteria "Market potential", calculated for the i-th type of economic activity in the region;

IA_i^{reg} – sum of points according to the block of criteria "Innovative activity", calculated for the i-th type of economic activity in the region;

PP_i^{reg} – sum of points according to the block of criteria "Patent provision", calculated for the i-th type of economic activity of the region.

The initial approbation and the study of relevant scientific papers required improvement of the existing methodological approach as follows:

– promising economic specializations are identified only for tradable industries, the competitive advantages of which allow using both the volume of the domestic market and export opportunities[2];

– it is more correct to calculate the significance of the type of economic activity (TEA) on a regional and national scale according to the number of employees so as to eliminate distortions caused by recording the volume of shipped products (used in calculations earlier) at the place of registration of the company rather than its physical location;

– due to the incompleteness of statistical information, a number of innovative activity indicators were excluded from the calculation; in order to compensate for the weight of innovative activity in the integrated assessment, the points for the remaining criteria were increased.

After making these changes, the list of indicators used to calculate the integral indicator of the prospectivity of a type of economic activity is as follows *(Tab. 1)*.

After the corresponding indicators have been calculated, they are assigned a point score in accordance with the intervals shown in *Table 2*.

Within the framework of the study, we formed the passports of promising economic specializations for Northwestern Federal District regions and revealed potential points of interaction for the types of economic activities we identified for the production of deep processing goods, including on the basis of interregional cooperation. The final stage of the study was to define microspecializations of regions, which required an analysis of expert opinions and relevant industry literature and allowed us to identify narrow market niches for vigorous economic development in the macroregion.

[2] The work uses a list of tradable industries presented in (Ketels, Protsiv, 2014).

Table 1. Methodology for calculating prospectivity indicators for the types of economic activity in the region

Indicator	Calculation
Effectiveness of industry specialization	
Labor productivity of TEA in the region	$K_1 = \left(\frac{V_{it}^{\text{reg}}}{L_{it}^{\text{reg}}} : \frac{\sum_{i=n} V_{it}^{\text{reg}}}{\sum_{i=n} L_{it}^{\text{reg}}}\right) * \left(\frac{L_{it}^{\text{reg}}}{L_{nt}^{\text{reg}}} : \frac{L_t^{\text{reg}}}{L_{nt}^{\text{reg}}}\right)$
Labor productivity of TEA in the macroregion	$K_2 = \left(\frac{V_{it}^{\text{reg}}}{L_{it}^{\text{reg}}} : \frac{V_{it}^{\text{mreg}}}{L_{it}^{\text{mreg}}}\right)$
Labor productivity of TEA in the country	$K_3 = \left(\frac{V_{it}^{\text{reg}}}{L_{it}^{\text{reg}}} : \frac{V_{it}^{\text{RF}}}{L_{it}^{\text{RF}}}\right)$
Nationwide efficiency of labor productivity in the industry	$K_4 = K_1 * \left(\frac{V_t^{\text{reg}}}{L_t^{\text{reg}}} : \frac{V_t^{\text{RF}}}{L_t^{\text{RF}}}\right)$
Market potential	
Significance of TEA on a national scale	$K_5 = \frac{L_{it}^{\text{reg}}}{L_{it}^{\text{RF}}} * 100\%$
Significance of TEA on a regional scale	$K_6 = \frac{L_{it}^{\text{reg}}}{L_t^{\text{reg}}} * 100\%$
Growth rate of TEA in the region	$K_7 = \sqrt[3]{\frac{L_{i(t-2)}^{\text{reg}}}{L_{i(t-3)}^{\text{reg}}} * \frac{L_{i(t-1)}^{\text{reg}}}{L_{i(t-2)}^{\text{reg}}} * \frac{L_{it}^{\text{reg}}}{L_{i(t-1)}^{\text{reg}}}} * 100\%$
Potential for economic complexity due to the development of TEA	$K_8 = D_i$ $K_9 = U_i$
Import substitution potential	$K_{10} = \frac{I_{it}^{\text{reg}}}{V_{it}^{\text{reg}}} * 100\%$
Innovative activity	
Share of shipped goods, works, and services of an innovative nature in the region's TEA in the volume of the country's TEA (in prices of year *t*)	$K_{11} = \left(\frac{N_{i(t-2)}^{\text{reg}}}{N_{i(t-2)}^{\text{RF}}} + \frac{N_{i(t-1)}^{\text{reg}}}{N_{i(t-1)}^{\text{RF}}} + \frac{N_{it}^{\text{reg}}}{N_{it}^{\text{RF}}}\right)/3$
Share of costs for innovative activities of the region's TEA in the volume of innovative costs of the country's TEA (in prices of year *t*)	$K_{12} = \left(\frac{CTI_{i(t-2)}^{\text{reg}}}{CTI_{i(t-2)}^{\text{RF}}} + \frac{CTI_{i(t-1)}^{\text{reg}}}{CTI_{i(t-1)}^{\text{RF}}} + \frac{CTI_{it}^{\text{reg}}}{CTI_{it}^{\text{RF}}}\right)/3$
Ratio of the shares of innovative goods, works and services in the region and in the country (in prices of year *t*)	$K_{13} = \left(\frac{\varepsilon_{i(t-2)}^{\text{reg}}}{\varepsilon_{i(t-2)}^{\text{RF}}} + \frac{\varepsilon_{i(t-1)}^{\text{reg}}}{\varepsilon_{i(t-1)}^{\text{RF}}} + \frac{\varepsilon_{it}^{\text{reg}}}{\varepsilon_{it}^{\text{RF}}}\right)/3$
Patent provision	
Patent provision	$K_{14} = \frac{Pat_i}{\sum_{k=1}^{6} Pat_i}$

Legend:
V_{it}^{reg} – volume of shipped goods of own production, own works completed and own services provided under the *i*-th type of economic activity in the region for year *t*; L_{it}^{reg} – average number of employees in the *i*-th type of economic activity in the region for year *t*; L_t^{reg} – average number of employees in the region for year *t*; L_{nt}^{reg} – average number of employees in the *n*-th industry in the region for year *t*; V_{it}^{mreg} – volume of shipped goods of own production, own works completed and own services provided under the *i*-th type of economic activity in the macroregion for year *t*; L_{it}^{mreg} – average number of employees in the i-th type of economic activity in the macroregion for year t; V_{it}^{RF} – volume of shipped goods of own production, own works completed and own services provided under the *i*-th type of economic activity in the RF for year *t*; L_{it}^{RF} – average number of employees in the i-th type of economic activity in the RF for year *t*; V_t^{reg} – volume of shipped goods of own production, own works completed and own services provided in the region for year *t*; V_t^{RF} – volume of shipped goods of own production, own works completed and own services provided in the RF for year *t*; L_t^{RF} – average number of employees in the RF for year *t*; D_i – length of the production chain; U_i – length of the supply chain*; I_{it}^{reg} – volume of imports of goods, works, and services under the *i*-th type of economic activity; N_{it}^{reg} – volume of shipped goods of own production, innovative works completed and innovative services provided under the *i*-th type of economic activity in the region for year *t*; N_{it}^{RF} – volume of shipped goods of own production, innovative works completed and innovative services provided under the *i*-th type of economic activity in the country for year *t*; CTI_{it}^{reg} – share of costs for innovation activities of TEA in the region under the *i*-th type of economic activity in the region for year *t*; CTI_{it}^{RF} – share of costs for innovation activities of TEA in the region under the *i*-th type of economic activity in the country for year *t*; $\varepsilon_{it}^{\text{reg}}$ – share of innovative goods, works, services under the *i*-th type of economic activity in the region for year *t*; $\varepsilon_{it}^{\text{RF}}$ – share of innovative goods in the total volume of goods, works, services under the *i*-th type of economic activity in the country for year *t*; Pat_i – number of patents under the *i*-th type of economic activity in the country.
* For more detail, see: (Lukin, 2022).
Source: own compilation with the use of (Rumyantsev et al., 2022).

Table 2. Point scores of indicators for determining promising specializations

Criterion	Procedure for assigning points	Criterion	Procedure for assigning points
K1	K1 ≥ 1.2 – 1 point 1.2 > K1 ≥ 0.8 – 0.5 points K1 < 0.8 – 0 points	K8	K8 ≥ 2.5 – 2 points 2.5 > K8 ≥ 2 – 1 point 2 > K8 ≥ 1.5 – 0.5 points K8 < 1.5 – 0 points
K2	K2 ≥ 1.2 – 1 point 1.2 > K2 ≥ 0.8 – 0.5 points K2 < 0.8 – 0 points	K9	K9 ≥ 2.5 – 2 points 2.5 > K9 ≥ 2 – 1 point 2 > K9 ≥ 1.5 – 0.5 points K9<1.5 – 0 points
K3	K3 ≥ 1.2 – 1 point 1.2 > K3 ≥ 0.8 – 0.5 points K3 < 0.8 – 0 points	K10	K10 < 0.5 – 2 points 0.5 < K10 < 1 – 1 point K10 ≥ 1 – 0 points
K4	K4 ≥ 2 – 2 points 2 > K ≥ 1.2 – 1 point 1.2 ≤ K4 ≥ 0.8 – 0.5 points K4 < 0.8 – 0 points	K11	K11 ≥ 5 – 1 point K11 < 5 – 0 points
K5	K5 ≥ 5 – 1 point 5 > K5 ≥ 1 – 0.5 points K5 < 1 – 0 points	K12	K12 ≥ 1 – 1 point 1 > K12 > 0 – 0.5 points K 12 ≤0 – 0 points
K6	K6 ≥ 10 – 1 point 10 > K6 ≥ 5 – 0.5 points K6 < 5 – 0 points	K13	K13 ≥ 1 – 1 point K13 < 0 – 0 points
K7	K7 ≥ 120 – 1 point 120 > K7 ≥ 110 – 0.5 points K7 < 110 – 0 points	K14	K1 4≥ 0.1 – K16*10 points K14 < 0.1 – 0 points
Source: own compilation based on (Rumyantsev et al., 2022) and expert assessments.			

Research results

The preliminary stage of the search for promising economic specializations in the regions of the Northwest of Russia was to define existing market specializations in the territories under consideration. For this purpose, localization coefficients were calculated for all sectors of the economy, as well as their share in the economy of each region. The conditions for the allocation of current specializations were the importance of TEA for the economy (at least 2% of the total volume of shipped products) and the pronounced specialization of the region in the production of a specific type of goods or services (specialization coefficient greater than 2)[3]. The calculation results are presented in *Table 3*.

Table 3. Market specializations of the economies in regions of the Northwest of Russia in 2021

Republic of Karelia
Mining and processing of iron ores Production of pulp, wood pulp, paper and cardboard Sawing and planing of wood Logging operations
Komi Republic
Production of oil and petroleum (associated) gas; provision of services in the field of oil and natural gas production Production of pulp, wood pulp, paper and cardboard Mining and processing of coal and anthracite Production of basic precious metals and other non-ferrous metals Manufacture of wood products, cork, straw and weaving materials

[3] A similar approach is used in (Kutsenko et al., 2019).

End of Table 3

Arkhangelsk Region
Production of pulp, wood pulp, paper and cardboard Sawing and planing of wood Railway transport activities: freight transportation Logging operations
Nenets Autonomous Area
Production of oil and petroleum (associated) gas; provision of services in the field of oil and natural gas production
Vologda Region
Production of cast iron, steel and ferroalloys Production of basic chemicals Production of other steel products by primary processing Production of dairy products Manufacture of wood products, cork, straw and weaving materials
Kaliningrad Region
Production of motor vehicles Production of ready-made animal feed Production of vegetable and animal oils and fats Processing and preservation of meat and meat food products; fish, crustaceans and shellfish
Leningrad Region
Production of petroleum products Manufacture of paper and cardboard products Animal husbandry Manufacture of tobacco products
Murmansk Region
Production of basic precious metals and other non-ferrous metals Mining and processing of iron ores Fishing Mining of minerals not included in other groupings
Novgorod Region
Production of basic chemicals Manufacture of wood products, cork, straw and weaving materials Animal husbandry Sawing and planing of wood Construction of roads and railways Manufacture of refractory products Manufacture of paper and cardboard products
Pskov Region
Animal husbandry Processing and preservation of meat and meat food products Manufacture of cables and cable fittings Secondary raw material processing activities Production of dairy products Manufacture of other general purpose machinery and equipment Production of electric motors, generators, transformers and switchgears, as well as control and measuring equipment
Saint Petersburg
Production of motor vehicles Computer software development; related services in this field Activities in the field of architecture, engineering surveys; technical consultations in these areas
Source: own compilation.

Promising economic specializations

Next, we performed calculations of promising economic specializations for regions of the Northwest of Russia on the basis of own methodology described earlier *(Tab. 4)*.

The combined analysis of the promising economic specializations of the territories of the macroregion makes it possible to form several new fragments of value chains in such industries as the timber industry, mechanical engineering and chemical production of deep processing. It is worth highlighting the results of the Murmansk Region, which has prospects of becoming a transport hub in the Northwest of Russia.

Table 4. Calculation of promising economic specializations for regions of the Northwest of Russia for 2021

Type of economic activity	PC_i^{reg}
Republic of Karelia	
Production of machinery and equipment for agriculture and forestry	12.7
Production of pulp, wood pulp, paper and cardboard	11.8
Manufacture of wood products, cork, straw and weaving materials	11.7
Komi Republic	
Production of pulp, wood pulp, paper and cardboard	9.8
Production, transmission and distribution of steam and hot water; air conditioning	9.6
Manufacture of wood products, cork, straw and weaving materials	9.2
Arkhangelsk Region	
Production of other steel products by primary processing	10.6
Secondary raw material processing activities	10.3
Nenets Autonomous Area	
Passenger air transport activities	9.7
Fishing	8.8
Construction of residential and non-residential buildings	8.5
Vologda Region	
Production of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms	12.5
Production of cast iron, steel and ferroalloys	12.2
Production of other steel products by primary processing	11.7
Sawing and planing of wood	11.7
Manufacture of rubber products	11.6
Production of pulp, wood pulp, paper and cardboard	11.4
Manufacture of machine tools, machinery and equipment for processing metals and other hard materials	11.3
Kaliningrad Region	
Waste treatment and disposal	12.3
Production of motor vehicles	11.7
Production of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms	10.6
Leningrad Region	
Manufacture of rubber products	12.4
Production of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms	11.6
Production of steel pipes, hollow profiles and fittings	11.2
Production of railway locomotives and rolling stock	11.1
Murmansk Region	
Production of basic precious metals and other non-ferrous metals, production of nuclear fuel	14.2
Construction of roads and railways	12.1
Warehousing and storage activities	11.2
Novgorod Region	
Production of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms	14.1
Manufacture of refractory products	10.9

End of Table 4

Pskov Region	
Production of building metal structures and products	11.4
Production of paints, varnishes and similar materials for coating, printing inks and mastics	10.7
Manufacture of paper and cardboard products	9.9
Saint Petersburg	
Production of other chemical products	14.5
Production of motor vehicles	14.2
Production of machinery and equipment for agriculture and forestry	13.7
Production of petroleum products	13.5
Production of electric motors, generators, transformers and switchgears, as well as control and measuring equipment	13.4
Source: own calculation.	

Let us consider the possibilities of combining current and prospective economic specializations of the regions of the Northwest of Russia in the value chains of various products.

Timber industry complex

Taking into account the current and prospective specialization of the territories under review, it is possible to recognize the timber industry complex as the most suitable for the formation of a full-fledged value chain, which is facilitated by the high resource potential of the northern regions (the forest cover of the territories of the Northwestern Federal District is 54.2%) and the presence of large production facilities, largely preserved since the USSR (Cheplinskite, 2023) *(Tab. 5)*.

Despite the fact that the economy of the Northwestern Federal District regions specializes in woodworking, most of the products have low added value and low processing depth (although there are also productions of high-tech wood products, for example CLT panels). Trade sanctions against Russia have cut off the Northwestern

Table 5. Distribution of existing and prospective economic specializations in the value chain of timber products in the context of enlarged production stages

Production stage	Type of economic activity	Region	Specialization
Production of investment products	Production of machinery and equipment for agriculture and forestry	Republic of Karelia	Promising
		Saint Petersburg	
Harvesting and primary processing of raw materials	Logging operations	Republic of Karelia	Existing
		Arkhangelsk Region	Existing
	Sawing and planing of wood	Republic of Karelia	Existing
		Arkhangelsk Region	Existing
		Novgorod Region	Existing
		Vologda Region	Promising
Production of intermediate products	Production of pulp, wood pulp, paper and cardboard	Republic of Karelia	Existing/ promising
		Arkhangelsk Region	Existing
		Komi Republic	Existing
		Vologda Region	Promising
Production of end products of deep processing	Manufacture of wood products, cork, straw and weaving materials	Komi Republic	Existing/ promising
		Vologda Region	Existing
		Novgorod Region	Existing
		Republic of Karelia	Promising
	Manufacture of paper and cardboard products	Leningrad Region	Existing
		Novgorod Region	Existing
		Pskov Region	Promising
Source: own calculation.			

Federal District regions from a significant share of the export market, and the reorientation of commodity flows to the East is difficult due to the low profitability of timber transportation compared to other exported goods. In addition to these problems, obsolescence and maximum utilization of production capacities are observed against the background of a low inflow of investment resources into the industry (Chaplinskite, 2023). There is also a high import dependence of the timber industry on foreign equipment.

Nevertheless, the industry has some incentives to deepen the processing of wood and its consumption in the domestic market:

– implementation of measures within the framework of the Strategy for the Development of the Russian Timber Complex through to 2030 (implementation of priority investment projects in the timber industry, stimulation of the production of deep processing products using innovative technological processes, etc.)[4];

– restrictions on the export of roundwood from the country in order to stimulate its internal processing (protective duties)[5];

– fulfilling the instructions of the RF President based on the results of the meeting on the development of the timber industry; the main focus of which is to stimulate domestic demand for products (individual prefabricated houses, pellet fuel, etc.)[6].

Promising market niches in the case of the timber industry include the production of individual prefabricated houses from CLT panels, manufacture of composite structural beams and OSL panels, biorefining and specific forest chemistry.

Machine-building industries

The high level of consumption of imported investment products in the context of trade restrictions poses threats to the economic security of the country. The regions of the Northwest of Russia feel it most acutely: many machine-building items were imported from unfriendly countries, the share of imports of certain types of products reached 100% (Shirokova, 2022). At the same time, the resource base for own mechanical engineering in the Northwest is extensive: the main intermediate consumption falls on metallurgy, which is a market specialization in three regions – the Vologda and Murmansk regions and the Komi Republic. A strong production chain of ferrous metallurgy products has been formed in the macroregion; rolling is the end product in the chain, which means it does not have the production of final products, which includes mechanical engineering (Lukin, 2021).

However, the Northwestern Federal District has a significant potential for both production and consumption of machine-building products *(Tab. 6)*. Thus, the need for reproduction of forestry and timber processing equipment was noted above; active development of railway transport corridors within the Northwest requires the production of locomotives and wagons; the departure of automakers due to sanctions allows forming own automotive industry based on their capacities.

The following problems are noted in the industry:

– the use of foreign components in domestic assembly reduces the efficiency of mechanical engineering for economic development;

– the fragmentation of industry enterprises exacerbates the shortage of production capacity with growing demand;

– weak interregional cooperation on the supply of raw materials and final products of mechanical engineering;

– low level of innovation and R&D in engineering industries;

[4] Strategy for the Development of the Russian Timber Complex through to 2030 (approved by RF Government Resolution 312-r, dated February 11, 2021).

[5] On the rates of export customs duties on goods exported from the Russian Federation outside the customs territory of the Eurasian Economic Union (approved by RF Government Resolution 2068, dated November 27, 2021).

[6] List of instructions by the President of the Russian Federation following the meeting on the development of the timber industry. Available at: http://www.kremlin.ru/acts/assignments/orders/70764 (accessed: September 14, 2023).

Table 6. Distribution of existing and prospective economic specializations in the value chain of machine-building products in the context of enlarged production stages

Production stage	Type of economic activity	Region	Specialization
Production of investment products	Manufacture of machine tools, machinery and equipment for processing metals and other hard materials	Vologda Region	Promising
Harvesting and primary processing of raw materials	Mining and processing of iron ores	Republic of Karelia	Existing
		Murmansk Region	Existing
	Mining and processing of coal and anthracite	Komi Republic	Existing
	Production of basic precious metals and other non-ferrous metals	Komi Republic	Existing
		Murmansk Region	Existing/ promising
Production of intermediate products	Production of cast iron, steel and ferroalloys	Vologda Region	Existing
	Production of other steel products by primary processing	Vologda Region	Existing/ promising
		Arkhangelsk Region	Promising
	Manufacture of cables and cable fittings	Pskov Region	Existing
Production of final products	Production of motor vehicles	Kaliningrad Region	Existing/ promising
		Saint Petersburg	Existing/ promising
	Manufacture of other general purpose machinery and equipment	Pskov Region	Existing
	Production of electric motors, generators, transformers and switchgears, as well as control and measuring equipment	Pskov Region	Existing
		Saint Petersburg	Promising
	Manufacture of machine tools, machinery and equipment for processing metals and other hard materials	Vologda Region	Promising
	Production of railway locomotives and rolling stock	Leningrad Region	Promising

Source: own compilation.

– incompatibility of intermediate consumption products and demand for them on the part of machine-building industries (Melnikov, 2019).

The prospects for the development of machine-building industries are ambiguous; the development of each type of engineering has different trends both in the macroregion and in the country. The availability of functioning capacities allows the NWFD to compete for a leading position in the national market. Thus, due to the reorientation of JSC Scientific and Production Corporation "Uralvagonzavod" named after F.E. Dzerzhinsky to a defense order, there was a shortage of wagons and tank cars for rail transportation[7], which, in case of expansion of production capacities, could be compensated by the Tikhvin Freight Car Building Plant. Against the background of the closure of airspace in the south of Russia, the demand for rail transportation in this direction has significantly increased, which allows Russian Railways to accumulate funds at least for updating the carriage stock. The active development of shipbuilding can be stimulated by increased cargo transportation along the Northern Sea Route[8]. The shortage of domestic equipment for the timber industry, noted earlier, may become a trigger for the phased development of a full cycle of production of equipment for logging:

[7] Where is the carriage going. Available at: https://transportrussia.ru/razdely/zheleznodorozhnyj-transport/9957-kuda-katitsya-vagon.html (accessed: December 12, 2023).

[8] The Northern Sea Route will promote the development of the Russian economy. Available at: https://rg.ru/2023/08/07/severnyj-morskoj-put-pomozhet-razvitiiu-rossijskoj-ekonomiki.html (accessed: December 12, 2023).

– the first stage is the production of the most simple but in-demand components (high-pressure hoses, fittings, chassis components, etc.);

– the second stage is the production of major components competing with Western and Asian analogues in price and quality (engines, transmissions, hydraulic units);

– the third stage is the full production cycle of logging complexes (harvesters, forwarders, transport vehicles).

Chemical production

The chemical industry is one of the most promising types of economic activity in the global economy due to the fact that its products are actively replacing traditional materials in mechanical engineering, consumer goods production, and construction.

The Northwest of Russia has significant competitive advantages in the field of chemical production: the presence of a large resource base (oil, gas, minerals for the production of fertilizers and large-tonnage inorganic chemistry), transport infrastructure, research institutes in the field of inorganic and organic chemistry, significant production capacities (in terms of fertilizer production).

However, at the same time, the chain of chemical production cannot be called expanded: the main chemical products produced in the macroregion are large-tonnage fertilizers that are exported *(Tab. 7)*. In conditions of trade restrictions and the absence of an extension of the grain deal, chemical products become less useful for the economic growth of regions in Northwestern Russia. Significant reserves of oil and gas are not used for deep processing, but are exported in raw form or as primary semi-finished products. The key barrier to the development of petrochemistry in the macroregion is the lack of pyrolysis facilities for the production of large-tonnage polymers, which are raw materials for high-tech plastics and rubbers with high added value.

Table 7. Distribution of existing and promising economic specializations in the value chain of chemical products in the context of enlarged production stages

Production stage	Type of economic activity	Region	Specialization
Harvesting and primary processing of raw materials	Production of oil and petroleum (associated) gas	Komi Republic	Existing
		Nenets Autonomous Area	Existing
	Provision of services in the field of oil and natural gas production	Komi Republic	Existing
		Nenets Autonomous Area	Existing
	Secondary raw material processing activities	Pskov Region	Existing
Production of intermediate products	Production of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms	Vologda Region	Existing/ promising
		Novgorod Region	Existing/ promising
		Leningrad Region	Promising
		Kaliningrad Region	Promising
	Production of other chemical products	Saint Petersburg	Promising
Production of end products of deep processing	Production of petroleum products	Leningrad Region	Existing
		Saint Petersburg	Promising
	Manufacture of rubber products	Leningrad Region	Promising
	Production of paints, varnishes and similar materials for coating, printing inks and mastics	Pskov Region	Promising
Source: own compilation.			

One of the problems for the organization of petrochemical industries in the Northwestern Federal District is the lack of transport corridors for the creation of pyrolysis plants. As a solution to this problem, it may be proposed to use and further expand the branch of the gas pipeline from the Nenets Autonomous Area with the construction of a gas processing plant in the Vologda Region.

Existing enterprises in the macroregion produce mineral fertilizers, fuel oil products, aromatic hydrocarbons, polyethylene terephthalate. Promising niches based on existing production facilities are the production of small-tonnage highly efficient mineral fertilizers, production of polymer resins and composites based on aromatic hydrocarbons, as well as high-tech thermoplastics based on polyethylene for use in additive technologies and composite industrial materials.

Conclusion

The regulated structural transformation of the economy in the regions of the Northwest of Russia should be based on strengthening competitive advantages and corresponding economic specializations, which together will allow diversifying the economy of the macroregion.

With the help of our own methodological approach, promising types of economic activity for each region were identified. Coupled with the use of existing specializations, it was possible to form three potential value chains: in the timber industry, the engineering sector and the chemical industries. Promising market niches for producers in the Northwest were identified.

The following can be proposed as directions for the development of promising economic specializations:

– development of interregional industrial cooperation;

– promotion of innovation processes in regional economies;

– stimulation of deep processing of products for the end user.

Further research will be aimed at determining the mechanisms and tools of structural policy in the interests of developing promising economic specializations, as well as forecasting the trajectories of regional development dependent on management decisions.

The results of this study can be useful to a wide range of researchers in sectoral and regional economics, as well as to federal and regional authorities in the development and revision of various strategic and sectoral documents.

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Assessing the Professional Structure of the Employed Population in Russian Regions on the Basis of Economic Complexity Concept

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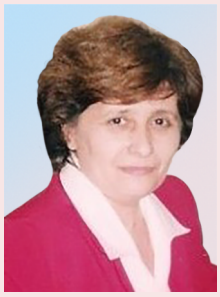

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Abstract. The skill level of an employee has a significant impact on the formation of employment indicators and economic development. Current scientific discussions are devoted to assessing the prospects for development of the labor market, identifying professions that will be in demand in the future and that will determine the possibilities for the development of human capital. The aim of the work is to assess the economic complexity of professional employment structure and the economic complexity of professional groups of the employed population in Russia's regions, and to identify trends in the development of regional labor markets on this basis. The assessment of the economic complexity of the regional structure of professional employment can be considered as a characteristic of the level of human capital development, since the region's ability to bring the develop of professional groups with high estimates of economic complexity to the level of strong ones depends on the knowledge accumulated by employees. Estimates of the economic complexity of professional employment structure in Russia's regions and the economic complexity of professional groups were obtained according to the data for 2018, 2020 and 2021. For five professional groups, the grades of economic complexity assessments do not change over time, including those for doctors of sciences, candidates of sciences and specialists of the highest skill level. For four professional groups, the ranks change slightly – no more than by a unit. The ranks of complexity assessments change significantly for two professional groups: "managers" (the position of this professional group is improving) and "employees of the service and trade sector and protection of citizens and property" (their position is deteriorating). The ranking of the professional group "unskilled workers" is higher than the rankings of the three groups of skilled workers. The rankings of assessments of the complexity of professional groups correspond to existing opinions about the average level of human capital development among representatives of these groups of the employed population. Estimates of the economic complexity of the structure of professional employment and professional groups can be used to develop a methodology for choosing priority areas for diversifying the region's economy.

Key words: professional structure, complexity of the economy, human capital, region, assessment.

Introduction

Professional training, employee's skill level, and a set of production functions, which a specialist of different types activities performs, have a significant impact on the formation of employment indicators. The dependence of economic results strengthens from the degree of implementing workers' abilities, knowledge, skills and competencies; occupational and skilled structure of employed population is one of the most important characteristics of human capital. The International Labour Organization identifies skill as "...the ability to carry out the tasks and duties of a given job", and skill level as "a function of the complexity and range of tasks and duties to be performed in an occupation"[1].

The literature notes significant shifts in occupational employment structure; the focus is on the analysis of groups with high skill level – professionals "as a special social group occupying a relatively high position in the stratification hierarchy of society due to the possession of such specific assets as knowledge and skills, the formation of which requires not only long-term training and experience, but also direct (money) or indirect (salary lost during the period of training) investments" (Tikhonova, 2020).

It is worth noting formally the skill serves as a guarantee for an employer that an employee has certain competencies, further improvement of which is aimed at professional training and retraining (Abuzyarova et al., 2019). The article

[1] International Standard Classification of Occupations (ISCO), 2015. Available at: https: //isco.ilo.org/en/isco-08

(Toksanbayeva, Popova, 2021) also emphasizes that to perform the work of a particular skill it is necessary to have education not lower than officially required, but not all the employed work in accordance with the educational status. The authors further point out that the mismatch between workers' educational and qualification status is observed in all occupational groups, but mainly in favor of the level of education higher than the required one, which does not contradict the relevant professional standards. At the same time, it is most typical for the group of highly qualified specialists, leading in terms of average earnings (without the group of managers).

However, "the majority of professional jobs do not require updating knowledge and upgrading skills, as well as previous education and practical experience – at least in the opinion of people who occupy them. These jobs in more than 60% of cases do not involve professional development" (Tikhonova, 2020). Nevertheless, "...relatively high incomes, social security and the resource of influence allow speaking of most of them as the best quality jobs" (Tikhonova, 2020). At the same time, the researcher notes that the educational structure of the Russian labor force has changed faster than its professional or sectoral structure. There is a close relationship between levels of occupational skills and levels of education, but there is no strict mutually unambiguous correspondence (Gimpelson, Kapeliushnikov, 2022).

Changes in the structural characteristics of employment are manifested in the labor market after a certain period of time. Any type of activity requires training and formation of appropriate skills, including for low- or unskilled labor. As a rule, unskilled labor is usually defined as work involving a high expenditure of physical strength, while skilled labor is defined as predominantly mental work requiring significant intellectual input. It seems that this approach is limited, since intellectual work also results in physical expenditure, and physical effort is not realized without mental effort. In modern conditions, the active introduction of digital technologies requires new approaches to determining the role and importance of physical and mental labor, although it is recognized that new technologies will primarily replace physical labor.

The literature naturally discusses the question of whether there will be a gradual increase in the share of skilled labor and, at the same time, an erosion of low-skilled workers from the labor market, or whether a U-shaped scenario will be the determining factor, when the growth in the number of jobs for skilled labor is accompanied by a "subsidence in demand for middle-skilled workers" (Vishnevskaya, Zudina, 2017) and an increase in demand for occupations with relatively low skills, most of which are trade workers and unskilled workers, as well as equipment operators whose work is likely to be computerized in the coming years (Chernenko et al., 2017).

We should note that the main feature of unskilled work is considered to be its accessibility. Necessary knowledge, skills and abilities can be quickly mastered in the process of work, no special professional education is required. In the classifier of occupations, which is intended for conducting statistical surveys of population distribution by types of occupations, the group "unskilled workers" is singled out: cleaners and servants in houses, hotels and various institutions, as well as unskilled workers in agriculture, forestry, mining, construction, manufacturing and transportation (packers, loaders, laborers, garbage collectors and recyclers, etc.)[2]. These activities are assessed as non-prestigious, employers save on labor costs and wage levels are often low, although unskilled labor is in demand and, having gained professional experience and good skills, a worker can move to a better-paid job and a corresponding new position that does

[2] All-Russian Classificatory of Occupations. OK 010–2014 (MSKZ–08). Moscow: Standartinform, 2015.

not require special professional education (e.g., managing a group of unskilled workers), which can serve as an incentive to improve education.

However, unskilled labor also has a negative impact on the economy: workers are more likely to make mistakes, allow defects, which leads to an increase in costs. In addition, employee's skill competence affects the productivity and safety of labor, reducing the level of various risks and injuries at work. This is important not only for enterprises and organizations, but also characterizes the balance of the labor market at the level of the national economy and regions (Nanavyan, 2020). The use of new technologies and equipment, automation of production processes can improve the situation. These processes are closely related to sectoral and regional differences, which largely determine the opportunities for the development of regional economies, the creation of decent jobs, increasing the level of enterprises' innovation activity and the human potential development.

Therefore, the economy's development, including regional economy, involves the identification of promising areas of specialization and the formation of appropriate human resources. At the same time, as it is rightly noted in the article (Rumyantsev et al., 2022), "determination of promising economic specialization is a more complex procedure, which is difficult to carry out using only mathematical methods. ... In order for the restructuring of the economy to lead to the activation of its dynamics, it is necessary to take into account the existing economic specialization of the region, to detect and eliminate "bottlenecks" of value chains (VC), to act through the formation of highly productive sectors with export orientation, but it is worth to balance the ratio of domestic and foreign markets". We should also say that it can be done on the basis of comparative analysis, which allows not only identifying and determining trends, but also assessing the prospects for the development of the occupational employment structure, which is especially important for the labor market research.

In this regard, the aim of our work is to assess the economic complexity of the occupational employment structure and the economic complexity of occupational groups of the employed population in Russia's regions, to identify on this basis the trends in the development of the regional labor markets.

The information base is the data of the sample survey of organizations (except small businesses) "On the number and needs of organizations in employees by occupational groups" of the Federal State Statistics Service, the results of which allow analyzing occupational and qualification structure of the number of employees, including the constitute entities of the Russian Federation, as well as data on the number of doctors and candidates of sciences in the RF regions[3].

According to the Classificatory of Occupations OK 010-2014 (MSKZ-08) (OKZ), the survey presents the following occupational groups.

1. Managers.
2. Specialists of the highest skill level.
3. Specialists of the middle skill level.
4. Employees involved in the preparing and processing of documentation, accounting and servicing.
5. Employees of service and trade, protection of citizens and property.
6. Skilled agricultural, forestry and fishery workers.
7. Skilled workers in industry, construction, transportation and related occupations.
8. Operators of production plants and machines, assemblers and drivers.
9. Elementary occupations.

The objects of classification in OKZ are occupations. An occupation is understood as

[3] On the number and needs of organizations in employees by occupational groups Rosstat. Moscow, 2022; Regions of Russia. Socio-economic indicators. 2022: Collection of articles. Rosstat. Moscow, 2022. 1122 p.

a type of labor activity carried out at a workplace with a relatively stable composition of labor functions (works, duties), generating earnings or income. Occupation includes any type of labor activity, both requiring and not requiring special training[4].

Assessment methodology

To analyze the occupational employment structure in the region, we used the data on the number of employees of the organizations of the RF constituent entities by occupational groups, and revealed their comparative advantages on the basis of the indicator RCA_{kj}.

Let us determine the RCA_{kj} of identified comparative advantage (Balassa, 1965):

$$RCA_{kj} = (z_{kj} / \sum_j z_{kj}) / (\sum_k z_{kj} / \sum_{kj} z_{kj}), \quad (1)$$

where z_{kj} – number of employees of occupational group j in region k;

RCA_{kj} – ratio of share of occupational group j in total number of occupational groups of region k to the share of occupational group j in all regions of the total number of all occupational groups in the regions.

In accordance with the works (Balassa, 1965; Hausmann, Klinger, 2006), the indicator RCA_{kj} can be used to identify comparative advantages of occupational groups in regions, for which the condition of the bottom constraint type is checked. If the value of RCA_{kj} exceeds one, we will assume that occupational group j in region k has revealed comparative advantages in terms of the number of employees of organizations. Otherwise, there are no identified comparative advantages::

$$a_{kj} = \begin{cases} 1, \ if \ RCA_{kj} \geq 1; \\ 0, \ if \ RCA_{kj} < 1. \end{cases} \quad (2)$$

The matrix $A = (a_{kj})$ contains data on occupational groups, which in different regions have comparative advantages in terms of the number of employees of organizations. The rows of this matrix correspond to regions, the columns – to occupational groups. An occupational group with the identified comparative advantages in the region will be called a *strong* occupational group of the region, the feature of which is that its share in the total number of employed population of the region is higher than the share of this group in the national labor market.

The vector $(a_{kj_1}, \cdots, a_{kj_m})$ will be called the *structure of strong occupational groups* of region k. Further the matrix $A = (a_{kj})$ will be considered as a formal description of regional structures of professional employment.

In the work, we consider ***the economic complexity of the skilled/occupational employment structure*** (for short, ***the economic complexity of the employment structure***) as a characteristic reflecting the development rate of the region's human capital, which is determined by estimates of the economic complexity of strong occupational groups in the structure of its economy. Similarly, the ***"economic complexity of an occupational group"*** is a feature of the average level of human capital development of the representatives of this group and depends on the economic complexity of the occupational employment structures of those regions in which this occupational group is strong.

[4] The literature rightly notes that "...given the complexity of defining methodological approaches and key indicators to forecast employment and the economy's needs in certain occupations, the biggest problem for forecasting occupational structure is the lack of sufficiently complete statistics of occupations in Russia, which still does not fully comply with internationally accepted norms. In particular, although the methodology and scope of the survey are improving, it is poorly applicable for in-depth analysis of regional differences and construction of econometric models to identify the causes of these differences. The occupational groups themselves by the name of the survey fully correspond to the All-Russian Classificatory of Occupations, but the question arises: do Russian statistical agencies use the terms "occupation" and "profession" as synonyms or introduce any specificity in them depending on the context of use. Accordingly, in Russian studies of occupational deficit in employment and on the labor market there are isolated works using a simple probit model, which consider only the deficit of qualified personnel in general without occupational division" (Tkachenko, Ginoyan, 2021).

Let us denote the estimate of economic complexity of the occupational employment structure in region k by $PSCI_k$; the estimate of economic complexity of occupational group j by $PGCI_j$. According to the economic complexity concept (Hausmann et al., 2006; Hidalgo, Hausmann, 2009; Hartmann et al., 2017; Afanasiev, Kudrov, 2021), these complexity estimates have the following properties. The economic complexity of a region's employment structure is proportional to the average level of economic complexity of strong occupational groups in that region:

$$PSCI_k = a_1 \sum_j r_{kj} PGCI_j, \qquad (3)$$

where $q_{k0} = \sum_j a_{kj}$ – number of strong professionals in a region, $r_{kj} = \frac{a_{kj}}{q_{k0}}$ – weighting factor, a_1 – positive constant.

The economic complexity of an occupational group is proportional to the average level of economic complexity of occupational employment structures in the regions, in which the occupational group is strong:

$$PGCI_j = a_2 \sum_k r^*_{jk} PSCI_k, \qquad (4)$$

where $q_{j0} = \sum_k a_{kj}$ – number of regions, in which the occupational group is strong, $r^*_{jk} = \frac{a_{kj}}{q_{j0}}$ – weighting coefficient, a_2 – positive constant.

The *PSCI* index measures the economic complexity of occupational employment structures in regions by combining information on the ***diversity*** of occupational employment structures (the number q_{k0} of strong occupational groups in a region) and the ***prevalence*** of occupational groups (the number q_{j0} of regions in which an occupational group is strong). The idea behind the *PSCI* index is that the occupational employment structures of regions with high complexity scores are diversified, containing strong occupational groups with low prevalence and relatively high economic complexity scores, and therefore only a few regions have developed these occupational groups to the level of strong ones. Regional occupational employment structures with relatively low estimates of economic complexity include strong occupational groups with relatively high prevalence and low estimates of economic complexity.

Let $\boldsymbol{s} = \left(PSCI_{k_1}, PSCI_{k_2}, \cdots\right)^T$ be a vector-column of assessments of the economic complexity of the region's employment structure;

$\boldsymbol{g} = \left(PGCI_{j_1}, PGCI_{j_2}, \cdots\right)^T$ is a vector-column of assessments of the economic complexity of occupational groups;

$\boldsymbol{R}_1 = \left(r_{kj}\right)$, $\boldsymbol{R}_2 = \left(r^*_{jk}\right)$ are weight matrices.

From relations (3) and (4) it follows that $s = a_1 a_2 \boldsymbol{R}_1 \boldsymbol{R}_2 \boldsymbol{s}$, $\boldsymbol{g} = a_1 a_2 \boldsymbol{R}_2 \boldsymbol{R}_1 \boldsymbol{g}$.

Thus, the assessments of economic complexity of employment structure in regions are components of the eigenvector of the matrix $\boldsymbol{R}_1\boldsymbol{R}_2$, and the assessments of economic complexity of occupational groups are components of the eigenvector of the matrix $\boldsymbol{R}_2\boldsymbol{R}_1$.

The matrices $\boldsymbol{R}_1\boldsymbol{R}_2$ and $\boldsymbol{R}_2\boldsymbol{R}_1$ are stochastic: their elements are non-negative and their sum over the rows is 1. Due to stochasticity, the matrix $\boldsymbol{R}_1\boldsymbol{R}_2$ has an eigenvalue equal to 1 and an eigenvector corresponding to it, which consists of the same coordinates. In accordance with the approach to estimating economic complexity presented in the works (Hausmann and Rodrik, 2003; Sciarra et al., 2020), we will use the eigenvector of the matrix $\boldsymbol{R}_1\boldsymbol{R}_2$, which corresponds to the second maximum eigenvalue, as estimates of the economic complexity of the regional employment structure. As estimates of the economic complexity of occupational groups we will use the eigenvector of the matrix $\boldsymbol{R}_2\boldsymbol{R}_1$, which corresponds to the second maximum eigenvalue. It is worth noting that the estimates of economic complexity of the regional employment structure and occupational groups are relative. They do not depend on the scale of the regional economy, and they can take both positive and negative real values (Afanasiev, Kudrov, 2021).

Input data and results

Data structure. To assess the economic complexity of the occupational employment structure and the economic complexity of occupational groups of the employed population in Russia's regions, we used Rosstat data on the list number of employees of organizations by occupational groups in the RF constituent entities for 2018, 2020 and 2021, which reflect the number of employed people in the regions by nine occupational groups in accordance with the All-Russian Classificatory of Occupations OK 010-2014. In addition, we took into account the data on the number of doctors and candidates of sciences in the RF constituent entities.

We considered each employee of an organization only in one of the occupational groups, so the number of the occupational group "specialists of the highest skill level" in each region was reduced by the total number of doctors and candidates of sciences. As a result, we used the data on 11 "occupational groups", including the group of doctors of sciences and the group of candidates of sciences, for calculations (column (4) of Table P2 of the Appendix).

Calculation results. In accordance with the methodology described above, we obtained assessments of the economic complexity of regional employment structures and the economic complexity of occupational groups using data for

Figure 1. Matrix 0-1 region – occupational group with rows ordered by PSCI and columns ordered by PGCI

Source: own compilation.

2018, 2020 and 2021. *Table P1 of the Appendix* shows estimates of the economic complexity of occupational employment structures of 79 regions. The regions are grouped by federal districts and arranged in the order used by Rosstat. *Table P2 of the Appendi*x provides estimates of the economic complexity of occupational groups. The occupational groups are arranged in descending order of their complexity estimates for 2021, presented in column (5) of this table.

Figure 1 presents the 0-1 matrix describing the employment structure in Russia's regions according to the data for 2021. The matrix rows correspond to regions, columns – to occupational groups. A dark cell means that the corresponding element a_{kj} of the matrix is equal to 1, i.e. the occupational group is strong in the region. Otherwise, the matrix element is zero and the occupational group is not strong in the region. The rows of the matrix are ordered from bottom to top by increasing estimates of the economic complexity of the employment structure in $PSCI_k$ regions. The columns are ordered from left to right by increasing estimates of economic complexity of $PGCI_j$ occupational groups. The upper rows of the matrix contain significantly more units than the lower rows. Accordingly, regions with higher estimates of the economic complexity of occupational employment structures contain more strong occupational groups than regions with low estimates. The employment structures of these regions are more diverse.

Occupational groups with relatively high estimates of economic complexity $PGCI_j$ are strong predominantly in regions with relatively high estimates of economic complexity of employment structure. These occupational groups have relatively low prevalence estimates (columns (1–3) of Table P2 in the Appendix). Accordingly, the bottom right corner of the matrix is weakly filled with units. Occupational groups with relatively low estimates of economic complexity of employment structure, the upper left corner of the matrix is weakly filled with units. We can conclude that the structure of the matrix correctly reflects the idea of the approach to assessing economic complexity based on the concept of identified comparative advantages, which is represented in this study by formulas (1), (2), and the conditions of interrelation of estimates, represented by formulas (3), (4). We should note one important advantage of this approach: the possibility of obtaining interrelated assessments of the economic complexity of the regional employment structure and estimates of the economic complexity of occupational groups is provided[5].

According to 2021 data, the calculations allow identifying the following five regions with the highest $PSCI_k$ assessments of the economic complexity of the employment structure (in decreasing order): the Tomsk Region, the Novosibirsk Region, Moscow, Saint Petersburg, and the Moscow Region. High scores are explained by the fact that the following occupational groups are strong in these regions: doctors of sciences, candidates of sciences, specialists of the highest skill level. These occupational groups have relatively low prevalence (column 3 of Table P2) and high estimates of economic complexity (column 5 of Table P2). The position of these regions in the ranking is stable. The standard deviation of the difference between the ranks of economic complexity estimates for 2018 and 2021 is 14.3. The mathematical expectation is close to zero. The modulus change in the ranks of estimates within the standard deviation will be assessed as insignificant. For the above five regions, the ranks of their estimates in the time period under consideration change insignificantly (Tab. P1).

[5] Other approaches can be used to assess the complexity of the occupational employment structure. For example, the Shannon entropy calculation or complexity assessment using the Herfindahl–Hirschman index. This paper does not aim at comparative analysis of the approach described by formulas (1–4) with alternative approaches to complexity assessment.

We note three regions with the lowest scores in 2021: the Arkhangelsk Region, the Perm Territory, and the Tyumen Region. In each of them, there are only two strong occupational groups: skilled workers in industry, construction, transportation and workers in related occupations; operators of production plants and machines, assemblers and drivers. These occupational groups have high prevalence (column 3 of Table P2) and relatively low estimates of economic complexity (column 5 of Table P2). For the Arkhangelsk Region, the change in the ranking of $PSCI_k$ assessments is significant. The position in the rating of the Perm Territory and the Tyumen Region is stable over time.

Over the period under review, 8 regions marked with (**) in the first column of Table P1 significantly improved their positions in the $PSCI_k$ score ranking. According to the results of the clustering of regions by GRP structure presented in (Afanasiev et al., 2018), most of these regions have developed manufacturing sectors. At the same time, 10 regions marked with (*) significantly worsened their positions in the ranking. Most of them have developed extractive industry sectors. A significant change in the assessment of economic complexity of the region's occupational employment structure is the result of a change in the structure of strong occupational groups. The change in this assessment may be influenced, although to a lesser extent, by the change in the assessments of economic complexity of occupational groups presented in columns 5–7 of Table P2.

Table 1 shows the correlation coefficients of assessments of economic complexity of the occupational employment structure in the regions, calculated on the basis of three-year data. These estimates are highly stable over time.

Table 2 shows the correlation coefficients of the assessments of economic sophistication of the 11 occupational groups based on three years of data. The estimates of occupational groups are also stable over time.

On the left, using data for 2020, *Figure 2* shows the relationship between assessments of the economic complexity of occupational groups (column (6) of Table P2 of the Appendix) and their prevalence rates (column (2) of Table P2). On the right, using data for 2021, Figure 2 presents the relationship between the estimates of occupational groups from column (5) of Table P2 of the Appendix (on the ordinate axis) and their prevalence rates from column (3) of the same table.

Table 1. Correlation coefficients of assessments of economic complexity of the occupational employment structure

	PSCI **2018**	PSCI **2020**	PSCI **2021**
PSCI **2018**	1	0.836	0.799
PSCI **2020**	0.866	1	0.837
PSCI **2021**	0.838	0,886	1

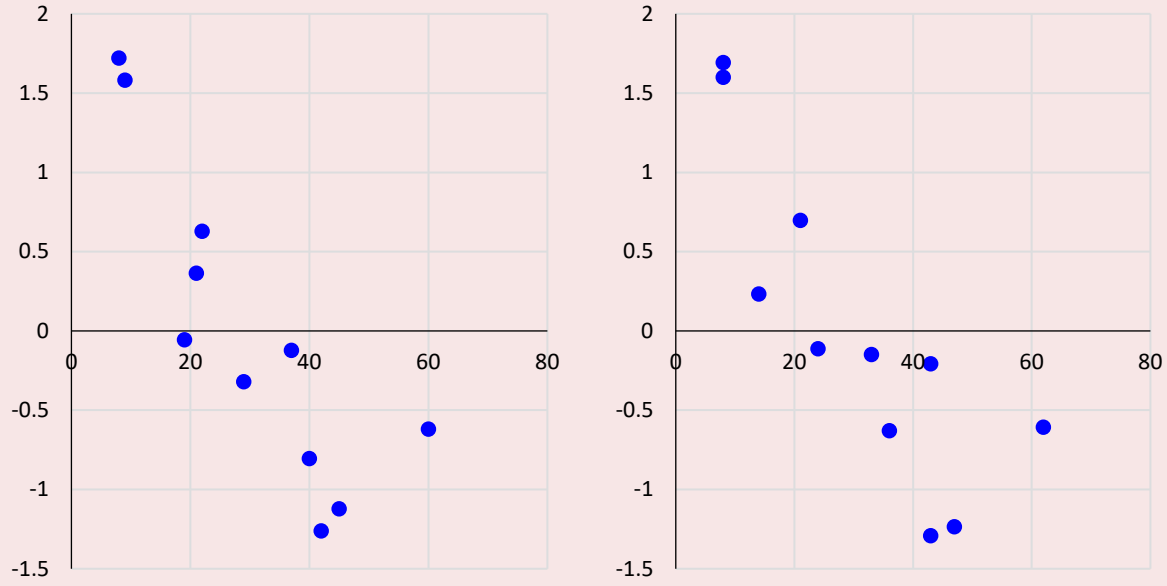
Below the main diagonal are Pearson correlation coefficients.
Above the main diagonal are Spearman rank correlation coefficients.
Source: own compilation.

Table 2. Correlation coefficients of assessments of economic complexity of occupational groups

	PGCI **2018**	PGCI **2020**	PGCI **2021**
PGCI **2018**	1	0.936	0.927
PGCI **2020**	0.976	1	0.973
PGCI **2021**	0.974	0.979	1

Below the main diagonal are Pearson correlation coefficients.
Above the main diagonal are Spearman rank correlation coefficients.
Source: own compilation.

Figure 2. Dependence of assessments of economic complexity of occupational groups on their prevalence (abscissa axis – prevalence of occupational group, ordinate axis – estimate of economic complexity of occupational group)



Source: own compilation.

An increase in the prevalence of an occupational group is accompanied by a downward trend in the estimate of its economic complexity. The exception is the group of unskilled workers, which has the highest prevalence and a higher estimate of economic complexity than the three groups of skilled workers. These features are also characteristic of the results obtained from the 2018 data (see columns (7) and (1) of Table P2 of the Appendix, respectively).

Of particular interest is the analysis of changes in the ranks of professional groups' assessments over time. For the three years under consideration, the ranks are shown in columns (8–10) of Table P2 of the Appendix. We can note that for five professional groups the ranks do not change over time, including for doctors and candidates of sciences, as well as specialists of the highest skill level. For four occupational groups the ranks do not change by more than one unit, i.e. insignificantly. The ranks of economic complexity estimates change significantly (by more than one unit) for two professional groups: "managers" (the position of the occupational group improves against the background of its decreasing prevalence) and "employees in the service and trade, protection of citizens and property" (the position worsens against the background of its increasing prevalence). Changes in the occupational employment structures in the regions and the characteristics of the prevalence of occupational groups may be caused by long-term trends in the structure of the labor market. The impact of the coronavirus pandemic is also possible, since the greatest impact of the restrictions was on the employment of workers in the market services sector, where "the key risk factors for job loss were the need for direct contact with the consumer in carrying out a particular type of activity and the presence of obstacles to the transition to a remote mode of work" (Soboleva, Sobolev, 2021).

The assessments of economic complexity of $PGCI_j$ occupational groups and the ranks of these

estimates correspond to the existing opinions about the average level of human capital development of representatives of these groups. A similar interpretation of occupational complexity estimates was used in the analysis of occupational employment structures in the UK municipalities and US states (Mealy et al., 2019). The $PSCI_k$ economic complexity estimates of the occupational employment structures of regions and their ranks can be considered as relative characteristics of the level of human capital development, since the ability of a region to develop to the level of strong occupational groups with high economic complexity estimates depends on the accumulated knowledge. The possibility of interpreting estimates of economic complexity of production structures as estimates of the level of human capital development of countries and regions was noted, for example, in the work (Hidalgo, 2015).

The assessment of the occupational group "unskilled workers" attracts attention. It is higher than the estimates of the three groups of skilled workers. However, this circumstance correctly reflects the current view of the assessment of human capital of unskilled workers. In the work (Vishnevskaya, Zudina, 2017), which analyzes the future state of the occupational structure of the labor force in European countries, it is noted that "the demand for the labor of unskilled workers is expected to increase, which will be observed against the background of a decrease in the number of skilled working professions". Some researchers (see, for example, Crouch, 2010) consider the expansion of demand for unskilled labor "as a confirmation of the U-shaped scenario of the development of the occupational structure, when not only qualified specialists are in demand, but also workers with low levels of education and training". The work (Walter, Lee, 2022) points out that the nature of digitalization is changing particularly dynamically in a number of occupations. First of all, these are jobs with a large share of non-standard manual tasks, the accelerated digitalization of which leads to the obsolescence of competencies. The authors indicate that a number of specialized skills are becoming obsolete faster than general competencies. At the same time, the contribution of education to productivity is most intensively depreciated in high-tech jobs characterized by a large share of non-standard interactive and manual, as well as standard cognitive tasks.

The estimates of economic complexity of occupational groups we obtained do not contradict the hypothesis about the U-shaped character of human capital development of occupational groups (see Fig. 2). The unskilled labor force constitutes a significant part of the labor market, performing everyday production tasks that do not depend on technical abilities or skills. According to statistics published by the Bureau of Labor Statistics[6], unskilled and low-skilled labor will account for the maximum increase in jobs between 2014 and 2024.

We have assessed the relationship between the economic complexity of the regional employment structure for 2020 and the increase in GRP per capita, which is calculated as the difference of GRP per capita for 2020 and 2018. Several regions with developed extractive industries, in which the change in GRP per capita over the period is more than 100 thousand rubles and is explained by the high share of natural rent in GRP, were excluded from the consideration (Afanasiev et al., 2018; Afanasiev, Kudrov, 2020). These are the Murmansk and Tyumen regions, the Republic of Sakha (Yakutia), the Kamchatka Territory, the Khabarovsk Territory, the Magadan and Sakhalin regions, and the Chukotka Autonomous Area. The Pearson correlation coefficient of assessments of economic complexity of employment structure and GRP per capita growth is 0.285. we can observe their significant interrelation.

[6] Available at: https://nesrakonk.ru/unskilled-labor

The research assessed the relationship between the economic complexity of the regional employment structure and the per capita income. We excluded the Tyumen Region and the Chukotka Autonomous Area from consideration. The Pearson correlation coefficient of assessments of economic complexity of employment structure and per capita income is 0.332 according to 2020 data and 0.301 according to 2021 data. The obtained results do not contradict the possibility of interpreting the estimates of economic complexity of the regions' occupational employment structures as characteristics of the level of human capital development, which affect the level of material well-being.

Estimates of the economic complexity of occupational employment structures can be used to develop a methodology for selecting priority directions of diversification of the regional economy (Afanasiev, Il'in, 2022). This methodology allows justifying the choice of a sector for the development to the level of a strong sector in the region using a number of criteria based on assessments of the economic complexity of the structures of strong sectors in the regions. The number of criteria can be expanded using assessments of the economic complexity of employment structures and occupational groups, considering them as characteristics of the level of human capital development, influencing the level of material well-being. The application of the methodology of selecting priority directions of diversification using digital technologies in regional situation centers can ensure the coordination of decisions made by regions in choosing the directions of diversification to improve the economic security of the country.

Conclusions

We obtained assessments of the economic complexity of the regional occupational employment structure and the economic complexity of occupational groups based on data for 2018, 2020 and 2021. The 0–1 region is occupational group matrix with rows and columns ordered by the values of these estimates correctly reflects the idea of the approach to assessing economic complexity based on the concept of identified comparative advantages.

The regions with the highest assessments of the economic complexity of the occupational employment structure are the regions in each of which the strongest occupational groups are: doctors of sciences, candidates of sciences, specialists of the highest skill level. These occupational groups have relatively low prevalence and high estimates of economic complexity. The regions with the lowest estimates are those with only two strong occupational groups in each: skilled industrial, construction, transportation, and related occupations; manufacturing plant and machine operators, assemblers, and drivers. These occupational groups have high prevalence and relatively low estimates of economic complexity.

For each year considered, an increase in the prevalence of an occupational group is accompanied by a downward trend in its complexity score. A characteristic exception is the group of unskilled workers, which has the highest prevalence and a higher assessment of complexity than the three groups of skilled workers.

For the majority of regions, the ranks of assessments of economic complexity of occupational employment structures did not change or changed insignificantly over the period under review. Eight regions, predominantly with developed sectors of manufacturing industry, significantly improved their positions in the ranking due to the diversification of occupational employment structures. Ten regions with developed extractive industries worsened their positions in the rating.

For five occupational groups, the ranks of complexity scores did not change over time, including for doctors of sciences, candidates of sciences and specialists of the highest level of qualification. For four professional groups the ranks change by no

more than one unit, i.e. insignificantly. The ranks of complexity scores change significantly for two occupational groups: "managers" (the position of the occupational group improves against the background of a decrease in its prevalence) and "workers in the sphere of service and trade, protection of citizens and property" (the position worsens against the background of an increase in prevalence).

The obtained assessments of economic complexity of professional groups correspond to the existing opinions about the average level of human capital development of the representatives of these groups. The assessment of economic complexity of the region's occupational employment structure can be considered as a characteristic of the development level of its human capital, since the region's ability to develop to the level of strong occupational groups with high complexity assessments depends on the accumulated knowledge. The development level of the region's human capital is directly related to occupational and skill differentiation, which is characterized by the diversity of the occupational employment structure. The spread of telecommunications and digital technologies at this stage contributes to the increase in the level of human capital development of unskilled workers, the growth of the number of jobs in this occupational group.

Assessments of the economic complexity of the occupational employment structure and occupational groups can be used to develop the methodology for choosing priority directions of diversification of the regional economy. The validity of decisions can be increased by using estimates of the economic complexity of the occupational employment structure and economic complexity of occupational groups as characteristics of the level of human capital development, which affect the level of material well-being.

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Appendix

Table P1. Assessments of the complexity of the occupational structure of the employed in the RF regions and assessment ranks based on data for 2018, 2020 and 2021

Region	2018 assessment	2020 assessment	2023 assessment	2018 assessment rank	2020 assessment rank	2021 assessment rank
Belgorod Region	-0.1496	-0.1342	-0.1290	68	69	65
Bryansk Region	-0.0651	-0.0732	-0.0889	50	48	56
Vladimir Region	-0.0243	-0.1342	-0.0675	38	69	52
Voronezh Region	-0.0345	0.0285	0.0666	45	27	15
Ivanovo Region	0.1035	0.0157	0.0412	9	28	21
Kaluga Region	-0.0733	-0.0401	-0.0445	58	39	45
Kostroma Region	-0.0666	-0.0609	-0.1022	51	44	57
Kursk Region	-0.1496	-0.1199	-0.1552	68	65	72
Lipetsk Region	-0.1943	-0.0927	-0.1037	74	58	60
Moscow Region	0.1973	0.1598	0.2212	5	8	5
Orel Region	-0.1204	-0.0752	-0.0321	65	52	43
Ryazan Region	-0.0292	-0.0893	-0.0033	41	55	33
Smolensk Region	-0.1081	-0.0873	-0.1290	62	54	65
Tambov Region	-0.1496	-0.0927	-0.0870	68	58	55
Tver Region	-0.0236	-0.0307	-0.0275	36	35	40
Tula Region	-0.1081	-0.0914	-0.1135	62	56	62
Yaroslavl Region	-0.0236	-0.0324	-0.0266	36	37	39
Moscow	0.2518	0.2401	0.2448	1	3	3
Republic of Karelia	0.0276	-0.0264	-0.0022	25	33	31
Republic of Komi*	-0.0001	-0.0264	-0.1037	31	33	60
Archangelsk Region*	-0.0980	-0.1464	-0.2106	61	74	77
Vologda Region	-0.1943	-0.0682	-0.1290	74	46	65
Kaliningrad Region	0.0190	0.0290	0.0229	26	26	25
Leningrad Region	-0.0581	-0.0743	-0.0452	49	50	46
Murmansk Region	0.0824	-0.0914	-0.0733	16	56	54
Novgorod Region	-0.1086	-0.1342	-0.0279	64	69	41
Pskov Region	-0.0666	0.0062	-0.0292	51	30	42
Saint Petersburg	0.2284	0.2679	0.2448	4	2	3
Republic of Adygea	0.1049	0.0667	0.0923	8	19	11
Krasnodar Territory	0.0677	0.0678	0.0637	19	17	17
Astrakhan Region	0.0591	0.0606	0.0412	20	20	21
Volgograd Region	-0.0064	0.0290	0.0014	33	25	30
Rostov Region	0.0591	0.0727	0.0411	20	16	23
Republic of Dagestan	0.0917	0.0949	0.0992	11	10	7
Republic of Ingushetia	0.0917	0.0949	0.0618	11	10	19
Kabardion-Balkarian Republic	0.2375	0.3133	0.2164	2	1	6
Karachayevo-Circassian Republic	0.0917	0.0468	0.0618	11	21	19
Republic of North Ossetia-Alania	0.0964	0.1009	0.0947	10	9	9
Chechen Republic	0.0917	0.0949	0.0992	11	10	7
Stavropol Territory	0.0535	0.0678	0.0083	23	17	28
Republic of Bashkortostan	-0.0435	-0.1032	-0.0198	46	62	36

End of Table P1

Region	2018 assessment	2020 assessment	2023 assessment	2018 assessment rank	2020 assessment rank	2021 assessment rank
Republic of Mari El	-0.0708	-0.0839	-0.1290	57	53	65
Republic of Mordovia	-0.1943	-0.1342	-0.1290	74	69	65
Republic of Tatarstan	-0.0793	-0.1155	-0.1290	59	64	65
Republic of Udmurtia**	-0.0808	-0.1199	-0.0032	60	65	32
Chuvash Republic*	-0.0292	-0.0674	-0.1239	41	45	64
Perm Territory	-0.1390	-0.1943	-0.2106	66	77	77
Kirov Region	-0.0288	-0.1025	-0.0567	40	60	48
Nizhny Novgorod Region**	0.0043	0.0467	0.0833	30	22	14
Orenburg Region	-0.0325	-0.0455	-0.0369	44	41	44
Penza Region*	0.0094	-0.0716	-0.0604	29	47	49
Samara Region**	-0.2323	-0.1214	-0.0202	77	67	37
Saratov Region	0.0740	0.0937	0.0083	17	13	28
Ulyanovsk Region	-0.0292	-0.0247	0.0097	41	32	27
Kurgan Region	-0.0039	-0.1311	-0.0078	32	68	34
Sverdlovsk Region**	-0.1390	-0.0743	-0.0202	66	50	37
Tyumen Region	-0.2323	-0.1943	-0.2106	77	77	77
Chelyabinsk Region	-0.2323	-0.1943	-0.1166	77	77	63
Republic of Altai	0.0591	0.0423	0.0637	20	23	17
Republic of Tyva	0.0917	0.0772	0.0923	11	15	11
Republic of Khakassia*	0.0119	0.0114	-0.1022	28	29	57
Altai Terrotiry	-0.0669	-0.0740	-0.0473	53	49	47
Krasnoyarsk Territory	-0.1496	-0.1342	-0.1290	68	69	65
Irkutsk Region*	-0.0683	-0.1083	-0.1552	54	63	72
Kemerovo Region	-0.1600	-0.1464	-0.1552	73	74	72
Novosibirsk Region	0.1657	0.2051	0.2484	6	5	2
Omsk Region	0.0392	0.0423	0.0657	24	23	16
Tambov Region	0.2285	0.2067	0.3152	3	4	1
Republic of Buryatia**	-0.0435	0.1848	0.0945	46	6	10
Republic of Sakha (Yakutia)*	-0.0694	-0.0423	-0.1552	56	40	72
Trans-Baikal Territory*	-0.0134	-0.0514	-0.1022	34	42	57
Kamchatka Territory	-0.0683	-0.0323	-0.0640	54	36	50
Primorye Territory	0.1198	0.1717	0.0841	7	7	13
Khabarovsk Territory	-0.0134	-0.0325	0.0279	34	38	24
Amur Region	-0.1496	-0.1464	-0.1552	68	74	72
Magadan Region	0.0722	0.0908	0.0210	18	14	26
Sakhalin Region	-0.0268	-0.0112	-0.0640	39	31	50
Jewish Autonomous Region*	0.0190	-0.1025	-0.0675	26	60	52
Chukotka Autonomous Area	-0.0471	-0.0587	-0.0176	48	43	35

* Regions significantly worsened their positions in the $PSCI_k$ score ranking.
** Regions significantly improved positions.

Table P2. Assessments of the complexity of occupational groups of the employed in the RF regions based on data for 2021, 2020 and 2018

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2018	2020	2021		2021	2020	2018	2021	2020	2018
7	8	8	Doctor of Sciences	1.694	1.722	1.804	1	1	1
9	9	8	Candidate of Sciences	1.600	1.584	1.505	2	2	2
27	22	21	Senior Professionals	0.697	0.630	0.445	3	3	3
22	19	14	Managers	0.234	-0.056	-0.172	4	5	7
23	21	24	Employees involved in preparing and processing of documentation, accounting and servicing	-0.110	0.365	0.079	5	4	5
24	29	33	Employees in the service and trade sectors, protection of citizens and property	-0.148	-0.318	0.192	6	7	4
45	37	43	Middle-skilled professionals	-0.206	-0.122	-0.012	7	6	6
61	60	62	Unskilled workers	-0.605	-0.617	-0.425	8	8	8
35	40	36	Skilled in agricultural, forestry and fishery workers	-0.629	-0.805	-0.835	9	9	9
42	42	47	Skilled workers in industry, construction, transportation and related occupations	-1.234	-1.261	-1.310	10	11	11
41	45	43	Operators of production plants and machines, assemblers and drivers	-1.291	-1.122	-1.270	11	10	10

Column name:
(1), (2), (3) – number of regions in which the occupational group is strong (prevalence),
(4) – name of the occupational group,
(5), (6), (7) – assessing the economic sophistication of the occupational group,
(8), (9), (10) – rank of economic complexity score of the occupational group.

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Identifying Barriers to the Functioning of Socially Oriented Nonprofit Organizations as an Active Subject of the Regional Economy (on the Example of Perm Territory)

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Abstract. Due to the difficult socio-economic situation of Russia's regions, it is necessary to involve nongovernmental providers of socially significant services to eliminate government failures. In this regard, socially oriented nonprofit organizations play an important role. As practice shows, despite the recognized importance of such organizations, their potential in the regional economy is not implemented to the fullest extent. Reasons for such a situation are studied in a large number of works, but they do not always take into account territorial specifics, which makes it difficult to identify specific areas of problem solving. Thus, the aim of this study is to identify barriers to and prerequisites for the sustainable development of socially oriented nonprofit organizations as an active subject of the regional economy, effectively implementing its functions in socially significant sectors of the economy on a systematic and long-term basis. To achieve this goal, we analyze the functioning of socially oriented nonprofit organizations (using the example of Perm Territory). The information base includes a set of relevant regulatory documents, data from state and departmental statistics, ratings of RF constituent entities, findings of sociological research commissioned by the Grants Fund of the Governor of Perm Territory in 2020–2022. We systematize the problems that socially oriented nonprofit organizations deal with in their work, according to the impact on the organization, respectively, related to the external and internal environment. On this basis, we outline the conditions necessary to increase the sustainability of the development of socially oriented nonprofit organizations in the region.

Key words: potential, problems in SONPO functioning, barriers to SONPO development, sustainable development of SONPOs, regional economy.

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Introduction

The past decade has witnessed an increasing importance of the role of socially oriented nonprofit organizations (SONPOs); this fact is reflected in numerous scientific publications. Researchers emphasize that human capital is a system-forming factor in sustainable economic activity in the regions, and this increases the importance of institutions aimed at its development (Evans, Syrett, 2007; Maryganova, Dmitrievskaya, 2013; Babina, Sadovnikova, 2018). Scientists' attention of scientists is mainly focused on identifying trends in the development of the nonprofit sector, problems related to the introduction of new models of interaction between the government and nonprofit organizations, specifics of NPOs functioning in various economic sectors (see, for example: Gromova, Mersiyanova, 2016; Mersiyanova, Benevolensky, 2017; Medvedeva, Frolova, 2018; Moskovskaya, 2018; Shabunova, Kosygina, 2019; Krasnopolskaya et al., 2015). The more wide participation of the population (personally or in cooperation with SONPOs) in addressing local issues makes it possible to more effectively use the limited resources of regional budgets to fulfill social obligations, increase the targeting of social support and the quality of social services for vulnerable

population groups. Research findings confirm that the activities of the nonprofit sector contribute to the formation of human and social capital and thereby affect socio-economic development in regions (Dvoryadkina, Prostova, 2021; Birch, Whittam, 2008). This is especially noticeable at the local level, where the nonprofit sector contributes to building the capacity of communities and stimulates their autonomy in solving local problems (Abiddin et al., 2022; Hayman, 2019).

The importance of using SONPO potential in addressing acute social issues has also been recognized by the Government of the Russian Federation. Since 2015, socially oriented nonprofit organizations have actually been integrated into the reform of the social service sector, which provides for equal rights of participation of governmental and nongovernmental social service providers (Moskovskaya, 2018). Russia has adopted a set of measures aimed at supporting them. The fundamental documents relating to the activities of SONPOs are Federal Law 7, dated January 12, 1966 "On nonprofit organizations" and Federal Law 235, dated April 5, 2010 "On amendments to certain legislative acts of the Russian Federation on providing support to socially oriented nonprofit organizations", which for the first time introduces the concept of SONPOs and defines measures to support them. Since 2016–2017, they have been legally entitled to receive the status of a performer of socially useful services[1]; a decree of the President of the Russian Federation approved their list, identified priority directions of activity in this area[2]. Inclusion in the register of NPOs performing socially useful services grants the right to receive priority measures of state support. An analysis of current legal acts has shown that the legislative framework for the functioning of SONPOs is regularly updated and expanded taking into account crisis events in socio-political life. Thus, the issues of regulating the use of SONPO endowment capital are being addressed[3]; control (supervisory) inspections of SONPO activities have been abolished[4]; conditions for receiving state subsidies and grants have been improved[5], etc. At the same time, the analysis of the regulatory framework for the functioning of socially oriented nonprofit organizations indicates that at the present stage they are perceived more as an object of support, rather than as an active subject capable of positively influencing socio-economic development in regions.

Meanwhile, research shows that the activities of socially oriented nonprofit organizations can have noticeable effects on the regional economy. Thus, SONPOs participate in the processes of production and distribution of socially significant benefits (Mersiyanova, Benevolensky, 2016), act as employers for socially vulnerable population groups (Goryacheva, 2018), create opportunities for the transfer of knowledge and skills, thereby

[1] On amendments to the Federal Law "On nonprofit organizations" regarding the establishment of the status of a nonprofit organization performing socially useful services": Federal Law 287-FZ, dated July 3, 2016.

[2] On approval of priority areas of activity in the field of providing socially useful services: Presidential Decree 398, dated August 8, 2016.

[3] On amendments to certain legislative acts of the Russian Federation and on the suspension of certain provisions of the Federal Law "On the procedure for the formation and use of endowment capital of nonprofit organizations": Federal Law 279-FZ, dated July 14, 2022.

[4] On the specifics of the organization and implementation of state control (supervision), municipal control: RF Government Resolution 336, dated March 10, 2022.

[5] On amendments to the general requirements for regulatory legal acts, municipal legal acts regulating the provision of subsidies, including grants in the form of subsidies, to legal entities, individual entrepreneurs, as well as individuals producing goods, works, services and on the specifics of providing these subsidies and subsidies from the federal budget to the budgets of constituent entities of the Russian Federation in 2022: RF Government Resolution 590, dated April 5, 2022.

increasing the innovative attractiveness of the region (Saidov, 2020), multiply human and social capital (Hartmann et al., 2019), stimulate civic participation to solve local problems (Artamonova, Bazueva, 2022). This gives reason to conclude that, under certain conditions, SONPOs can become effective economic agents. However, the currently implemented methods of stimulating their activities allow them to perform their functions to a limited extent and do not provide an opportunity to act as growth points for the territory of their presence.

To track the dynamics of SONPO activities, a system of state and departmental statistics is being formed, ratings of regions are being compiled based on the results of the implementation of SONPO and social entrepreneurship support mechanisms, ensuring access of nongovernmental organizations to the provision of social services and the introduction of competitive ways for providing state (municipal) services (the rating of the Ministry of Economic Development of the Russian Federation since 2017) and assessing the level of development, the magnitude of the potential of the nonprofit sector in the region and the effectiveness of its use for interaction with key stakeholders (the rating compiled by RAEX-Analytics together with the Civic Chamber of the Russian Federation and civic chambers of RF constituent entities since 2020). Due to a lack of a unified interpretation of social orientation in a multi-level system of regulatory documents defining the grounds for supporting SONPOs, the criteria for the inclusion of nonprofit organizations in various data systems are ambiguous. Thus, according to a sample survey by Rosstat, in 2021 the number of SONPOs in Russia was 127,632 units, and according to the information of the RF Ministry of Economic Development, only 46,672 nonprofit organizations are socially oriented. The quantitative inconsistencies between the data of Rosstat and the RF Ministry of Economic Development are due to the fact that the existing regulatory framework actually excludes a large layer of the nonprofit sector from the SONPO register (for example, NPOs engaged in tourism development, landscaping, environmental problems, etc.), since, according to the definition of the federal law, they are socially oriented, but at the same time do not meet the criteria for inclusion in this list.

Such inconsistency cascades into the methodology of the RAEX-Analytics rating and shows a lack of clear criteria for the selection of NPOs for its formation. Thus, as a result of existing problems with statistical data on the number of NPOs and SONPOs, due to flaws in Russian legislation, the Agency, when performing the calculations, excluded from the analysis those NPOs that "inherently gravitate more toward commercial or exclusively corporate entities"[6]. At the same time, there are no specific explanations about the criteria for their differentiation in the guidelines.

The inconsistency of the regulatory framework for the functioning of SONPOs makes it difficult to objectively assess the scope of the sector's activities, as well as the volume and effectiveness of various types of support for SONPOs[7], the limited availability and insufficiency of which acts as one of the main barriers to their activities.

[6] Available at: https://raex-rr.com/pro/NKO/Region-nko/Region-nko-size/2022/methods/

[7] The legislation establishes various forms of support: procurement of goods, works and services on a contractual basis; provision of benefits for the payment of taxes and fees; information support for the activities of NPOs; transfer of municipal property for free use; consulting support for the activities of NPOs; training of professional personnel and volunteers; provision of benefits for legal entities – donors; provision of preferential conditions for renting premises; providing subsidies to NPOs for the development of their activities; grant support for the activities of NPOs. For more detail, see: On nonprofit organizations: Federal Law 7-FZ, dated January 12, 1996 (amended on December 5, 2022).

Coupled with other problems, the effectiveness of the measures taken to support SONPOs remains insignificant (Rudnik et al., 2017; Rudnik, Kushtanina, 2018; Grigorieva, Parfenova, 2021) and the potential of the nonprofit sector for the effective functioning of regional socio-economic systems is limited (Kosygina, 2018; Starshinova, Borodkina, 2020).

The above indicates the inconsistency of the institutional conditions created for the development of SONPOs. In existing studies, barriers associated with both the SONPO functioning environment (Belokrylova, Vakhtina, 2017; Rudnik, Kushtanina, 2018) and internal causes (Zabolotnaya, Larionov, 2017; Grigorieva, Parfenova, 2021) are usually referred to as constraining factors. However, they are formulated in a very general way and are not always based on taking into account the opinions of real participants in the process – SONPOs themselves, representatives of government and business, as well as consumers of social services. In addition, the territorial specifics of the problems faced by socially oriented nonprofit organizations are not taken into account. Possible directions for solving the problems, as a rule, are not defined clearly; they do not focus on considering SONPOs as active subjects of the regional economy. The paper is intended to fill this gap in scientific knowledge, which will constitute the novelty of this study. In connection with the above, the aim of our study is to identify barriers that impede the sustainable development of SONPOs as active subjects of the regional economy, effectively implementing their functions in socially significant economic sectors on a system-wide and long-term basis.

Materials and methods

To begin with, we note that the goal we have defined determines the narrowing of the object of research according to two criteria.

1. According to the nature of the activities of nonprofit organizations – SONPOs. The focus on SONPOs as an integral part of the nonprofit sector is defined by the following: 1) functions – provision of socially significant services to the population that are of priority importance for the balanced development of the regional economy; 2) greater availability of indicators in the system of state statistics; 3) availability of specialized ratings of RF regions aimed at assessing the effectiveness of using the sector's potential; 4) opportunity to provide a scientifically substantiated analysis of the problems and trends in the development of SONPOs based on the results of a research carried out in 2020–2022 and commissioned by the Grants Fund of the Governor of the Perm Territory.

2. On a territorial basis – a specific region of the Russian Federation (Perm Territory). The choice of the Perm Territory as a pilot research region is due to several factors. The Perm Territory is one of the leading regions in the development of the nonprofit sector in general and SONPOs in particular. According to experts, the formation and development of nonprofit organizations in the region was proceeding at a faster pace than the nationwide. Many regional NPOs serve as resource centers, including at the federal level, and are among the most influential in the country. At the same time, the Perm Territory began to lose its leading position. Thus, the region ranked second in the first rating of the RF Ministry of Economic Development in 2019, having shifted down by 30 points by 2021. The interest of regional authorities in identifying the causes of negative dynamics with a detailed analysis of barriers in the activities of SONPOs and possible directions for building their potential in the region was expressed in a request to the Grants Fund of the Governor of the Perm Territory to form a concept for the development of

SONPOs in the Perm Territory. We started working on this document in October 2022 and the article shows the first results, which were discussed with the heads of SONPOs, representatives of executive authorities and socially responsible businesses within the framework of the 10th Perm Territorial Forum for Community and Volunteerism. It seems that our experience in identifying barriers and conditions for the sustainable development of SONPOs as active economic entities of the Perm Territory and directions for addressing the problems can be scaled to the territory of the country as a whole, so as to create institutional conditions for the effective functioning of SONPOs on a system-wide and long-term basis.

The information base of the study included various types of sources:

1) a set of normative documents regulating the activities of SONPOs and the forms of their support;

2) state and departmental statistics on SONPOs, as well as the data characterizing the dynamics of people's income, age structure of the region, level of health, access to education, medical and social services;

3) data from the rating of RF constituent entities based on the results of the implementation of mechanisms to support SONPOs and social entrepreneurship, ensuring access of nongovernmental organizations to the provision of services in the social sphere and introduction of competitive ways for providing state (municipal) services in the social sphere[8];

4) the results of surveys commissioned by the Grants Fund of the Governor of the Perm Territory in 2020–2022, using qualitative sociological methods[9], as well as data from focus group[10] studies with the heads of SONPOs (eight people), with representatives of municipal authorities and business (five people), three indepth expert interviews (the guide included 17 questions divided into three blocks: assessment of the activities of NPOs; interaction between NPOs, government, business; the concept for development of SONPOs as active subjects of the region's economy).

Research results

In 2022, according to the Ministry of Economic Development of the Russian Federation, there were 1,339 NPOs in the Perm Territory (36.8% of the total number of NPOs). According to a sample survey by Rosstat, their number amounted to 2,788 units. In general, the dynamics of SONPO development in the region corresponds to the trends observed in the Volga Federal District (VFD) and Russia, with the exception of indicators reflecting the level of volunteerism and the effectiveness of financial activities *(Tab. 1)*.

[8] The methodology is on the website of the Ministry of Economic Development of Russia. Available at: https://nko.economy.gov.ru/rejting-subektov-rf

[9] A report on the results of the sociological study "Volunteers in the SONPOs of the Perm Territory". Perm, 2021 (the study was conducted using the online questionnaire Online Test Pad and interviews; as of December 2021, 134 questionnaires were received, 40 semi-structured interviews were conducted); A report on the results of the sociological study "Information openness SONPOs of the Perm Territory". Perm, 2021 (the sample consisted of 379 nonprofit organizations of the Perm Territory (15% of the total number of NPOs), formed using the random selection method).

[10] The number of participants in the focus groups made it possible to ensure optimal group dynamics, since the groups are search groups aimed at developing ideas.

Table 1. Development dynamics of SONPOs

Region / year	2018	2019	2020	2021	2022	Growth rate, 2022/2018,%
Number of SONPOs, units						
Perm Territory	3058	3263	2762	2788	2788	-8.8
VFD	30867	32148	26293	24839	25183	-18.4
RF	140247	146481	128685	127632	129939	-7.3
Average number of employees, persons						
Perm Territory	5769	5605	5218	5069	5162	-10.5
VFD	79845	78764	68202	65369	64336	-19.4
RF	421186	415887	374373	377455	373333	-11.4
Average number of volunteers, persons						
Perm Territory	32116	27759	13931	13341	13972	-56.5
VFD	404599	394156	329027	399705	439139	8.5
RF	2937318	4056745	3429105	3878470	3927748	33.7
Receipt of funds and other property, thousand rubles						
Perm Territory	11286	16904	11686	4091	1584	-86
VFD	69163	74226	72788	38913	36830	-46.7
RF	1431358	1686115	2769570	2041161	6454688	350.9
Number of people who received social services, persons						
Perm Territory	1181162	1340457	1398473	1352889	2163375	83.2
VFD	9912894	11077551	9688477	11722246	12937165	30.5
RF	60377399	66289256	50170225	70813662	78810852	130.5
Source: own calculation with the use of EMISS data.						

According to Table 1, the Perm Territory, in comparison with the Volga Federal District, has more positive trends in the number of SONPOs, employees and recipients of social services. At the same time, an extremely negative trend has been recorded regarding the financial provision of SONPOs. Despite the implementation of various support measures, the volumes of cash and property receipts are of great importance for the effective functioning of SONPOs and almost always act as criteria for evaluating their activities. Thus, for example, a sharp decrease in funding is recorded, and it is reflected in the rating of Russian regions by level of support for SONPOs *(Tab. 2)*. For comparison, the positions of the Perm Territory are presented alongside those of the regions that are leaders in the rating.

Table 2. Dynamics of the Perm Territory's positions in the SONPOs support rating

Region	2019		2020		2021		2022	
	Score*	Position	Score	Position	Score	Position	Score	Position
Khanty-Mansi Autonomous Area	45.63	1	52.80	1	58.62	1	53.91	2
Republic of Bashkortostan	23.64	25	37.45	5	54.18	2	58.98	1
Perm Territory	39.83	2	28.75	22	31.01	32	28.29	29

* According to the methodology of the RF Ministry of Economic Development, the maximum number of rating points that a constituent entity of the Russian Federation can score as a leader in all indicators is 100, since the final number of rating points for a region is determined as the arithmetic mean of the number of its rating points for each indicator.
Compiled using the rating data of the RF Ministry of Economic Development. Available at: https://nko.economy.gov.ru/rejting-subektov-rf

Based on the results of 2021–2022, the Perm Territory was part of the group of regions with an average level of support for SONPOs. The deterioration of its position is due not only to the expansion of the list of calculated indicators in the rating, but also to the negative dynamics in some other positions, except for the volume of cash receipts. For example, according to the results of the RF constituent entities rating for 2021, there is a steady decrease in the share of municipalities implementing programs to support SONPOs in the region. However, in 2022, the value of this indicator has almost doubled (from 43.48 points / 28th place to 76.74 points / 17th place). This allowed the Perm Territory to improve its position in the overall ranking. As a result, in 2021–2022, after the imposition of restrictions on the implementation of activities due to the spread of coronavirus infection and also due to the lack of tax benefits, the number of SONPOs per 10,000 people decreased significantly.

Moreover, attention is drawn to the outstripping growth in the number of recipients of social services provided by SONPOs in the Perm Territory (183.2% in 2022 to 2018, see Tab. 1), compared with data for the Volga Federal District and Russia as a whole. As noted during the focus group interviews, this may be due to the fact that SONPOs increase the availability of socially significant services for vulnerable population groups, occupying "niches" in which the volume of demand for goods and services is significantly less than their supply. Moreover, as a result of maximum proximity to beneficiaries and a better understanding of local problems, SONPOs provide greater targeting of services based on knowledge of the specifics of requests and taking into account feedback (*"It is difficult without nonprofit organizations, because it is still the relationship between local governments and the population" (municipal authority representative*). For example, they are able to provide the so-called increased utility services in addition to basic services (i.e. those that are in demand by the population, but cannot be satisfied by government suppliers – complementary services). Governmental institutions cannot meet this additional demand, and private service providers (business structures) are often not interested in producing such public goods due to their unprofitability: *"The value of SONPO services is significantly lower than the market value, including due to overexploitation of their resources" (fund director, Perm)*. In addition, the provision of services by nonprofit organizations involves less bureaucratization of activities and the ability to reach those categories of the population who, for some formal reason, are left outside the state system.

In addition to the above, experts note that SONPOs often develop innovative services in each of the priority areas that are not included in official lists; there are no state standards for them, but they are in demand among population groups that are in a difficult situation. As a result, SONPOs create a potential opportunity to choose options for providing various types of services for different population groups, taking into account the preferences and capabilities of the consumer, which *"is one of the criteria for the competitiveness of the territory of residence, determining the ability of the region to retain the population" (fund director, Perm)*.

However, according to the results of the focus groups, only the leaders of sustainable SONPOs have a clear understanding of the sector's contribution to the development of the territory. According to them, further development of intersectoral cooperation *"is impossible without taking into account the processes of segmentation of the social services market and an increase in SONPO's market share" (SONPO representative)*. Small socially oriented nonprofit organizations, as a rule, are focused on addressing local problems, which does not allow them to clearly identify the effects of

their activities and develop a long-term development strategy (Artamonova, Bazueva, 2022, p. 221). At the same time, this type of SONPOs is most exposed to risks from the flaws in the institutional conditions that determine their development.

An analysis of the causes of negative trends in the development of SONPOs in the Perm Territory showed that the barriers preventing the effective use of their potential can be systematized on the basis of impact – problems of the external and internal environment.

The **barriers of the external environment** include problems reflecting the conditions in which socially oriented nonprofit organizations function. To a greater extent, the elimination of these problems does not directly depend on SONPOs, while they largely determine the trajectory and opportunities for the development of these organizations. The barriers of the external environment include the following.

1. Impossibility of an objective assessment of the volume and effectiveness of the sector's development. This problem is related to the lack of reliable statistical information on the functioning of nonprofit organizations, which is due to the lack of a unified system for collecting data on the number of SONPOs and employees, and the amount of financial support. This makes it difficult to compile a reliable and up-to-date list of SONPOs operating in the territory of municipalities of the Perm Territory and the volume of their support in specific areas.

2. Low level of institutional support. This barrier is closely related to the previous problem and, in our opinion, is caused by flaws in the legislative framework for the functioning and support of SONPOs. As our research has shown, Russia actually has a system of double reporting (RF Ministry of Justice and the Federal Tax Service) and there are no uniform requirements for the development of programs to support SONPOs at the municipal level. In addition, as a rule, local specifics of the interaction of local NPOs and municipal authorities are not taken into account when developing municipal support programs. This leads to the lack of a systems approach to the formation of SONPO support, which manifests itself in the failure to take into account the request from SONPOs and the need to provide different forms of support depending on the stage of the organization's life cycle in order to build long-term development strategies.

3. High administrative barriers. They lead to SONPO's low awareness of the ongoing competitive programs or the assumption that it is labor-intensive and useless to seek support; as a result, their cooperation with authorities is not established on a regular basis (focus on short-term projects, lack of a mechanism for further support of successful projects). This is often due to the lack of transparency of conditions and the difficulty of obtaining government support, which manifests itself in various aspects:

– lack of unified documentation requirements for participation in competitions organized by various ministries, departments at the municipal level, as well as socially responsible businesses;

– failure to take into account the heterogeneity of SONPOs in terms of qualitative and quantitative composition when forming the principles of competitive selection of social projects;

– the opacity of the SONPO subsidy mechanism from the budget;

– insufficient property resource support, provision of premises intended for workshops, apartments, etc., risks of nonrenewal of the lease by landlords;

– the need to confirm the effectiveness of NPO activities when applying for property support (absence of debts, regular reporting, financial

ability to pay for housing and communal services, availability of resources for repairs before using the provided premises);

– lack of vacant premises in municipalities;

– setting a minimum period of activity (for example, five or more years);

– low tariffs for services that are unprofitable for nongovernmental service providers, which do not motivate organizations to enter the register of service providers;

– lack of financial assistance and support intended for SONPOs (preferential tariffs and conditions) that exist for the commercial sector, lack of banking services directly for SONPOs or benefits for SONPO banking services;

– unequal starting conditions for obtaining a state order for the provision of social services, compared with state institutions (increased competition with organizations that previously had the status of governmental organization, including those related to accessing customers' personal data).

4. The identified problems determine the low level of intersectoral cooperation, which is understood as a set of relationships between two or more sectors that direct resources to achieve a common goal (Kosygina, 2020, p. 63). On the one hand, there are difficulties in the interaction of SONPOs with regional and municipal authorities *("There is also a problem with staff: they do not have enough personnel to engage in full-fledged work with NPOs" (SONPO representative))*, caused by a number of reasons: misunderstanding of the content of SONPOs activities and, as a result, ignoring it; lack of experience in building a mechanism of interaction with SONPOs; lack of "telling examples" of implementing practices and maintaining partnerships; organizational barriers in internal communication between local governments and SONPOs *("Maybe they will issue some kind of guide so that we know whom to contact on this or that problem" (SONPO representative))*; There is an insufficiently expressed interest among senior officials of the region and municipalities in building a dialogue with SONPO representatives in the region *("If there were some kind of agreement, interaction with local governments, we would be able, on this basis, to implement further work" (SONPO representative))*. On the other hand, problems in intersectoral cooperation are largely caused by the lack of a culture of multilateral evaluation of SONPOs performance. This is manifested in the fact that SONPOs do not have a full-fledged practice of applying internal evaluation of project performance; the evaluation of project results is limited by the number of participants or beneficiaries; the testing of the application of a multilateral assessment of the level of effectiveness of projects implemented by representatives of the expert community, beneficiaries, representatives of SONPOs, is carried out only by the Presidential Grants Fund.

5. Barriers to building intersectoral cooperation also reflect the misalignment of interests within the sector. First of all, the low level of intrasector consolidation and solidarization is due to the struggle for public resources, since the social services market is also characterized by competition. The exchange of practices between SONPOs is poorly developed, which is caused both by the lack of platforms where interaction can take place (institutionalization of interaction), and by the escalation of competition between SONPOs into a personal competition of managers or public leaders.

6. The consequence of these barriers is the lack of formation of the reputation capital of the sector, which manifests itself in various interrelated aspects. The key problem, in our opinion, is that the results of SONPO activities do not find a systematic representation in society. Some reasons for this are the lack of transparency of activities (most SONPOs do not disclose information about income

and expenses, and do not provide open reporting) and the low activity of SONPOs in matters of interaction with the media; therefore, their position in the service market is weak. For them, there is practically no access to social advertising in the media, and in general, the SONPO promotion system does not function in practice. However, the following should be noted here. SONPO activities are generally characterized by a low level of evidence-based practices: weak substantiation for choosing the direction of activity and the range of services provided, lack of a system for collecting and using data on specific performance results, causes of problems and solutions, lack of a clear understanding of the social significance of their activity. This leads to insufficient public awareness of the activities of NPOs and a low level of public confidence in them, devaluation of the positive experience of the sector as a whole as a result of aggressive rhetoric toward some NPOs opposed to public authorities; difficulties in attracting resources, narrowing the network of supporters and volunteers. These problems also have a negative impact on the level of business confidence in the activities of socially oriented nonprofit organizations. Private commercial enterprises sometimes have a negative experience of interacting with SONPOs, as a result of which, taking into account the competition of motives with the coincidence of fields of activity, stereotypes are formed and maintained against employees of nonprofit organizations (unsuccessful self-realization in the main professional field of activity).

The problems of the unformed reputation capital of socially oriented nonprofit organizations are closely related to the **barriers of the internal environment**. Based on the results of the study, we can say these barriers include the following problems.

1. Poor management quality. It is largely due to the insufficient level of competence of SONPO representatives, manifested in a low level of legal, financial literacy and managerial abilities of managers, which entails, among other things, overexploitation of resources. Most organizations focus on the implementation of short-term social projects and do not form a long-term development strategy. In addition, as a rule, an internal assessment of the effectiveness of activities is not carried out due to the lack of clear criteria. Among the most common in practice are the number of participants or beneficiaries and the number of events held. This is partly due to the lack of internal motivation and administrative resources for the preparation of reports (too many documents required, high frequency of reporting, variability of requirements), as well as the conviction that the indicators requested by the donor are not always able to reflect the real results of the work. Thus, many SONPOs face personnel problems related to staff turnover and difficulties in attracting volunteers, complexity of their training, inability to form a permanent volunteer corps, and a lack of a system for their encouragement.

2. The low level of qualification of employees is also manifested in the low level of innovation in SONPO activities. The lack of experience and necessary competencies to write projects and express the uniqueness and innovativeness of the proposed initiative leads to the fact that SONPOs mainly reproduce a stereotypical model of functioning: they do not diversify sources of financing, focus mainly on budgetary funds (grants, subsidies, etc.) and are poorly interested in participating in competitions. An additional difficulty is the low level of communication between SONPOs and government authorities and representatives of business structures due to personal factors of the representatives (age, proficiency in working with modern technologies, psychological limitations, etc.): *"There is no constructive approach ... you are looking for an opportunity to find a dialogue with this or that organization" (municipal authority representative)*.

As follows from the details of the barriers we have identified, they are closely interrelated, thus requiring an integrated approach to their elimination based on an effectively built system of intersectoral cooperation. The study showed that the potential of SONPOs for the sustainable development of the region is underestimated by government representatives. Preference is given to the traditional vision of priority areas and forms of support for SONPO activities, specified in federal and regional legislation *("Financial support is provided to one nonprofit organization, which is listed under Federal Law 7" (municipal authority representative); "This is all embedded in the program "Culture of Bolshesosnovsky Municipal District" (municipal authority representative)*.

Thus, promoting the activities of socially oriented nonprofit organizations requires improving the conditions for their stable development as an active subject of the regional economy. Taking into account the expert opinions of representatives of government, business and SONPO executives, it is important to identify key areas that will contribute to the effective implementation of SONPO functions on a system-wide and long-term basis. In our opinion, these should include activities focused on the formation of competencies for economically sustainable activities and SONPOs reputation capital, reducing administrative barriers, and developing intersectoral and intrasectoral partnerships. It seems that the set of measures for the development of SONPOs as active subjects of the regional economy should include the development of a mechanism for their implementation, including the improvement of the current regulatory framework for the activities and support of SONPOs, adoption of special targeted programs and laws of direct and indirect action, formation of a system for monitoring the performance indicators of SONPOs, which allows determining the effectiveness of solving problems limiting the use of the sector's potential in the region. The development of such a set of measures may be the aim of another study.

Conclusion

Summing up, we note that in modern socio-economic conditions, the increase in the implementation of the functions of socially oriented nonprofit organizations in the regions is becoming relevant. Research shows that SONPOs can act as one of the system-forming factors in regional development, since they provide targeted social support and improve the quality of social services for vulnerable population groups. At the same time, at the present stage of development, the use of the potential of socially oriented nonprofit organizations is limited due to the numerous problems they face. The results of the qualitative sociological research made it possible to detail and systematize the identified barriers that prevent more effective involvement of SONPOs in the economy of the Perm Territory and reflect the conditions created for the development of such organizations. A promising direction for our further research is to complete a full cycle of strategic planning for the development of SONPOs in the Perm Territory, integrated with specific goals and indicators of socio-economic development in the region.

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Scenarios for the Development of the Sharing Economy: Digital Technologies and Value Orientations

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Abstract. The expansion of the sharing economy is related both to the rapid technological and digital development and to the transformation of behavioral patterns based on the development of network relations and the search for new forms of cooperation. However, the scenarios for the spread of this economic system will differ from country to country due to the heterogeneity of socio-economic conditions. The aim of the study is to identify scenarios for the development of the sharing economy, taking into account technological and value characteristics of a territory. The methodology of this study includes correlation and regression analysis, systematization methods, descriptive statistics, and graphical method. The information base for the study is data from the Timbro Sharing Economy Index, the World Bank, and the World Values Survey. As part of the research, we formulated and tested hypotheses on the impact of digital development and values on the development of the sharing economy. We show that the key factors in the development of the sharing economy are the level of digital technology as well as postmaterialist values. In the course of the study we identify and describe clusters of countries distinguished by these parameters. We formulate and describe scenarios for the development of the sharing economy. We reveal that these scenarios differ not only in the level of development of digital technologies and the readiness of citizens to use services of the sharing economy, but also in the scale of the territory to which the principle of collaborative consumption applies. Theoretical significance of the obtained results consists in modeling the development of the sharing economy and forecasting

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possible directions of its development. Practical significance is the application of these scenarios in the formation of urban infrastructure or the design of smart cities.

Key words: sharing economy, values, digital technology, scenario, values, postmaterialist values.

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Introduction

The development of the sharing economy (collaborative economy) seems to be one of the results of technological and social changes caused by the impact of globalization processes, environmental challenges, coronavirus pandemic and other processes (Katsoni, Sheresheva, 2019). Changing patterns of behavior of economic agents, inherent in the sharing economy, in turn stimulated the process of their scaling up and facilitated the involvement of more and more participants. On the one hand, this transformation process caused the formation of new markets, on the other hand, it initiated changes in the existing markets, acting as a threat to their existence. The development of the sharing economy is caused by the rapid development of digital technologies (e-commerce, financial technologies, blockchain, artificial intelligence, big data, etc.) and by the need to find more effective models of interaction in society, which is closely connected, among other things, with the features of value transformation.

It is important to note that one of the features of the sharing economy is its heterogeneity, which creates difficulties in its comprehensive assessment. For example (J. Schor, 2016) notes that the sharing economy includes recirculation of goods, increased utilization of durable assets, exchange of services and sharing of productive assets. In addition, the sharing economy is closely intertwined with the platform economy, which leads, often, to considering them together and failing to take into account the features and significance of collaborative consumption and sharing. However, examining directly the platforms of the sharing economy can also reveal significant differences in the collaborative consumption of material, labor, financial, or information resources.

The value orientations of a particular community (in this case, a country), as well as living conditions, will shape different motives for the development of the sharing economy. Thus, on the one hand, the resale of goods is initiated by the pursuit of economic benefits, on the other hand, by an orientation toward environmental protection. The development of sharing in transportation (carsharing, cabs, kick scooter sharing, etc.), on the one hand, is caused by the formation of the need for social mobility, on the other hand, it appears to be a more rational option for the use of durable goods. It is worth noting that the mentioned analysis of the motives of economic agents to participate in the sharing economy is generally covered in both foreign and Russian studies. At the same time, the influence of prevailing values on the development of this business model in a particular country is poorly represented in the scientific literature, which does not allow taking into account more fully both the potential and threats to the development of this business model when forming forecasts and directions of its development. All the above indicates that there is a gap with regard to taking into account the values and informal institutions prevailing in a particular territory in the formation of scenarios for the development of the sharing economy.

Thus, the purpose of this study is to identify scenarios for the development of the sharing economy, taking into account the technological and value characteristics of the territory. To achieve this

goal, we form hypotheses about the influence of technological factors and value characteristics on the development of the sharing economy. On the basis of correlation and regression analysis, we identify the factors that are most significant for the development of sharing, build the corresponding regression model, and describe possible scenarios for the development of the sharing economy, taking into account the combination of technological and value characteristics of countries.

Sharing economy: separate aspects of development

The concept of sharing economy is usually associated with the works of L. Lessig, who began to use this term to describe the processes of social exchange, contrasted with the so-called "commercial economy" (Lessig, 2008). R. Botsman and R. Rogers with their monograph What's Mine is Yours: The Rise of Collaborative Consumption (Botsman, Rogers, 2010) stimulated interest in this phenomenon, showing the prospects and demand for emerging models of interaction based on collaborative consumption. A dive into the research on the issue reveals that this topic arises from the convergence of a number of concepts manifested in the middle to second half of the 20th century: transaction cost theory (Coase, 1960), institutions for collective action (Ostrom, 2011), theory of two-sided markets (Rochet, Tirole, 2003), platform economics, institutional change theory (North, 1990), relational contract theory, and information society theory.

The combination of drivers of technological development and institutional change together with new social and environmental challenges initiated not only the formation but also the gradual growth of interest in this phenomenon. The close connection of technological and institutional changes with the development of the sharing economy is presented in the works of both foreign and Russian authors. For example, analyzing studies in the Scopus database for the query "sharing economy" in keywords brings up 3,245 papers from 2012. The articles of 2012–2016 within the framework of this topic mainly describe the features of functioning of P2P platforms (Andersson et al., 2013), the transformation of this form of relations in the spheres of transportation (Chen et al., 2015) and tourism (Lampinen, Ikkala, 2015), issues of trust (Nunes, Correia, 2013), as well as review articles that reveal the essence of this phenomenon and the features of its adaptation to current socio-economic processes. Exponential growth in publications on this topic begins in 2016, and the peak of research is observed in 2019. At the same time, the list of topics has been significantly expanded to include both technical features of organizing sharing economy projects, including algorithm construction (Lee at el, 2015), platform design and application of distributed ledger technology (Bogner et al., 2016), and issues of regulation (Erickson, Sørensen, 2016), values and motivation (Mittendorf, 2017), etc.

We will examine in more detail the studies that reveal the use of digital technologies in the implementation of this type of activity, as well as the motives, incentives and values that, on the one hand, contribute to the spread of the sharing economy, on the other hand – substantiate the diversity of this phenomenon, as well as the heterogeneity of its development both in different types of activities and in different territories.

The papers published in 2014 mainly consider platform interactions as well as trust issues. Thus, M. Andersson, A. Hjalmarsson, and M. Avital divide peer-to-peer sharing, which is the basis of some models of sharing economy, into categories depending on the reason for the exchange. The object of collaborative consumption/sharing can be a digital, physical, or service interaction. The authors note that it should also be categorized according to the predominant patterns of coordination that are involved in indirect sharing. "Physical coordination can be decoupled (no co-location coordination necessary), or coupled (collaborating peers coordinate in time and space)" (Andersson et al., 2013).

In 2016, articles began to appear on the application of blockchain technology as it relates to sharing economy projects. The most cited articles on this topic were presented in 2016–2019. Thus, J. Sun, J. Yan, K.Z.K. Zhang examine the application of blockchain technology to apply it to sharing services in the design of smart cities. The authors note that "in the blockchain-based approach, being trust-free is a central feature of people's relationships" (Sun et al., 2016). The technology provides "a viable alternative to eliminating intermediaries, thereby lowering operational costs and increasing the efficiency of a sharing service" (Sun et al., 2016). In other words, the technology in question makes it possible to dispense with the involvement of a third party, optimizing operating costs. F. Hawlitschek, B. Notheisen, T. Teubner show the differences in understanding trust when exploring blockchain and when considering the sharing economy. The authors reveal that blockchain technology is, to some extent, indeed suitable to replace trust in platform providers. However, trust-free systems are unlikely to be transformed into the sharing economy and will depend on the reliability of the interfaces used in ecosystems (Hawlitschek et al., 2018). M. Pouri, L. Hilty, considering the digital sharing economy, note that this digital sharing transition has enabled unprecedented efficiencies in coordinating access to resources (Pouri, Hilty, 2021). They make a matrix of the correlation between technological and social aspects of sharing and thus mark the boundaries of the digital sharing economy.

The first studies devoted to the regulation of the sharing economy also date back to 2016, which indicates the beginning of the search and formation of formal institutions that would make it possible for the new form of economic relations to adapt to the current socio-economic processes. It is important to note that the speed of development of the sharing economy contributed to its cross-country spread and the formation of the problem of embedding this business model in the market economy.

Russian literature also actively discusses these issues both within the framework of the development of platform relations and as a separate field of inquiry. Russian studies touch upon organizational, economic, legal and technological aspects of this phenomenon. A significant contribution to the development of this field was made by the authoring team under the leadership of E.F. Avdokushin. E.F. Avdokushin, E.D. Platonova and E.G. Kuznetsova consider the sharing economy as a modern approach to the widespread mobilization of the national internal resources of the economy available for the current period. They put forward the concept of close interrelation of the genesis of the platform economy and platform organization of electronic payment facilities as an element of the new economy in the era of mass digitalization (Avdokushin et al., 2023). I.Z. Ayusheeva, E.B.Poduzova, T.V. Soifer study the issues of civil-law regulation of relations in the sphere of sharing as a collaborative use of resources (Ayusheeva, Poduzova, Soifer, 2021). The authors analyze what types of agreements and contracts regulate relations in the sharing economy in Russian practice.

V. Katsoni, M.Yu. Sheresheva cover the issues of developing the sharing economy in the hospitality and tourism industry (Katsoni, Sheresheva, 2019). The authors show that this business model can be seen as a disruptive innovation that demonstrates the capitalization of emerging opportunities rather than an attempt to avoid emerging problems. K.S. Semina and D.A. Osipova emphasize the main effects that the sharing economy has on the economic system. Among these effects are reduction of adverse environmental impact; reduction of the cost of the final product when used in the B2B sector; reduction of transaction costs due to the transparency of the information provided; cost reduction and increase in the efficiency of the use of benefits (Semina, Osipova, 2019). A.N. Shmeleva considers the scenario of sharing penetration into economic models on the example of agriculture. She presents the system of business processes of

the agricultural wholesale and distribution center based on the principles of the sharing economy and believes that such a solution will contribute to the formation of added value of products by giving a presentation, compliance with the necessary norms and conditions of food safety, sales of products in new markets (Shmeleva, 2023).

When considering the aspects of embedding sharing economy into current socio-economic processes, we should mention the works of RAS Academician V.M. Polterovich devoted to the introduction and development of such a concept as "collaborative hierarchies" – mechanisms of cooperation combining hierarchical and peer-to-peer interactions. The author's work goes beyond the boundaries of sharing. However, it shows that the principles of cooperation underlying joint consumption and sharing are not limited to individual services or industries, but have a chance to become a new form of interaction at different levels of economic activity, which will be indicative of a gradual but radical institutional transformation.

The role of digital technologies and values in the development of the sharing economy

When considering the digital trends that have influenced the spread of the sharing economy and the application of peer-to-peer relationships in the economy, we should first of all note the development of e-commerce, financial technology and blockchain technology. The first articles in Scopus for the "e-commerce" query date back to 1996 and are considered under computer science. In particular, S. Zaba analyzed the requirements for electronic protocols (Zaba, 1996). The paper of V. Lamersdorf, M. Merz, T. Tu presents a description and the role of distributed ledger (blockchain) technology. The organization of this technology requires an appropriate infrastructure, including basic communication mechanisms (mechanisms for remote procedure call and database access, trading services and brokerage functions, etc.), as well as a common middleware infrastructure, component software techniques, distributed and mobile agent technologies, etc. (Lamersdorf et al., 1998). However, the application of blockchain technology in relation to the sharing economy is only being considered in 2016. The same period saw the publication of an article and book by K. Schwab on the Fourth Industrial Revolution, where he considers the sharing economy on a par with distributed ledger technology among other 24 profound changes (Schwab, 2016). After 7 years, we can say that the trends of change identified by K. Schwab are closely intertwined with each other, and the formation of interactions between economic agents at all levels is embedded in the daily life of each individual. In this regard, it is safe to say that the digitalization of the economy is a key factor that determines not only the efficiency of the sharing economy, but also the possibility of its development as such.

Thus, we formulate the following hypothesis:

H1. Sharing economy is determined by a country's level of digital development.

Although technological changes form the basis for the development of the sharing economy, its development is conditioned, first of all, by the need for institutional changes, which is caused not only by the emergence of opportunities for more efficient organization of socio-economic processes, but also by the inefficiency of individual institutions. In this regard, one of the key topics most actively addressed since 2014 is the issue of trust. This topic, when interacting with the sharing economy, takes many forms: trust in the platform, trust between individuals interacting, trust/distrust in the government or business, etc. The combination of these factors brings its own features to the formation of the institutional environment in different territories. In addition, as P. Doney, J. Cannon, and M. Mullen point out, establishing trust depends on the common motives, values, beliefs, and identity of individuals, but human behavior and beliefs differ depending on the specific culture (Doney et al., 1998).

Thus, another important factor influencing the development of the sharing economy is the prevailing value orientations. D. Bell made a significant contribution to the study of values and their influence on social processes. In *The Coming of Postindustrial Society*, the author touches on the subject of the transformation of values in postindustrial society, essentially recognizing and denoting the formation of postmaterialist values (Bell, 2004). V.L. Inozemtsev in the preface of this work notes that, being an opponent of postmodernism, D. Bell recognizes that "the modernity era itself has largely determined the undermining of previous cultural forms and conditioned modern changes in the sphere of culture" (Bell, 2004, LVII).

The query "sharing economy" and "values" or "culture" found 208 articles in the Scopus database between 2015 and 2023. For example, Sh. Cai and co-authors propose a research model to explain why consumers engage in collaborative consumption from a value co-creation perspective. The authors identify that individuals' attitudes toward collaborative consumption are influenced by economic and social values, entertainment values, and trust (Cai et al., 2017). B. Dreyer and others ask what is the impact of collaborative consumption business models on stakeholder value and what is the impact of the context of the developing economy. The authors emphasize the importance of adapting existing and new collaborative consumption models to local conditions (Dreyer at. el., 2017).

K. Wu and J. Shen suggest to take into account the Hofstede's cultural dimensions theory when building trust on the platform. The authors show how power distance, individualism, uncertainty avoidance, and long-term orientation affect different types of trust on the Airbnb platform – institutional trust, product trust, and interpersonal trust (Wu, Shen, 2018).

The research of motives of economic agents' choice of interaction on the platform is also related to the topic of value orientations. J. Hamari and co-authors in a survey of users of the sharetribe.com platform found that the interaction pleasure motive as well as perceived economic benefits influence the behavioral intention to participate in the sharing economy (Hamari et al., 2016).

Based on all of the above, we formulate the following hypothesis:

H2. The development of the sharing economy is determined by the prevailing values in the country.

At the same time, the impact of values on the sharing economy can be heterogeneous, due to the indistinct boundaries of this phenomenon, as well as the existence of different business models that take into account both economic and social aspects. When analyzing values, we should also highlight the studies of R. Inglehart and K. Welzel, as well as their cross-country survey of values. The authors compare countries in the following dimensions: survival values – self-expression values; traditional values – secular-rational values. Under their leadership, a worldwide values survey, based on a wide range of questions, identifies values around the world. R. K. Khabibulin, O.S. Deineka, based on this study, when analyzing the relationship between the indicators of psychological and political stability and the adherence of individuals to postmaterialist values, conclude that adherents of this type of values are less inclined to trust the government and less loyal to the current political regime, demonstrating greater willingness to participate in protest actions against the current government (Khabibulin, Deineka, 2015).

Consequently, materialist values will be related to the economic benefits of developing a sharing economy; postmaterialist values will be related to issues of sustainable development, social well-being, and the need for freedom, as reflected in the choice of an access model versus an ownership model, the choice to work remotely through the use of digital platforms, etc. On the one hand, labor relations realized through digital platforms do not provide

an adequate level of stability; on the other hand, short-term projects support individuals' need for constant change and independence not only from a single territory, but also from an organization or other system. The values of self-expression can also be realized through the development of sharing platforms and services. Secular-rational values include rational behavior, the pursuit of success, and a preference for a secular state over a religious one. The use of sharing services and platforms can indeed in some cases be considered as rational behavior, can provide new opportunities for socio-economic development, and demonstrates the transformation of behavioral patterns not only in the field of consumption, but in the field of life history in general.

Due to the fact that postmaterialist values include both self-expression values and secular-rational values, we considered not only the general group of postmaterialist values, but also separately each of these slices. However, materialist values were not separated, suggesting that this analysis would be redundant. The influence of traditional values and survival values will be reflected when checking the influence of their antagonists. However, separate hypotheses on the influence of materialist and postmaterialist should, in our opinion, be considered separately, due to the existence of countries where mixed values prevail.

Thus, we have detailed the H2 hypothesis.

H2a. The development of a sharing economy depends on materialist values.

H2b. The development of the sharing economy depends on postmaterialist values.

H2c. The development of the sharing economy depends on self-expression values.

H2d. The development of the sharing economy depends on secular-rational values

The combination of the level of technological development and value orientations forms different scenarios for the development of the sharing economy.

Research methodology

Data

As an indicator characterizing the sharing economy, we used the Timbro Sharing Economy Index (2018)[1]. It is calculated on the basis of traffic data of 286 digital platforms or services of the sharing economy in 213 countries. We should note that among open sources, only this index allows researching on a cross-country level. Eurostat's Collaborative Economy reports also provide data on short-term rentals in Europe at city, country and regional level. However, their consideration of only one direction does not allow forming a general picture about the level of development of the sharing economy[2]. In addition, the Consumer Choice Center (USA) assesses the sharing economy at the city level[3]. IndXX[4] Agency presents the worldwide trend of the sharing economy using the share price performance of the sharing economy companies. The Smart Cities Index also contains selected indicators that characterize the sharing economy. Timbro Sharing Economy Index was considered as a dependent variable.

To assess the level of technological and digital development, we used the digital development index (X_1), as well as an indicator characterizing the share of the country's population using the Internet (X_2). The ICT Development Index was calculated from 2009 to 2017 and suspended until 2022 when the methodology for its calculation was changed. This index takes into account indicators characterizing the spread and quality of the Internet, as well as the

[1] Timbro Sharing Economy Index. Available at: http://www.epicenternetwork.eu/wp-content/uploads/2018/07/Timbro-Sharing-Economy-Index-2018.pdf

[2] Commission (Eurostat) publishes first statistics on short-stay accommodation booked via collaborative economy platforms. Available at: https://ec.europa.eu/commission/presscorner/detail/en/IP_21_3293

[3] Sharing economy Index (2020). Available at: https://consumerchoicecenter.org/sharing-economy-index-2020/

[4] Indxx US Sharing economy Available at: https://www.indxx.com/assets/media/Indxx_US_Sharing_Economy_Index_Methodology2.pdf

level of education of citizens[5]. The percentage of the population using the Internet is presented in the World Bank database.

The data presented in the World Values Survey were used for the assessment of values. This study aims to investigate value orientations and their impact on economic and social development, quality of life and democracy. There were seven waves of this research. The latest wave dates from 2017–2022, but included an incomplete list of countries. To expand the list of analyzed countries we used data not only from the 7th wave, but also from the 5th and 6th waves in case they were not included in the 2017–2022 study. Where country data were available in two or three of the waves considered, data from the later wave were used. For example, data for the USA, UK, Australia, Brazil and many others were obtained in 2017–2022, while for France, Switzerland, Italy, Norway, Bulgaria, Estonia, etc., data from the 5th wave (2006) were used. Data for Russia are presented in the 6th wave of the research.

To test the formulated hypotheses, we used the mean of the secular-rational values score (X_3). Secular-rational values are contrasted with traditional values. While the traditional values include preference for religion, family, respect for authority, social conformism, etc., the second includes rational behavior, achievement of success, preference for a secular state, and a low role for religion. In addition, the proportions of respondents who exhibited more materialist (X_4) or postmaterialist (X_5) values were taken into account[6].

[5] The ICT Development Index includes the following indicators: fixed telephone subscriptions per 100 inhabitants, number of mobile cellular subscriptions per 100 inhabitants, Internet bandwidth per Internet user (bps), percentage of households with a computer, percentage of households with Internet access, percentage of inhabitants using the Internet, number of fixed (wired) broadband subscriptions per 100 inhabitants, active mobile broadband subscriptions per 100 inhabitants, average years of schooling, total secondary education enrollment rate, total tertiary education enrollment rate.

[6] World Values Survey. Available at: http://www.worldvaluessurvey.org/WVSContents.jsp (accessed: August 15, 2023)

The study uses data from 76 countries, as reported in the Timbro Sharing Economy Index, as well as data from the three waves of the World Values Survey.

Research procedure

The research procedure includes six stages. At the first stage, we formulate hypotheses about the impact of the development of digital technologies, as well as value orientations on the development of the sharing economy. At the second stage, we formulate a list of indicators that can be used to assess the level of digital development, as well as the values prevailing in a particular territory. At the third stage, we carry out a correlation and regression analysis to identify which of the indicators have the most significant impact on the development of the sharing economy. At the fourth stage, we arrange the data presented by the proportion of the population using the Internet. At the fifth stage, we construct a graph that shows how countries are divided according to the level of digital development and the prevalence of postmaterialist values. At the sixth stage, we define and describe scenarios for the development of the sharing economy.

Research findings

In terms of testing the H1 hypothesis about the impact of digital technology development on the sharing economy, we found a correlation both when considering the ICT Development Index ($r = 0.49$) and when analyzing the share of the population using the Internet broken down by country under consideration ($r = 0.47$).

When we tested the H2a and H2b hypothesis, we found an inverse relationship with the proportion of the population exhibiting materialist values ($r = -0.37$) and a direct relationship (0.39) with the proportion of the population with postmaterialist values. The values of Pearson correlation coefficients indicate a weak relationship, which is due to the heterogeneity of the sample, as well as the index form of presentation of the original data.

Self-expression values have less influence on the development of the sharing economy (H2c hypothesis). There is practically no connection (r = 24) between the sharing economy and secular-rational values (H2d hypothesis).

During the construction of the final models, we found multicollinearity between materialist and postmaterialist values, which was the reason for removal from the model X_3. In addition, among the indicators X_1 and X_2, there is also only value left X_1. The indicator characterizing the values of self-expression is not significant, which is the reason why we did not take it into account in the model.

The results of the regression analysis are presented in *Table 1*.

Thus, the development of the sharing economy can be described by the following formula (1):

$$Y = 0.014 \times X_1^{2.27} \times X_5^{0.53}, \quad (1)$$

where Y – Timbro Sharing Economy Index;

X_1 – The ICT Development Index;

X_5 – the percentage of the population in the country with postmaterialist values.

The model is tested for heteroscedasticity and autocorrelation of residuals. Heteroscedasticity is not detected in the model; autocorrelation of residuals is not detected.

Results discussion

The analysis allows concluding that hypotheses 1 and 2d are confirmed. On the one hand, digital technologies are a condition for the development of the sharing economy. On the other hand, the stimulus for the formation of the sharing economy is indeed the prevalence of postmaterialist values over materialist values. The development of the sharing economy, first of all, is characteristic of developed countries. However, its gradual diffusion has revealed that these values can also be extended to specific groups of consumers. For example, both foreign and Russian studies show that the consumer of the sharing economy is a citizen with an above-average income, under 30 years of age, a resident of a large city (Val'ko, Mal'tseva, 2020).

For more detailed analysis and identification of scenarios for the development of the sharing economy, we divided the countries under consideration into 3 groups according to the share of citizens using the Internet.

Table 1. Regression analysis results

Multiple R	0.66
R-Squared	0.46
Adjusted R-Squared	0.44
Standard error	1.28
Observation	76

Analysis of variance

	df	*SS*	*MS*	*F*	*F-value*			
Regression	2	100.3	50.2	30.6	2.23E-10			
Excess	73	119.7	1.64					
Total	75	219.9						

	Coeff.	*SE*	*t-stat.*	*P-value*	*Low. 95%*	*Up. 95%*	*Low. 95.0%*	*Up. 95.0%*
Y-intersection	-4.24	0.65	-6.53	7.73E-09	-5.52925	-2.94	-5.53	-2.94
LN(X_1)	2.27	0.36	6.28	2.21E-08	1.552841	2.99	1.55	2.99
LN(X_5)	0.53	0.23	2.296	0.024	0.069	0.99	0.069	0.99
Source: own compilation.								

Countries with the highest level of sharing economy development are placed in cluster 1. It includes Norway, Canada, Netherlands, Switzerland, UK, Australia, Estonia, Sweden, New Zealand, Finland, Japan, USA, Singapore, Germany, Ireland, Spain, Chile, Cyprus, France. The median of the Sharing Economy Index for this cluster is 16 and the standard deviation is 12.6. The lowest values are in Germany and Japan, which is due to the features of sharing regulation in these countries. Cluster 1 countries are distinguished by a high level of digital technology development. The share of citizens using the Internet exceeds 81%. The share of the population with postmaterialist values varies from 4.4 to 38.1%. The average share of the population supporting postmaterialist values is 6.40%.

The second group of countries are those with a share of the population using the Internet from 50% to 81%. The median value of the Sharing Economy Index is 1.7. These countries are characterized by a lower level of digital technology development (6.04 at the median). Cluster 2 includes such countries as Malaysia, Lebanon, Czech Republic, Slovakia, Azerbaijan, Slovenia, Belarus, Kazakhstan, Argentina, Poland, Hungary, Italy, Serbia, Greece, Türkiye, Maldives, Romania, Brazil, Vietnam, Armenia, Jordan, Morocco, Bulgaria, Tunisia, Colombia, Georgia, Ukraine, South Africa, China, Ecuador, Thailand, Mexico, Uzbekistan, Peru, Moldova, Algeria. It is important to note that the PRC data may be refined. Quite low values are related to the feature of data collection based on traffic analysis.

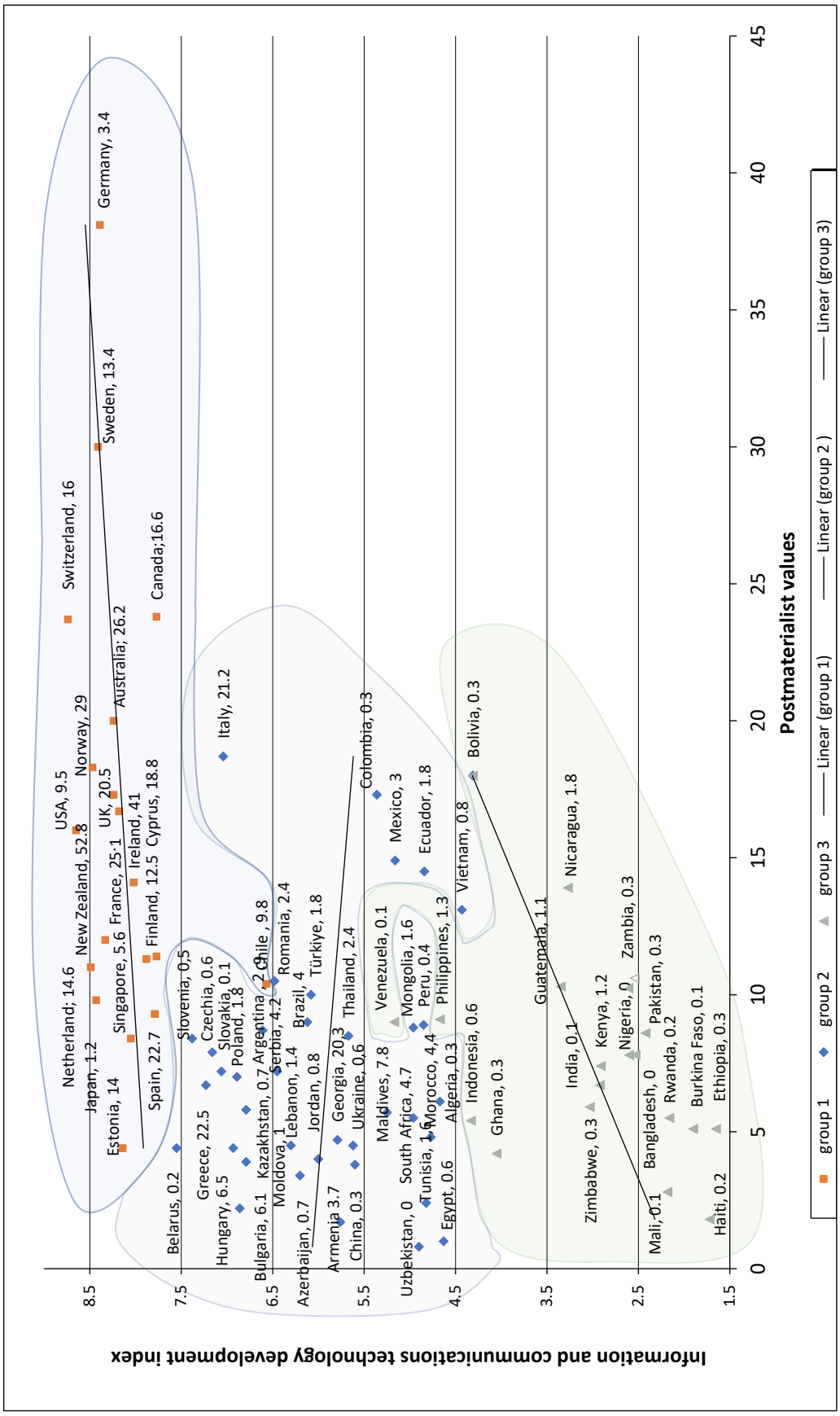
The third group of countries is characterized by a lower share of the population using the Internet – less than 45%. The median value of the Sharing Economy Index for this group of countries is 0.3. Postmaternalist values are generally held by 7.2 percent of the population (median). The ICT Index value (median) is 2.92. Cluster 3 includes the following countries: Bolivia, Philippines, Ghana, Guatemala, Indonesia, Nigeria, Nicaragua, Haiti, Zimbabwe, Bangladesh, Mali, India, Kenya, Rwanda, Ethiopia, Pakistan, Zambia, Burkina Faso, Venezuela, Trinidad and Tobago *(Tab. 2)*.

Table 2. Description of country groups

Cluster of countries	Indicator	Descriptive statistics				
		Mean value	Median	Standard deviation	Skewness	Excess
Cluster 1	Percentage of population using the Internet	88.89	88.89	3.43	0.28	0.67
	ICT Index	8.13	8.24	12.59	-2	5.95
	Postmaterialist values	16.11	14.1	8.24	1.23	1.6
	Timbro Sharing Economy Index	18.6	16	12.59	1.27	2.03
Cluster 2	Percentage of population using the Internet	67.31	69.85	10.4	-0.38	-0.89
	ICT Index	5.96	6.04	0.92	2.66	-1.31
	Postmaterialist values	7.06	6.4	4.19	1.02	0.93
	Timbro Sharing Economy Index	3.59	1.7	5.61	2.66	6.5
Cluster 3	Percentage of population using the Internet	25.21	22.42	14.7	-0.18	-1.01
	ICT Index	3.19	2.92	1.21	2.09	0.04
	Postmaterialist values	7.29	7.2	3.72	1.16	2.22
	Timbro Sharing Economy Index	0.57	0.3	0.77	2.09	4.59

Source: own compilation based on the data of ICT Development Index, World Values Survey, World bank Database, Timbro Sharing economy Index.

Figure 1. Distribution of countries by level of development of digital technologies and postmaterialist values



Note: to the right of the country name is the value of the Timbro Sharing Economy Index.

Source: own compilation based on the data from ICT Development Index, World Values Survey, Timbro Sharing economy Index.

Figure 1 shows the distribution of countries in coordinates: Information and Communication Technology Development Index – Postmaterialist values.

Countries with a high level of digital technologies are characterized by a higher level of development of the sharing economy. They tend to follow the path of embedding the sharing economy into existing ecosystems, developing norms and rules to regulate sharing economy platforms and services, as well as developing practices in regulation and dispute resolution. A vivid example of integrating the sharing economy into current socio-economic processes is the development of sharing cities – smart cities that use data sharing, artificial intelligence, and blockchain technology to create a favorable environment.

The next group of countries is characterized by lower levels of digital technology and postmaterialist values. The average level of development of the sharing economy is lower than in the first group, but there are countries with a high level of this index – Italy, Georgia, Greece. We believe that this feature is related to the high level of tourism development in the country, which constitutes the main area of development of the sharing economy. Postmaterialist values are less developed in this group. In addition, this group is characterized by a lower level of individualism[7], indicating that processes of shared resource consumption can be built without the involvement of digital platforms. The development of the sharing economy becomes a potential area for raising money.

The third group of countries is characterized by the lowest level of digital technology development, which is a key and basic condition for the development of the sharing economy. In this case, the development of digital technologies is also closely related to the level of socio-economic development.

Thus, we can formulate the following scenarios for the development of the sharing economy.

Scenario 1. Developing the sharing economy through concerted cooperation and considering the sharing economy as a way to develop ecosystems. The implementation of this scenario is seen in the increased harmonization of interests of all participants of interaction. It is important to note that this process will concern all participating subsystems. For example, if the sharing economy project is a part of smart city development, then harmonization of interests of business, citizens, municipal and regional governments will be a key task in the implementation of this scenario.

Implementation of this scenario requires 1) agreement on the goals and objectives of this project, 2) ensuring the necessary level of trust, which can be ensured through informal, formal institutions or digital technologies, 3) direct digital implementation of the project; 4) competencies for the implementation of the project. Scenario 1 appears to be a systemic innovation and requires alignment of key principles of organizational change management.

It is also important to note that the presented scenario can be implemented either bottom-up or top-down. For example, M. Bernardi and D. Diamantini (Bernardi, Diamantini, 2018) use the example of Milan and Seoul to show two ways of forming sharing cities. The implementation of the shared city concept in Seoul was initiated from the "top" and required a high level of digital infrastructure development. At the same time, keeping the focus primarily on the creation of conditions for citizens allowed activating civic initiatives as well. In Milan, on the contrary, the shaping of the sharing city is realized from the bottom-up, and local governments are only one element in a more complex system.

[7] Hofstede G. Dimension data matrix. Available at: https://geerthofstede.com/research-and-vsm/dimension-data-matrix/

Thus, we should note the following among the characteristics of scenario 1:

1) initiated by the authorities or civil society;

2) involves more than three stakeholder groups;

3) requires digital and technological infrastructure;

4) based on the implementation of the principle of cooperation;

5) focused on improving the efficiency of resource utilization.

Scenario 2. Development of the sharing economy as a way to increase economic welfare and develop social infrastructure. In this case, the sharing economy reveals its features as a new niche for business development. For example, the development of kick scooter sharing or carsharing is a new form of business based on the use of digital platforms. The expansion of this business can be realized through joint projects. For example, the development of carsharing in Moscow is supported by the city authorities and subsidies are allocated to companies that meet the requirements.

The development of investment and crowdfunding platforms, in our opinion, should also be included in this scenario. It is based on the creation of startups and the launch of new businesses as a response to the needs of a particular social group. Projects are realized at the B2C, B2B level. Thus, this scenario has the following characteristics:

1) initiated as a response to emerging societal needs;

2) includes entrepreneurial projects;

3) requires digital infrastructure for implementation;

4) based on the access to resources and reduction of operating costs;

5) focused on improving the efficiency of resource utilization.

Scenario 3. Development of the sharing economy as an additional source of resources. The low level of development of digital technologies is a key barrier to the development of sharing. Thus, the experience of African countries shows that the main obstacle to the development of carsharing is low internet accessibility (Junaid, 2019). The results of our study also show that digital technology itself is a key driver of the development of the sharing economy. For example, the spread and development of Uber correlates with the share of the population using the Internet. This scenario can be compared with the first stages of development of the sharing economy.

Scenario 3 is characterized by the following features:

1) insufficiently high level of development of Internet accessibility;

2) low standard of living of citizens;

3) focus on improving the efficiency of resource utilization.

The development of the sharing economy in this case is seen as an additional source of income.

In addition, we should talk about mixed scenarios that combine the first and second, as well as the second and third scenarios. The joint development of all three scenarios can be presented in countries with a high level of differentiation of population and territories. For example, for some regions and cities of the Russian Federation, all three development scenarios will be manifested. Such cities include Moscow and Saint Petersburg, where the services of the sharing economy are closely integrated into the ecosystem of smart city development.

Smaller cities will be characterized by the second and third development scenarios, where services of the sharing economy develop as independent businesses and emerge as a reaction to the formation of new needs, for example, in mobility, faster transactions, etc. For small territories with a low level of Internet development, the development of sharing may not be feasible due to the established social ties and the use of alternative ways of joint consumption. It is also important to note that the spread of the sharing economy is closely linked to the values of security and freedom, which is one of the incentives for the spread of this form of relationship.

Conclusion

We obtained the following results during the study.

First, we formulated and tested hypotheses about the impact of technological development and value orientations on the development of the sharing economy. We revealed that the level of development of digital technologies is a key factor in the development of the sharing economy. The prevalence of postmaterialist values in the country also stimulates the development of the sharing economy.

Second, we identified and described clusters of countries that differ in the level of digital technologies and the presence of postmaterialist values. The identification of these clusters contributed to the definition of scenarios for the development of the sharing economy.

Third, we formulated and described the scenarios for the development of the sharing economy. We show that they differ not only in the level of development of digital technologies and the willingness of citizens to use the services of the sharing economy, but also in the scale of the territory to which the principle of joint consumption applies.

The scientific novelty of the obtained results consists in the development of the author's approach to analyzing the impact of values on the development of the sharing economy, including the analysis of trends showing the nature of the impact in the context of countries, identification of clusters of the sharing economy development, identification of scenarios for the development of this business model, taking into account the level of development of digital technologies and the presence of postmaterialist values. Theoretical significance of the obtained results lies in modeling the development of the sharing economy and predicting the directions of development. Practical significance consists in the possibility of using the scenarios in the formation of urban infrastructure or the design of "smart" cities.

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An Entrepreneur in the Context of New Challenges (Using the Example of the Territories of the Republic of Belarus)

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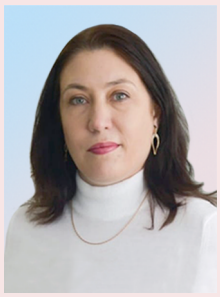

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Abstract. The aim of the work is to assess the activities of entrepreneurs in the regions of the Republic of Belarus affected by the Chernobyl disaster. We use statistical analysis and findings of sociological studies to assess entrepreneurial activity in the context of the following new challenges: the need to move to the sixth technological paradigm based on a highly competitive socio-economic system of a mixed type combining elements of state planning and market relations; preserving the social structure of the Belarusian society amid unprecedented wealth stratification in other countries; overcoming the consequences of man-made disasters. The empirical basis includes the data of sociological questionnaire surveys conducted in 2021 and 2022 by the Center for Social and Humanities Studies of the Belarus State Economic University in collaboration with the Institute of Sociology of the National Academy of Sciences of Belarus, within the framework of the research project "To carry out a sociological assessment of the entrepreneurial potential of the territories affected by the Chernobyl accident". The findings of the research show considerable unity of moral and value priorities of entrepreneurs and the population. This reveals the degree of adaptability of the country's socio-economic system to the challenges associated with the formation of a mixed economic model, in which elements of market management are new to Belarusians. We prove that entrepreneurs can be the vanguard of a mixed economy as the most competitive type for Belarus to shift to a society of the sixth technological paradigm, since they have qualities adequate to modern challenges: self-reliance, relying on one's own capabilities, competencies, what everyone can do personally, on their own. One of the main advantages of business activity in Belarus is the low degree of cronyism, which helps to avoid the challenges of oligarchic capitalism and related unprecedented social stratification on a material basis. It is shown that entrepreneurs adequately assess the conditions for a successful start in various business areas. To a greater extent, a request has been formed to launch a business in the service sector, followed by the areas of specialized services – legal, medical spheres, production of goods, processing of products.

Key words: entrepreneur, business entities, mixed economy, emergency situation, territories affected by radionuclide contamination.

Introduction

The socio-economic systems of modern nation-states exist in the context of new challenges associated with the turbulence of change of technological and global economic patterns, unprecedented scale of social stratification on material grounds. Consequently, on the one hand, the fundamental bases of the modern world's economic modes, capitalist and socialist, are being critically reconsidered. On the other hand, some argue that mixed systems, which combine elements of both state planning and market self-organization, are the most competitive in present-day context (see, for example, Glaz'ev, 2022). The issues of the system-forming status position of the capitalist, market economy – the entrepreneur – are being actualized; it is necessary to clarify its place and role in mixed economies. This type of the economy is being developed in Belarus. The state policy in the country aims to promote small and medium-sized business and entrepreneurial activity among the population.

The analysis of modern scientific literature (Antonenko, Karitskii 2011; Berezentseva, 2011; Bubnovskaya, Leonidova, 2021; Vakhitova, 2015; Grazhdankina et al., 2012; Ermakov, Nugumanov, 2013; Ivashkin, Fol'k, 2015; Nureev, 2003; Paevskaya, 2016; Pin'kovetskaya, 2020; Pozhueva, Lebedeva, 2011; Svetun'kov, 2010; Spirina, 2016; Tolkachev, 2019 et al.), which reinterpreted the classical ideas of R. Cantillon, C. Bodo, J.-B. Say,

A.R.J. Turgot, A. Smith, F.A. Walker, M. Weber, J. Schumpeter, R. Hizrich et al., allowed generalizing the main approaches to the definition of functions, social characteristics of the entrepreneur. An entrepreneur may be called a person responsible for organizing parades and musical performances; a person fully responsible for the implementation of large-scale construction or production projects; a mediator, owner of business and capital; a holder of information, organizer of production and marketing of products. They embody rationality through functional efficiency, morality, and responsible decision-making. Entrepreneurs are passionate innovators who create new resources in society, possessing value; they stand for technological progress, transform social and mental reality, build new connections and are ready to take risks; they are potential representatives of the middle class, etc.

The emergence of oligarchic capitalism, a form of capitalism in which excess profits are concentrated in the hands of a few, has sparked scholarly discourse on whether an entrepreneur can be considered a representative of big business or only of small and medium-sized business, which have their own distinct "capitalist" and "bourgeois" functions (Tolkachev, 2019). According to foreign researchers, the super-rich prioritize profit over morality, even when claiming to have the best intentions of "saving the world" (Brooks, Kumar, 2023). There is also a discussion of the contradictory nature of the moral and ethical foundations of the modern entrepreneur's activities and the ethicality of their very status (Garnova, 2019), which can both create conflict and "potentially generate peace" (Joseph et al., 2023).

The definition of entrepreneurial activity in the Republic of Belarus is formulated in the Civil Code (part 2, paragraph 1, article 1). "Entrepreneurial activity is an independent activity carried out by legal entities and individuals in civil turnover on their own behalf, at their own risk, and under their own property responsibility. The aim is to systematically make a profit from the use of property, sale of produced, processed, or acquired goods, and from work or services provided for sale to other persons and not for personal consumption"[1]. This definition outlines important characteristics of an entrepreneur, including autonomy, risk-taking, property responsibility, and the ability to create new products or services.

The scientific community of the Republic of Belarus focuses on developing entrepreneurial potential. Research by O.N. Haurylik indicates that half of Belarusian residents prefer a market-oriented model of behavior, while only one in ten holds a negative attitude toward entrepreneurs. Entrepreneurs, employees of private companies and students (compared to employees of budgetary organizations and pensioners) are more inclined to implement a market-oriented economic behavior, they tend to have a higher tolerance for entrepreneurial risks and a more favorable view of representatives of the business environment (Haurylik, 2020). The Institute of Economics of the National Academy of Sciences of Belarus (NASB) employees conducted a survey of entrepreneurs and determined the characteristics of cluster interactions among small and medium-sized enterprises in the country; analyzed the sources of knowledge required by entrepreneurs to run their businesses (Smirnova, 2020); identified administrative and managerial obstacles to the development of entrepreneurial activity; identified the areas of government regulation that are most susceptible to corruption and bribery; evaluated the government's efforts to remove economic barriers, implement preventive supervisory activities, and prioritize preventive measures; they also analyzed the burden of rent costs, bureaucratic procedures, and taxes (Smirnov, 2021; Smirnova 2021).

[1] Civil Code of the Republic of Belarus 218-Z, dated December 7, 1998. Pravo.by. Available at: parvo.by.document (accessed: March 11, 2021).

Belarusian Association of UNESCO Clubs in partnership with the educational institution Belarusian State Economic University, and the Ministry of Education of the Republic of Belarus organized and held the Republican scientific-practical conference with international participation titled "Innovative approaches to the formation of professional and entrepreneurial skills of students on the basis of environmentally-oriented training". On December 15, 2020, a conference was held in Minsk to present research results, methodological and organizational activities related to youth entrepreneurship, career guidance, forms of informing students, features of ecological entrepreneurship, and specifics of doing business in rural areas[2]. Thus, the scientists of Belarus study the conditions, factors, features of formation of the entity of small and medium business – an entrepreneur.

The object of our study is also an entrepreneur. Specifying the subject field of analysis, we note that we live in a social system transforming into a society of risk, where "the reproduction of new social relations is accompanied by a systematic reproduction of threats and dangers that are not always predictable... The frequency of disasters and accidents caused not by technical, but by socio-cultural miscalculations is increasing"[3]. Man-made disasters can have a significant impact on a country's production efficiency. It is important to note that "low-income countries tend to be affected more severely than high-income countries" (Ibrahimova, Moog, 2023). Man-made disasters are a new challenge of the modern era, which the Republic of Belarus has also faced. This is the need to eliminate the long-term consequences of the worst nuclear power disaster in history, both in terms of human casualties and economic damage. The accident occurred on April 26, 1986, at the Chernobyl Nuclear Power Plant (ChNPP), contaminating over 200,000 square kilometers with nuclides, mostly in modern-day Russia, Ukraine and Belarus.

Before the construction of the Republican Nuclear Power Plant, the Institute of Sociology of the National Academy of Sciences conducted monitoring studies on the opinions of the population and experts regarding the state, problems, and prospects of development of Belarus' fuel and energy complex. This included an analysis of the industry's work, the challenges it faces, ways to provide energy resources, and the development of production capabilities in the energy sector. Additionally, the study explored the prospects for the use of fuel and energy resources in the country's energy sector[4] (Bobrov et al., 2006; Shavel', 2014).

The Republic of Belarus is consistently implementing a state program to revive territories contaminated with radionuclides (Marchenko et al., 2014). Researchers in Belarus have carried out many years of work on the task "To develop recommendations on the formation of attitudes of self-actualization and retention of young people in the areas most affected by the Chernobyl disaster" as part of the State Program on overcoming the consequences of the Chernobyl disaster for 2011–2015 and for the period through to 2020. The researchers studied the opinions of the population about the consequences of the Chernobyl disaster and the prospects for the revival of the affected territories, migration attitudes and plans of young people living in these territories (Shavel'et al., 2020; Vishnyakova, 2022).

[2] Innovative approaches to the formation of professional and entrepreneurial skills of students on the basis of environmentally-oriented training. (2021): Proseedings of Republican scientific-practical conference with international participation, Minsk, December 15, 2020, D.G. Dobrorodnii (Ed.) et al. Minsk: RIVSH.

[3] Bagdasar'yan N. G. et al. (2022). Socio-Technological Discourse in the Theories and Practices of the Digital Trend. Moscow: Izd. MGTU im. N.E. Baumana.

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The development of small and medium-sized business entities in the territories of Belarus contaminated with radionuclides is in the zone of special attention. Entrepreneurial potential is positioned as a resource for the development of these territories, assuming that "entrepreneurs have unique positive abilities compared to the population". (Singh, 2020). In order to increase the effectiveness of the rehabilitation and development of the territories affected by the Chernobyl disaster, it is necessary to take active measures to promote the creation and development of small and medium-sized business in the contaminated territories and adjacent settlements and towns, using a set of methods of supporting entrepreneurship that have been tested and proven in other countries.

Materials and methods of research

The Center for Social and Humanitarian Research of the Belarusian State Economic University in cooperation with the Institute of Sociology of the National Academy of Sciences is implementing the research project "Sociological assessment of the entrepreneurial potential of the Chernobyl-affected territories" within the framework of the measure "Sociological assessment of the factors, mechanisms and conditions for the development of small and medium-sized business in the Chernobyl-affected territories" of the State Program on overcoming the consequences of the Chernobyl disaster for 2021–2025 (GR 20213172). The analysis of the results of these studies allowed implementing the following objective within the framework of this article: to assess the activities of entrepreneurs living in radionuclide contaminated territories in the conditions of new challenges. Among the challenges are the necessity of transition to the sixth technological paradigm; formation of a highly competitive socio-economic system combining elements of state planning and market relations; preservation of the social structure of the Belarusian society, especially given the unprecedented in the world history scale of material stratification in other countries; overcoming the consequences of man-made disasters, the unique experience of which is being realized in Belarus. We used the materials of statistics and the results of relevant sociological studies to realize this goal.

The empirical basis was the research results achieved within the framework of this study, namely:

1) Population survey conducted in April 2021; general sample – population aged 16 to 59 years old in urban areas and rural settlements councils of the Brest, Mahilioŭ and Homieĺ regions; the research focus on these areas is substantiated by the fact that the overwhelming majority (98%) of the population of the territories contaminated by radionuclides in Belarus resides in these regions; therefore, the public opinion of the population in the areas affected by the Chernobyl disaster regarding small and medium-sized business development will be primarily shaped by the residents of the three territories; a total of 2,200 respondents were interviewed using a mathematically calculated republican sample, the route includes 29 districts, of which four are in the Brest, eight in the Mahilioŭ and seventeen in the Homieĺ Region;

2) In April 2022, 600 representatives of small and medium-sized business operating in the territories affected by the Chernobyl disaster were interviewed; the respondents included 228 individual entrepreneurs, 226 representatives of small and micro organizations, and 146 representatives of medium-sized organizations.

We compared the answers of entrepreneurs and respondents representing the entire population of the territories contaminated with radionuclides.

Findings

Statistical indicators of small and medium-sized business development in the territories affected by the Chernobyl disaster

Business entities in Belarus are classified according to the number of employees into *private*

entrepreneurs (PE), *micro organizations* (average number of employees per calendar year up to 15), *small organizations* (average number of employees per calendar year from 16 to 100), *medium-sized organizations* (average number of employees per calendar year from 101 to 250), and *large organizations* (average number of employees per calendar year over 250).

Table 1 shows the structure of enterprises of the Republic of Belarus by average number of employees.

In 2021, 6,902 enterprises and organizations were registered in the territories affected by the Chernobyl disaster. Of these, 404 were medium-sized enterprises and 6,498 were small businesses (2,701 private entrepreneurs, 2,126 micro organizations, and 1,671 small organizations)[5]. Most of small and medium-sized business entities are registered in urban settlements. Rural entrepreneurship is more developed in the Mahilioŭ region *(Tab. 2)*.

The statistical analysis of small and medium-sized business development in the territories affected by the Chernobyl disaster included a task to study the distribution of business entities based on their primary economic activity. In the structure of small and medium-sized business, the top three types of economic activity, in descending order, are wholesale and retail trade, repair of cars and motorcycles, and education and manufacturing industry *(Fig. 1)*.

In small business there are differences among business entities. Wholesale and retail trade, as well as car and motorcycle repair, are the most prevalent types of economic activities among private entrepreneurs and micro organizations. Small organizations, on the other hand, tend to offer educational services *(Tab. 3)*.

Table 1. Structure of enterprises/organizations of the Republic of Belarus by average number of employees, 2021

Region	PE		micro		small		medium		large	
	number	%	number	%	number	%	number	%	number	%
Brest Region	29,939	14.0	8,880	9.8	1,480	11.8	398	13.9	301	14.7
Viciebsk Region	19,621	9.2	7,272	8.0	1,180	9.4	351	12.2	266	13.0
Homieĺ Region	24,512	11.5	7,976	8.8	1,177	9.4	385	13.4	303	14.8
Hrodna Region	22,689	10.6	7,302	8.1	1,089	8.7	264	9.2	287	14.0
Minsk Region	31,198	14.6	16,637	18.4	2,071	16.6	564	19.7	338	16.5
Mahilioŭ Region	20,950	9.8	6,975	7.7	1,107	8.9	234	8.2	249	12.2
Minsk	64,602	30.3	35,450	39.2	4,404	35.2	672	23.4	300	14.7
Total	213,511	100.0	90,492	100.0	12,508	100.0	2,868	100.0	2,044	100.0
Source: data of the National Statistical Committee of the Republic of Belarus.										

Table 2. Number of small and medium-sized business entities located in radioactive contamination zones, depending on the region of residence and type of settlement, 2021

Type of business	Brest Region		Homieĺ Region		Mahilioŭ Region	
	urban area	rural area	urban area	rural area	urban area	rural area
Small business entities, including	267	84	4,895	649	326	277
PE	74	15	2,229	183	106	94
micro organizations	105	24	1,631	182	117	67
small organizations	88	45	1,035	284	103	116
Medium-sized business entities	33	12	244	81	16	18
Total	300	96	5,139	730	342	295

[5] Information provided by the National Statistical Committee of the Republic of Belarus and adapted according to the statistical bulletin "Settlements and population of the Republic of Belarus living in the radioactive contamination zones as a result of the Chernobyl disaster, as of January 1, 2021".

Figure 1. Distribution of small and medium-sized business entities located in radioactive contamination zones, by main type of economic activity, 2021, %

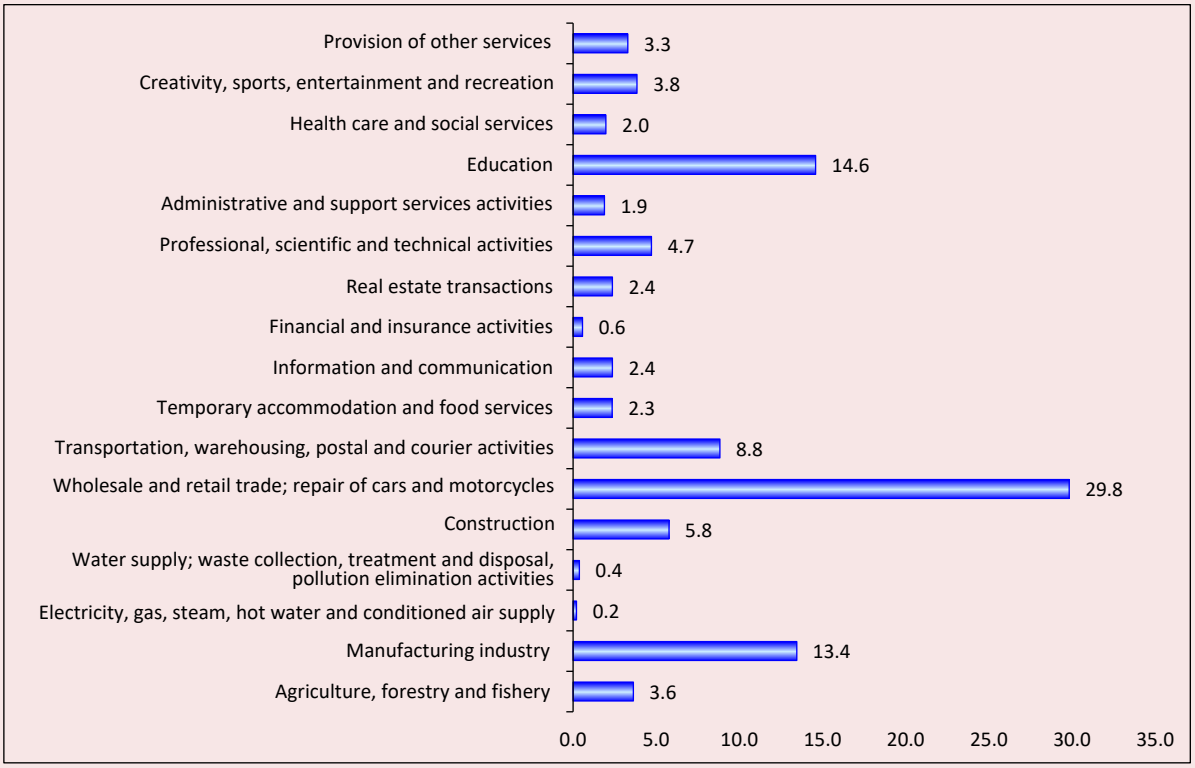

Table 3. Number of small business entities located in radioactive contamination zones, by main type of economic activity, 2021

Main type of economic activity of enterprises	PE	Micro organizations	Small organizations
Agriculture, forestry and fishery	43	44	63
Mining industry	1	2	-
Manufacturing industry	356	340	174
Electricity, gas, steam, hot water and conditioned air supply	7	1	2
Water supply; waste collection, treatment and disposal, pollution elimination activities	10	8	4
Construction	138	119	103
Wholesale and retail trade; repair of cars and motorcycles	1,075	783	168
Transportation, warehousing, postal and courier activities	332	202	62
Temporary accommodation and food services	58	72	26
Information and communication	74	58	27
Financial and insurance activities	19	5	14
Real estate transactions	95	45	18
Professional, scientific and technical activities	145	98	71
Administrative and support services activities	92	30	7
Education	31	138	762
Health care and social services	11	39	55
Creativity, sports, entertainment and recreation	70	68	109
Provision of other services	144	74	6

In medium-sized business structure, the most common types of activities are agriculture, forestry and fishing; education and manufacturing *(Fig. 2)*.

In all regions, the education sector is the leading industry in rural settlements. Additionally, rural areas in the Mahilioŭ Region are actively developing industries such as wholesale and retail trade, car and motorcycle repair, transportation, warehousing, postal, and courier activities *(Tab. 4)*.

The statistical analysis of the indicators of small and medium-sized business development suggests the presence of significant entrepreneurial potential in the areas affected by the Chernobyl disaster. This analysis also helps to identify growth opportunities, particularly in rural areas. The survey of entrepreneurs revealed significant potential in assessing the conditions for starting a business in various areas of the economy. According to the respondents, the availability of an interesting project or idea is the most important condition for successfully starting entrepreneurial activity in the service sector, including trade, catering, and consumer services. However, for the population of the regions affected by the Chernobyl disaster (hereinafter – the population), the availability of financial resources and start-up capital is considered the most important factor *(Tab. 5)*.

Figure 2. Distribution of medium-sized business entities located in radioactive contamination zones, by main type of economic activity, 2021, %

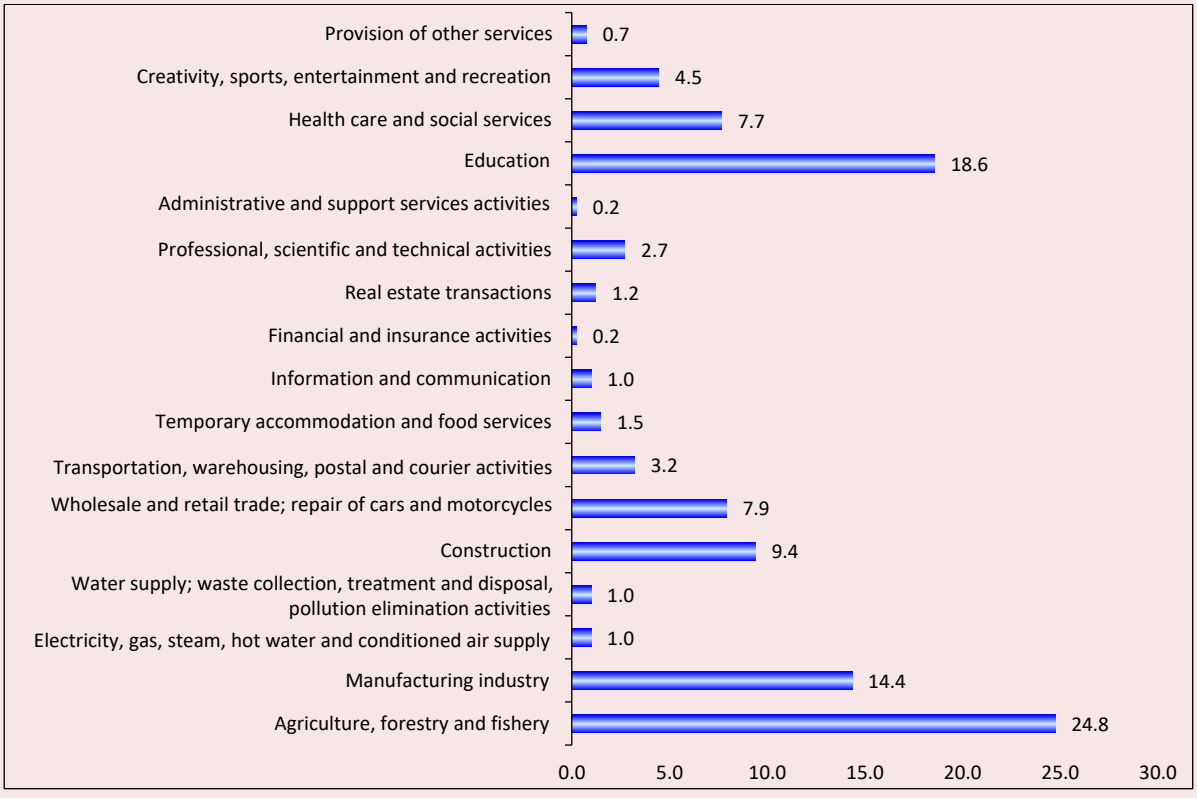

Table 4. Number of small and medium-sized business entities located in radioactive contamination zones, by main type of economic activity broken down by region, 2021

Main type of economic activity of enterprises	Brest Region		Homieĺ Region		Mahilioŭ Region	
	urban area	rural area	urban area	urban area	rural area	urban area
Agriculture, forestry and fishery	8	10	80	91	21	40
Mining industry	-	-	3	-	-	-
Manufacturing industry	42	7	688	83	54	54
Electricity, gas, steam, hot water and conditioned air supply	-	-	6	-	5	3
Water supply; waste collection, treatment and disposal, pollution elimination activities	3	-	18	3	1	1
Construction	15	-	336	14	20	13
Wholesale and retail trade; repair of cars and motorcycles	81	15	1,730	125	66	41
Transportation, warehousing, postal and courier activities	52	16	360	90	50	41
Temporary accommodation and food services	3	-	152	4	-	3
Information and communication	4	-	151	3	5	-
Financial and insurance activities	2	-	32	2	3	-
Real estate transactions	-	-	156	5	2	-
Professional, scientific and technical activities	12	-	280	11	16	6
Administrative and support services activities	1	-	119	3	6	1
Education	48	46	494	279	56	83
Health care and social services	5	1	106	10	12	2
Creativity, sports, entertainment and recreation	22	1	208	5	22	7
Provision of other services	2	-	220	2	3	-

Table 5. Distribution of answers to the question “What is necessary first of all for a successful start of entrepreneurial activity?” % of the number of respondents / rank

Respond option	In the service sector (trade, catering, consumer services)		In specialized services (e.g., medical, legal services)		In the sphere of production of goods / processing of products	
	P	E	P	E	P	E
Financial resources, start-up capital	66.1/1	51.8/2	52.8/2	45.3/3	59.5/1	44.0/1
Entrepreneurial nature, presence of certain personal qualities	48.7/2	45.3/3	34.4/5	33.2/5	36.7/3	29.8/4
Interesting project, idea	46.6/3	55.7/1	21.8/6	22.7/8	42.0/2	40.2/2
High level of knowledge (legal, economic)	26.0/6	29.2/6	53.6/1	59.7/1	26.5/6	25.5/7
Team of like-minded people	25.8/7	37.0/4	18.1/8	28.7/6	26.3/7	28.0/6
State support (financial, informational, etc.)	31.7/5	29.7/5	35.1/4	35.7/4	35.4/4	31.2/3
Qualified personnel	33.4/4	28.2/7	51.4/3	45.8/2	34.3/5	29.0/5
Connections, acquaintances who can help with running the business	23.3/8	23.0/8	21.6/7	26.7/7	22.3/8	21.7/8
Nore: P – population, E – entrepreneurs.						

Entrepreneurial character and the presence of certain personal qualities (45.3%) are the next most important factors for entrepreneurs, followed by having a team of like-minded individuals (37%). Entrepreneurs tend to prioritize "a team of like-minded people" when selecting human resources options, while the population favors "qualified personnel" (37% vs 25.8%). This suggests that teamwork among individuals who share common goals and values of business development is more important for entrepreneurs than qualifications. The next important factors for entrepreneurs are state support (financial, informational, etc.; 29.7%), high level of knowledge (legal, economic; 29.2%), and qualified personnel (28.2%). The last place among entrepreneurs (as well as among the population) is occupied by having connections and acquaintances who can help with business. This option was mentioned by 23% of entrepreneurs.

To start a business in specialized services (e.g., medical, legal) a high level of knowledge (legal, economic) is crucial for both entrepreneurs and the population. And this is relatively more significant for entrepreneurs than for the population (59.7% vs 53.6). Next in descending order of importance for entrepreneurs are qualified personnel, but this is less important for entrepreneurs than for the population (45.8% vs 51.4) and financial resources, start-up capital (also more important for the population – 52.8% vs 45.3).

For about every third entrepreneur (as well as for the population in general), state support (financial, informational, etc.) and entrepreneurial character and certain personal qualities are important for starting a business in the field of specialized services. For entrepreneurs and those in specialized services, having a team of like-minded individuals (28.7% vs 18.1) and connections or acquaintances who can assist with business (26.7% vs 21.6) are more crucial than for the population. Additionally, every fourth to fifth entrepreneur mentioned the importance of having an interesting project or idea.

In the sphere of production of processed goods for entrepreneurs, as well as for the population, the most important thing is financial resources, start-up capital, but by the degree of support it is more important for the population (59.5% vs 44). Further, in the sphere of production of processed goods, the following are in descending order of importance for entrepreneurs: an interesting project, idea (40.2%), state support (31.2%), entrepreneurial character, certain personal qualities (much more important for the population than for entrepreneurs; 36.7% vs 29.8), a team of like-minded people (28%), a high level of knowledge (legal, economic; 25.5%) and connections, acquaintances who can help with doing business (21.7%).

The assessment of the importance of starting a business aspects highlighted by the organizers of the empirical study in the entrepreneurial sphere was compared to the entrepreneurs' assessment. According to entrepreneurs in the service sector (trade, catering, consumer services), the most important factors are financial resources, start-up capital, entrepreneurial character, certain personal qualities, an interesting project, an idea, and a team of like-minded people. In the field of specialized services (e.g., medical, legal services) a high level of knowledge (legal, economic) matters, state support, qualified personnel, and connections or acquaintances who can assist with business are crucial.

The comparative analysis of self-assessments of entrepreneurial skills shows the prevalence of positive assessments among entrepreneurs and negative assessments among the population. The share of positive assessments among entrepreneurs is 2.7 times higher than among the population (68.8% vs 25). Thus, approximately 50% of the population

Table 6. Distribution of answers to the question "In your opinion, do you have enough entrepreneurial skills necessary to do business?", % of respondents

Respond option	Population	Entrepreneurs
Yes	6.8	32.5
Rather yes	18.2	36.3
Share of positive responses	***25.0***	***68.8***
Rather no	26.3	9.2
No	21.0	1.2
Share of negative responses	***47.3***	***10.4***
Hesitate to respond	27.8	18.8

Table 7. Distribution of answers to the question "What qualities are inherent to you personally in order to engage in entrepreneurial activity?" (population) and "Rate on a five-point scale whether you have the following skills (where 1 is completely lacking, 5 is fully possessing)" (entrepreneurs)

Respond option	Population, % of respondents / rank	Entrepreneurs, average weighted score / rank
Social skills, ability to communicate with different people, make connections, explain and persuade	50.6/1	4.16/1–2
Taking responsibility	41.9/2	4.16/1-2
Perseverance, ability to complete the work started, focus on achieving results	33.1/6	4.14/3
Decision-making discretion	31.0/9	4.08/4
Ability to find and analyze information	31.9/8	4.07/5-6
Desire for self-education, development of new skills	32.0/7	4.07/5-6
Flexibility, ability to adapt quickly to new conditions	30.9/10	4.02/7
Leadership skills, ability to manage the work of others	34.9/5	4.00/8
Desire and readiness to engage in entrepreneurship	14.5/13	3.92/9-10
Ability to remain calm, emotional stability	37.7/3	3.92/9-10
Ability to assess and take risks	28.9/11	3.88/11
Skills in using modern technologies (computer, Internet technologies, etc.)	37.0/4	3.86/12
Creativity, ability to find innovative solutions, implement new ideas	19.1/12	3.81/13

believes they lack these skills, while among entrepreneurs, only one in ten do. The number of those who hesitated to answer is expectedly higher among the population – 27.8%. However, it is noteworthy that among entrepreneurs, almost every fifth (18.8%) struggle to assess their own entrepreneurial skills *(Tab. 6)*.

When assessing their own entrepreneurial qualities, both the population and entrepreneurs value social skills, the ability to communicate with different people, make connections, explain, persuade and take responsibility above all *(Tab. 7)*. Further in the system of hierarchical ranking of entrepreneurs and population there are differences. Thus, the third place for entrepreneurs is occupied by perseverance, ability to complete the work started, focus on achieving results, while for the population these qualities are only in the sixth place. In the fourth place for entrepreneurs is decision-making discretion, while for the population it is only in the ninth place. The fifth–sixth places for entrepreneurs are occupied by the ability to find and analyze information, the desire for self-education, development of new skills; for the population, these qualities occupy the eighth and seventh places, respectively.

Entrepreneurs evaluate their flexibility, ability to adapt quickly to new conditions higher than the population, while the population evaluates their ability to manage the work of others, leadership skills, desire and readiness to engage in entrepreneurship, ability to remain calm, emotional stability, skills in using modern technologies (computer, Internet technologies, etc.), creativity, ability to find innovative solutions, implement new ideas. The same position in the ranking of entrepreneurs and population is occupied by the ability to assess and take risks.

To the question "Would you like to improve your knowledge and competencies in business" 45.5% of entrepreneurs answered positively, 28.5% – negatively; 26% found it difficult to answer. Of those who answered positively to this question most of all (every fifth) are interested in ways/strategies to increase income *(Tab. 8)*. Next in descending order of interest are such aspects as business scaling, promotion and advertising of goods/services using modern methods, finding customers for business and their retention, effective sale of goods/services, risk assessment and risk management skills, financial management, tax legislation (rules, changes in taxation, reporting on tax payments, legal aspects of entrepreneurial activity), personnel management, accounting (payroll calculation, submission of reporting documents), small and medium-sized business lending issues, entrepreneurial skills and competencies, technological solutions and products.

We should note that entrepreneurs are actively developing their competencies. Over the last three years, more than 40% of respondents have mastered new forms of working with clients and new programs/services, every third respondent attended business meetings, conferences, forums, took courses and trainings to improve their knowledge and competencies in business, every fourth respondent learned or began to learn a foreign language *(Tab. 9)*.

Foreign researchers note that the introduction of digital technologies is a trigger for positive changes in small and medium-sized business (Halkos et al., 2015; Hassan et al., 2023). We will consider what digital technologies are used by

Table 8. Distribution of entrepreneurs' answers to the question "In what aspects of doing business would you like to improve your knowledge and competencies?", % of the number of surveyed entrepreneurs

Respond option	%
Ways/strategies to increase income	21.0
Scaling the business	17.3
Promotion and advertising of goods/services using modern methods	16.3
Finding clients for business and their retention	16.3
Effective sale of goods/service	15.8
Risk assessment and risk management skills	12.0
Financial management	11.8
Tax legislation (rules, changes in taxation, reporting on tax payments)	10.8
Legal aspects of entrepreneurial activity	10.7
Personnel management	8.7
Hesitate to respond	8.0
Maintaining accounting records (payroll calculations, submission of reporting documents)	7.7
Lending issues for small and medium-sized business	7.3
Entrepreneurial skills and competencies	7.3
Technological solutions and products	5.8

Table 9. Distribution of positive answers of entrepreneurs to the question "Over the last 3 years you have..." % of the number of surveyed entrepreneurs

Respond option	%
Mastered new forms of working with clients	44.0
Mastered new programs/services	43.3
Attended business meetings, conferences, forums	34.7
Took courses and trainings to improve their knowledge and competencies in business	33.3
Learned/began to learn a foreign language	26.7

Table 10. Distribution of entrepreneurs' answers to the question "Which of the listed technological solutions/programs do you know and which ones do you use in your business?", % of the number of surveyed entrepreneurs

Technological solution/program	I know	I use
Non-cash payment acceptance methods	79.3	67.5
Submitting reports via the Internet	75.7	49.3
Electronic document management	75.2	46.5
Accounting software	74.5	43.0
Landings, websites, online stores	81.5	37.3
Financial automation software	69.3	35.7
Chatbots	69.5	22.2
Task and project management systems	67.0	19.0
CRM-systems	65.5	18.2
BI-systems for analytics	60.8	15.2

entrepreneurs from Belarus. Among technological solutions and programs entrepreneurs know most of all (81.5%) about landings, websites, online stores, but use them in business only 37.3% of respondents *(Tab. 10)*. According to the ratio of knowledge and use, the most demanded are noncash payment acceptance methods: 79.3% know about them and 67.5% use them. For other technological solutions, the gaps in knowledge and use in business are much more significant. For example, three quarters of respondents know about the possibilities of submitting reports via the Internet, electronic document management and accounting software, while 49.3%, 46.5% and 43% of respondents use them in business respectively. The level of knowledge about other technological solutions is also quite high (60–70%), but they are used in business much less often: financial automation software – 35.7%, chatbots – 22.2%, task and project management systems – 19.2%, CRM-systems – 18.2%, BI-systems for analytics – 15.2%.

Conclusion

On the basis of statistical analysis and analysis of the results of the empirical study of entrepreneurs and population in the regions of Belarus contaminated with radionuclides, the following can be noted.

1. Entrepreneurial potential and growth opportunities in the territories affected by the Chernobyl disaster are: among individual entrepreneurs and micro organizations – wholesale and retail trade; repair of cars and motorcycles; in small organizations – the sphere of education; in the structure of medium entrepreneurship – agriculture, forestry and fishery; education and manufacturing industry; in rural settlements of all regions – the sphere of education.

2. Entrepreneurs and the population do not oppose each other, as evidenced by the fact that both groups consider social skills, ability to communicate with different people, make connections, explain and persuade, as well as taking responsibility as the most important qualities for doing business. This indicates the unity of normative-value priorities of entrepreneurs and the population, the preservation of the principle "to live consciously", the degree of cohesion of the Belarusian society, and also shows the degree of adaptability of the republican socio-economic system to the challenges of the formation of a mixed economic model, in which the elements of market economy are new for Belarusians. Statistical analysis has revealed growth opportunities, especially in rural areas. To enhance entrepreneurship, local authorities and residents of affected territories should coordinate their actions to increase entrepreneurial activity, especially among rural residents.

3. Entrepreneurs rate the presence of qualities such as perseverance, the ability to complete the work started, a focus on achieving results, decision-making discretion, the ability to find and analyze information, a desire for self-education and development of new skills, flexibility, and the ability to quickly adapt to new conditions higher than the population. Entrepreneurs possess qualities that are well-suited to the challenges of modernity, such as self-reliance, competency, and independence. This suggests that entrepreneurs can lead the way in the transition of Belarus to a society of the sixth technological paradigm, making them a valuable asset to the mixed economy.

4. When forming measures of state policy in the sphere of entrepreneurship in the Republic of Belarus, it is important to consider the country's advantage of low cronyism. This is evidenced by the fact that entrepreneurs and the population prioritize factors other than personal connections and acquaintances when it comes to doing business and achieving success. This avoids the risks of oligarchic capitalism and the associated unprecedented social stratification along material lines. Thus, the entrepreneur is formed as a potential representative of the middle class, and the development of entrepreneurship contributes to the improvement of people's welfare and living standards.

5. When improving state policy in the Republic of Belarus regarding entrepreneurial initiatives, it is important to consider that there is a higher demand for starting business in the service sector (trade, catering, and consumer services). In this sphere, entrepreneurs prioritize having an interesting idea as the key to business success. This requires the development of competencies such as creativity, analyzing competitors' concepts, and identifying market opportunities not only for the entrepreneurs but also for of the population.

Among entrepreneurs, the second most requested field is specialized services (legal, medical). The entrepreneurs surveyed recognize that in this area, the sale is based on expert knowledge in the relevant field, making the reputation of the employees and team crucial. The development of this area, particularly in the field of medical services, requires open access to scientific journals, free discussion in expert communities, including scientific conferences.

In the third place among entrepreneurs is the request to start a business in the sphere of production of goods, processing of products, where, in fact, the competitive advantage is the availability of original technology or product, which requires the formation of appropriate competencies, the most significant state financial support of the project, as production requires large-scale and long-term investments.

6. Entrepreneurs use the simplest technological solutions for doing business, which do not require

significant additional financial and human resources and simplify the work, namely noncash payment acceptance methods, online reporting, electronic document management, accounting programs, landings, websites, online stores. To a much lesser extent, they apply technological solutions based on minimizing personal contacts, automated business scenarios, requiring more substantial financial and human resources, as well as appropriate conditions of a highly competitive market economy.

Thus, the analysis of the empirical object of the study – entrepreneurs living in radionuclide-contaminated territories of Belarus in the context of the list of challenges relevant for the country, constitutes scientific novelty. The study's practical significance lies in its main conclusions, which were obtained during the implementation of the State Program. These conclusions are being used by the Belarusian authorities to revive the regions affected by the Chernobyl disaster.

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Efficiency of State Policy in the Field of Science and Technology in the Russian Federation: Assessment Methodology and Approbation Results

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Abstract. The article presents a methodology for evaluating the efficiency of measures and tools of state policy in the field of science and technology. The approach was developed and tested in order to improve the mechanism for monitoring the achievement of strategic goals of Russia's scientific and technological development discussed at the meeting of the Presidential Council for Science and Education on February 8, 2023. The implementation of this direction is of great importance for ensuring technological sovereignty of the country. In the course of the research we used general scientific methods: analysis, synthesis and generalization, observation, comparison, measurement, grouping. Statistical methods such as correspondence analysis and cluster analysis were also used to implement the main task. The assessment was carried out in three directions: effectiveness assessment, assessment of the growth rate of targets, and assessment of the relevance of measures and tools of state policy in the field of science and technology by the scientific community. Based on these criteria, a set of data and a conclusion on the efficiency of public policy tools and measures were formed. The results obtained indicate the average efficiency of the tools and measures of state policy in terms of their effectiveness and relevance. The growth rates of most indicators are characterized by negative dynamics. This is primarily due to the fact that during the second stage of the implementation of the scientific and technological development strategy, restrictions caused by coronavirus infection were introduced, and we should also point out an increase in sanctions pressure.

Key words: efficiency assessment, state policy in the field of science and technology, state policy measures, target indicators, effectiveness, scientific and technological development.

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Introduction

In the context of Russia's sharply increased isolation from global markets, it is important to evaluate the effectiveness of existing tools and mechanisms implemented by the state and aimed at ensuring the country's technological sovereignty. Do the tools applied meet current challenges facing Russia? To what extent are the projects attractive to potential participants and sources of extra-budgetary funding? Are these tools and mechanisms effective in terms of socio-economic impact and for society as a whole?

In 2016, the Russian Government took steps to implement the instruction of the RF President regarding the formation of the country's sovereignty: the Russian Federation must be ready to compete with leading countries in the development of science and technology, as it is a matter of its sovereignty[1]. The Strategy for Scientific and Technological Development of the Russian Federation (hereinafter – the Strategy)[2] was developed and approved, defining priority directions, for the implementation

[1] Transcript of the June 24, 2015 meeting of the Council on Science and Education. Available at: http://www.kremlin.ru/events/councils/49755 (accessed: September 4, 2023).

[2] "On the strategy for scientific and technological development of the Russian Federation": Presidential Decree 642, dated December 1, 2016 (amended March 15, 2021). Available at: http://publication.pravo.gov.ru/Document/View/0001201612010007 (accessed: September 4, 2023).

of which a set of support measures was adopted to strengthen and promote the development of Russian scientific and engineering research groups working at the forefront of science. The effectiveness of the proposed support measures and the development of evaluation methods became an immediate concern due to the lack of relevant measures to support scientific schools and developments in the new economic environment during the Strategy's development.

The Strategy is being implemented in stages that correspond to the development of the Russian Federation's economy and budgetary system. Indicators have been established for each stage to reflect progress and results. Starting in 2020, the second stage is being implemented (2020–2025). This stage will assess the measures implemented to stimulate the transition to the stage of active commercialization of the results of intellectual activity and the large-scale creation of new products and services based on technologies that meet significant challenges.

The purpose of the study is to develop a methodology for assessing the effectiveness of measures and instruments of the state science and technology policy outlined in the Strategy, as well as to test the methodology proposed, considering the degree of implementation of measures by the co-implementers of the Strategy and the applicability of specific results. The ultimate goal is to ensure the independence and competitiveness of the Russian Federation.

The methodology for assessing the effectiveness of measures and instruments of the state policy in the field of science and technology in the Russian Federation (hereinafter – the Methodology) was developed in 2023, when it became possible to analyze the results of the application of support measures proposed in 2016 and later. The assessment of the effectiveness of measures covers several years, during which project support measures were implemented and dynamics in each direction were analyzed.

The Methodology includes the assessment of state policy directions (measures) and expected results based on the monitoring data of the implementation of the action plan for the Strategy realization (hereinafter – the Plan) of the first stage (2017–2019), as well as the transition period of 2020–2022, including the relevant instructions of the RF President and Government. Currently, the Plan is not used to monitor the implementation of scientific and technological development activities.

The calculation also includes target indicators of scientific and technological development, the dynamics of which are subject to monitoring[3]. The results of the analysis of achievement of the Strategy target indicators, along with other resulting indicators, reflect the effectiveness of measures and instruments of the state policy in the field of science and technology[4].

The assessment considered the scientific community's opinion based on the use of the Strategy's tools and activities by the university and scientific community. In 2021–2022, the Russian Research Institute of Economics, Politics and Law in Science and Technology (RIEPL) conducted a sociological survey commissioned by the Ministry of Education and Science of Russia. The survey aimed to investigate the scientific and university community's attitude toward the implementation of science and technology policy mechanisms and tools that received funding from the federal budget as part of the Strategy (Vasilyeva et al., 2022).

[3] "On approval of the List of indicators for the implementation of the Strategy for scientific and technological development of the Russian Federation, the dynamics of which are subject to monitoring": RF Government Order 1824-r dated August 15, 2019. *SPS Konsul'tantPlyus* (accessed: September 6, 2023).

[4] Following the results of the meeting of the Presidential Council on Science and Education, held on February 8, 2023, the Russian President instructed to submit proposals to define and clarify the main results and target indicators characterizing the achievement of national development goals in the field of science and technology development of the Russian Federation through to 2030: List of instructions following the meeting of the Council on Science and Education, paragraph 2a (approved by the President of the Russian Federation on April 20, 2023, Pr-800). *SPS Konsul'tantPlyus* (accessed: September 7, 2023).

Thus, the results of the analysis of the effectiveness of measures to support scientific and technological development, outlined in the Strategy, based on the proposed Methodology will allow identifying the trends of accelerated/delayed development of a particular technological area. This information can be used to develop sustainable state policy approaches, taking into account the effectiveness of their activities in the context of global challenges and ongoing economic and foreign policy changes.

Literature review

At the turn of the century, Russia's science and technology policy prioritized resource-based economic development rather than striving to become a global technological leader. As a result, the country developed a low-tech, resource-oriented economic structure.

The situation changed fundamentally in 2018, when in his March Address to the Federal Assembly of the Russian Federation, President Vladimir Putin formulated a new strategy for Russia's development: to improve the quality of life, advance scientific and technological development, and eliminate technological lag behind developed countries.

The new vector of the country's development, when the key direction is not profit, but the improvement of the quality of life, fundamentally changes the traditional innovation policy (science – technology – industry – education) by adding a social component (Onishchenko et al., 2020).

For several years, federal executive and legislative authorities have adopted documents to assess the efficiency of budgetary fund usage. According to the RF Government Resolution 1613, dated September 25, 2021[5], there is an incomplete coverage of measures to assess the effectiveness of all instruments of state support, as well as there is no unified mechanism for managing resources, goals and objectives in the scientific and scientific-technical sphere of civilian use.

In 2021, the Federation Council recommended the Government of the Russian Federation to take measures to improve the efficiency of science management. This includes forming a mechanism to assess the effectiveness of the measures of state policy in the field of science and technology, analyzing the effectiveness of budgetary and extra-budgetary funds spent on research and development, and evaluating the demand for state support for scientific, scientific-technical, and innovation activities[6].

As a result of the meeting of the Presidential Council on Science and Education (hereinafter – the Council on Science and Education) on February 8, 2023, the President of the Russian Federation instructed the Government and the Council on Science and Education to conduct a comprehensive assessment of the effectiveness of measures and instruments of the state policy in the field of science and technology applied to achieve specific results to ensure the independence and competitiveness of the Russian Federation[7].

Currently, it is necessary to take into account the position of the President of the Russian Federation, as expressed during the Council on Science and Education meeting[8], regarding the need to adjust the Strategy of Scientific and Technological Development of the Russian Federation due to the changes in the geopolitical situation.

[5] "On amendments to the State Program of the Russian Federation 'Public Finance Management and Regulation of Financial Markets'": RF Government Resolution 1613, dated September 25, 2021. *SPS Konsul'tantPlyus* (accessed: September 7, 2023).

[6] "On measures for the development of higher education and science in order to adapt to the needs of the real sector of the economy": Federation Council Resolution 123-SF, dated March 31, 2021. *SPS Konsul'tantPlyus* (accessed: September 7, 2023).

[7] List of instructions following the meeting of the Council on Science and Education, paragraph 2a (approved by the President of the Russian Federation on April 20, 2023, Pr-800)

[8] Transcript of the February 8, 2023 Board of Science and Education meeting. Available at: http://www.kremlin.ru/events/president/transcripts/deliberations/70473 (accessed: September 11, 2023).

Assessing the effectiveness of state policy measures is a topical area that requires a critical analysis of existing theoretical developments and practiced methods to determine the optimal option that meets the current trends in scientific, technological and socio-economic development of the state at all levels of government. However, analysis of both foreign and Russian studies has shown that there is currently no set of optimal criteria for assessing the effectiveness of state policy in terms of measures implemented within the framework of various state programs. There are various efficiency assessment methodologies based on an integral assessment of the performance of these programs, which does not fully reflect their effectiveness in terms of quality budget planning for the future.

Foreign researchers (Sanz-Menéndez et al., 1997; Sanz-Menéndez et al., 2005) argue that scientific and technological policy interventions require continuous evaluation throughout their various cycles, including design, implementation, monitoring, evaluation, and change.

In the article *Evaluation as a Medium of Science & Technology Policy: Recent Developments in Germany and Beyond*, peer review procedures (using bibliometrics, etc.) are used as a criterion for the evaluation of scientific and technological policy measures in Germany. These tools are commonly used in the German scientific and technological system, especially in basic and long-term applied research (Kuhlmann, 1996; Kuhlmann, 2003).

China has shown significant interest in implementing an effective scientific and technological policy evaluation process. The National Center of Science and Technology Evaluation (NCSTE) was established in 1997 to address this need. The evaluation system is important in the following four aspects: improving the decision-making process; enhacing macro-level technology management; promoting innovation in the scientific and technological management system; and strengthening the implementation of the national science plan (Luo, 2012). K. Bloch and I. Caetano emphasize the importance of sufficient data in evaluations to account for substantial innovation activity (Bloch, 2007; Caetano, 2017). T. Luukkonen suggests that evaluations should be conducted from the perspective that all unfunded projects can be considered successful (Luukkonen, 1997).

According to Japanese scientists K. Tanaka and I. Sakata, the current methodology for evaluating state policy in the field of scientific and technological is mainly based on a non-quantitative approach, such as interviews or simply summaries of research papers. They propose a new bibliometric approach to quantitative policy evaluation (Tanaka, Sakata, 2017).

Laurent Bach and colleagues proposed an approach based on an original methodology, which involved direct interviews with 176 partners involved in 50 projects (Bach et al., 1995).

According to R. Barre, scientific and technological performance indicators can be a valuable tool for state policy decision-making, as long as they are viewed as starting points for discussion rather than outputs (Barre, 2001).

Swiss researcher B. Lepori suggests that indicators are a useful complement to other methods (surveys, case studies, debates) for summative evaluations, where the focus is on measuring program outcomes and the extent to which program goals have been achieved. However, indicators have a much broader potential for formative evaluation (Lepori, Reale, 2012).

Russian researchers suggest assessing effectiveness through an integral performance assessment that considers the level of achievement of target indicators, the assigned weight values of these indicators, and the level of financial provision of state programs (Tulyakova, 2017).

We believe that the most rational and comprehensive approach to the assessment of state programs in the context of their elements (main activities, subprogram, state program) is proposed by A.G. Breusova. The assessment should take into account the logic of the program (this will allow identifying defective elements and evaluate the relationship "activities – indicators"), as well as linking subprograms (target indicators) and the goal of the state program (in this case, it is possible to assess the contribution of subprograms to the goal of the state program). Then, the effectiveness of the state program is calculated using indices and an integral indicator that considers all the assessment elements listed (Breusova, 2015).

An alternative approach to assessing the effectiveness of state policy measures and activities was proposed by researchers at the National Research University Higher School of Economics. In 2022, L.M. Gokhberg and co-authors compiled a rating of scientific and technological policy measures (Gokhberg et al., 2022). The study is based on the survey of representatives from scientific organizations and universities. The survey results were used to construct indices of potential coverage; demand; success of use; significance; integral index (geometric mean of the indices of demand and significance of the measure).

In 2013, I.N. Rykova considered approaches to evaluate the performance of scientific research activities in Russia. According to her article, a number of organizations (Rosstat, Ministry of Culture, Ministry of Labor) use a point system of assessment that is ranked depending on the value obtained. While most methodological guidelines include a set of indicators, they do not provide the methodology for assessing and ranking them (Rykova, 2013).

Each of the presented methods solves specific tasks set by the researcher. In particular, the assessment of the effectiveness of state program measures is limited to the criteria specified in the programs and cannot comprehensively reflect the existing trends. Additionally, assessing state policy measures solely based on performance does not fully reflect their effectiveness. We believe that the analysis of any state support measure should involve multiple evaluation stages, with each element integrated into a comprehensive assessment to create an optimal analytical model.

Research methods

The research tasks were solved using general scientific methods, including analysis, synthesis, and generalization, as well as empirical methods such as observation, comparison, measurement, grouping, and forecasting. These methods were used to assess performance and growth dynamics of target indicators. The survey employed sociological observation methods and cluster analysis.

Approbation of the developed methodology for assessing the effectiveness of measures and tools of the state policy in the field of science and technology

This Methodology outlines the rules for calculating metrics that reflect the effectiveness of state policy in the field of scientific and technological measures and instruments. To comprehensively determine the effectiveness of state policy measures and activities and improve the quality of state support provided, an integrated approach to the assessment of effectiveness is required.

The effectiveness of measures/activities of state policy in a broad sense is an indicator of success in the implemented measures and directions of state policy and includes a comprehensive assessment of: 1) performance, 2) achievement of target indicators, 3) demand (usability, sufficiency) of measures and instruments of state policy by the scientific community. This approach is implemented in the framework of this study.

Thus, the implementation of the proposed author's methodological approach for evaluation includes performance assessment, which compares actual data with planned data, characterizes the degree of implementation of the Plan (stage 1 and the transition period) and serves as a basis for conclusions based on the results of checking the validity of planned indicators. The performance assessment consisted of five blocks, which align with the main directions of state policy in the field of scientific and technological development outlined in the Strategy (p. 31–35).

The assessment of target indicators compares their current values with those from previous years during the implementation of the Strategy for Scientific and Technological Development of the Russian Federation. The list of indicators subject to monitoring is based on the Strategy for Scientific and Technological Development of the Russian Federation[9].

Demand assessment is a study based on the analysis of survey data of the university and scientific community on the use of tools and activities outlined in the first stage of the Plan, and highlighting the most effective solutions for socio-economic development in the field of public administration.

The evaluation of the effectiveness of state policy measures and instruments is conducted in five directions for each year of implementing the Strategy for Scientific and Technological Development of the Russian Federation (hereafter – the S&T Development Strategy), with equal weight given to each direction in the final result. The methodology uses a point-based assessment, with the total maximum number of points equal to 100 for the five directions of the S&T Development Strategy. Therefore, the maximum score for each direction is 20.

The following five state policy directions are involved in the assessment:

1) human resources and human capital;
2) infrastructure and environment;
3) interaction and cooperation;
4) management and investment;
5) collaboration and integration.

The effectiveness assessment is conducted through a series of stages.

The **first stage** is to analyze the anticipated outcomes and categorize the indicators into two groups: quantitative and qualitative.

For quantitative indicators, we collect and process the statistical base. For qualitative indicators, we define a scale to assess the implementation of the activity[10].

The **second stage** is to divide all indicators into three groups:

1) quantitative indicators – the percentage of fulfillment of the planned indicator in comparison with the actual values is assessed;
2) qualitative indicators are assessed in two ways:
3) regulatory legal act (RLA);
4) individual state policy measures that cannot be digitized.

During the **third stage**, performance assessment is conducted for each direction based on the group to which the expected result belongs.

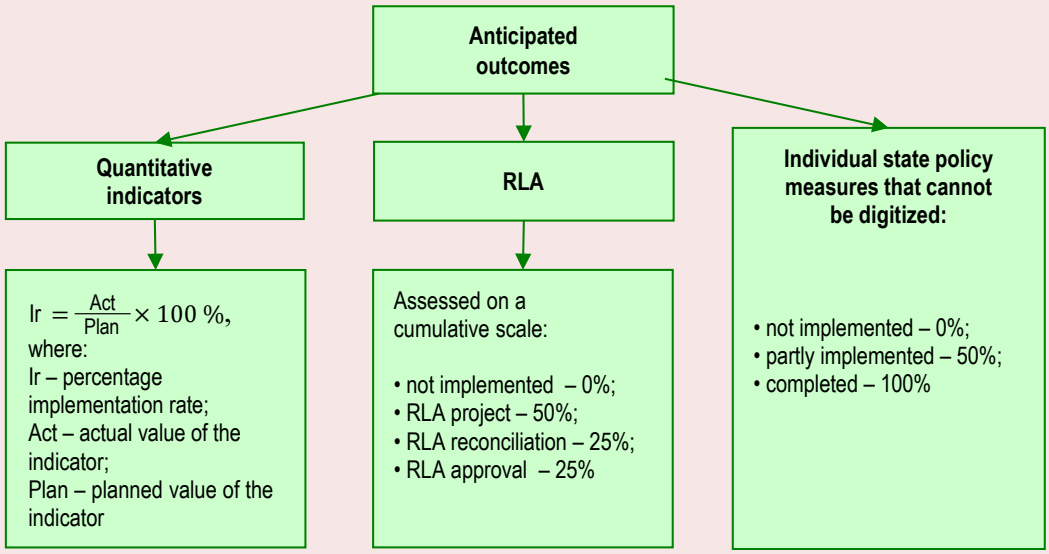
To assess qualitative indicators that are not numerical, it is essential to analyze the level of implementation regarding the preparation and approval of RLA. The same method is applied to assess other state policy measures that cannot be digitized[11] *(Fig. 1)*.

[9] "On approval of the List of indicators for the implementation of the Strategy for scientific and technological development of the Russian Federation, the dynamics of which are subject to monitoring": RF Government Resolution 1824-r dated August 15, 2019.

[10] Qualitative indicators are defined as indicators that cannot be analyzed using statistical methods and do not have specific numerical values.

[11] This approach includes peer review.

Figure 1. Algorithm for calculating indicators within the framework of state policy measures



Source: own compilation.

At the **fourth stage**, an indicator is calculated for each direction of the S&T Development Strategy.

Calculation of the total indicator for the direction is made according to the formula (I_{dir}):

$$I_{dir} = \sum_1^n \frac{20}{n} \times I_r, \quad (1)$$

where n – number of activities to be assessed according to directions;

I_r – percentage implementation rate.

For example, if there are 10 activities in a direction, then the maximum score for each item will be 2; if there are 20 items – 1 point.

At the **fifth stage**, the final score is calculated as the sum of the total scores for the directions (I):

$$I = \sum_1^5 I_{dir}, \quad (2)$$

where I_{dir} – performance indicator according to the direction in points.

The **sixth stage** involves analyzing and evaluating the effectiveness of measures and instruments of the state scientific and technological policy.

The assessment is made for each direction of the S&T Development Strategy, for this purpose the number of points scored for a direction is compared with the maximum possible score. The final score of the effectiveness of measures and instruments of the state scientific and technological policy is assessed in the same way.

The level of activity implementation is evaluated using the following scales.

For the respective direction of state policy measures, the performance (%) equal to:

– 18–20 – high;
– 11–17 – average;
– 10 and lower – low.

To evaluate the total indicator:

– 80–100 – high;
– 51–79 – average;
– 50 and lower – low.

Further we interpret the results, assess the strengths, weaknesses, and factors that influenced the results; make conclusions.

Assessment of growth rates of target indicators characterizing the effectiveness of measures and instruments of the state policy of S&T Development

Assessment of growth rates of target indicators characterizing the effectiveness of measures and instruments of the state policy of S&T Development is carried out only for those measures for which the effectiveness is not lower than average in the period 2020–2022 at the first level of analysis.

The assessment is carried out on the basis of analyzing the dynamics of target indicators by assessing the dynamics of growth rates of target indicators in the areas of the S&T Development Strategy (in the periods 2017–2019; 2020–2021).

The **first stage** is to calculate the growth rates of targets related to the current direction.

The growth rate of the target indicator corresponding to the direction is calculated by the following formula (3):

$$GR_{ti} = \frac{V_{ti}^{e}}{V_{ti}^{e-1}}, \quad (3)$$

where:

GR_{ti} – growth rate of the target indicator;

V_{ti}^{e} – value of the target indicator in the assessed period;

V_{ti}^{e-1} – value of the target indicator of the period preceding the period under assessment.

The **second stage** is to assess the dynamics of growth rates. We compare the growth rates of the indicator for each period:

– 2017–2019[12];

– 2020–2022.

If the value of the growth rate is greater than 1, it indicates the effectiveness of the implemented measures in the relevant direction of state policy. If the growth rate is not observed or even tends to decrease, it negatively characterizes the effectiveness of the implemented measures.

[12] The 2017–2019 growth rate is estimated in accordance with the first stage of the Plan.

The **third stage** is to form conclusions, findings and proposals for the implementation of the S&T Development Strategy**.**

Assessment of the demand for measures and instruments of the state policy in the field of scientific and technical development by the scientific community

The assessment of demand is carried out on the basis of a study conducted by the Ministry of Education and Science of Russia in 2021 of organizations engaged in educational activities for the implementation of educational programs of higher education, and other organizations engaged in scientific and (or) scientific-technical activities. The research was conducted by RIEPL by sending out inquiries to Russian scientific and educational organizations in order to collect statistical data and subsequent analysis of the obtained information using MS Excel software.

The survey results serve as indicators of the demand for state policy measures within the proposed Methodology.

We calculate integral indices for the relevant measures characterizing the respondents' opinions. Each index (D) includes a number of attributes (A).

The value of the evaluation attributes of the measures is calculated according to the formula (4):

$$\mathrm{A}_{x} = \frac{\mathrm{N}_{x}}{\mathrm{N}}, \quad (4)$$

A_{x} – value of the attributes of the evaluation of measures corresponding to the question alternative with rank x;

x – rank assigned to the question alternative;

N – number of respondents who indicated an alternative to the question.

The rank is assigned as follows: the alternative "hesitate to respond" is assigned a rank of 0; a positive respond is assigned a rank of 1, a negative respond is assigned a rank of 2.

The value of the index (D_i) is calculated as the arithmetic mean of the values of the attributes of the evaluation of measures according to the formula (5):

$$D_i = \frac{\sum_1^n A_e}{n} \times 100\%, \quad (5)$$

where:

D_i – value of the index corresponding to the measure with the number i;

i – number of measures;

A_e – measure evaluation attribute;

n – number of indicator values.

The result is determined on the following scale:

up to 50% – low demand;

from 51 to 79% – average;

from 80 to 100% – high.

A consolidated report is formed based on the results of assessing the effectiveness of state policy measures in three directions. The report combines the results of the assessment of each level and forms a conclusion on the effectiveness of state policy instruments and measures by direction:

– performance;

– growth rate of target indicators;

– relevance to the scientific community *(Tab. 1)*.

Research findings

The analysis revealed average performance in all directions of the S&T Development Strategy. Out of the 46 planned activities, 25 were implemented, while 21 were only partially implemented. The final score of 74.5 corresponds to the average performance of the measures conducted under the state policy in the field of science and technology of the Russian Federation.

The growth rates of the indicators of the implementation of the Strategy for Scientific and Technological Development of the Russian Federation approved by the Resolution of the Government of the Russian Federation 1824-r, dated August 15, 2019 were also assessed. Three indicators out of eleven increased in relation to the level of values at the end of the first stage of the Strategy's implementation (2019; *Tab. 2*):

– share of organizations implementing technological innovations in the total number of organizations;

– ratio of exports and imports of technologies and services of technological nature (including intellectual property rights);

– technical equipment of the research and development sector (book value of machinery and equipment per one researcher). thousand rubles/person.

Two indicators remained at the same level:

– the share of innovative products (goods, services) created using the results of intellectual activity, the rights to which belong to Russian right holders, in the gross domestic product,

– ratio of extrabudgetary funds and budgetary allocations as part of internal research and development costs.

Table 1. Summary data on criteria for assessing the effectiveness of state policy instruments and measures

Measure	Performance	Growth rates of indicators	Demand	Effectiveness assessment
Measure 1	High/average	> 1	High/average	Effective
Measure 2	High/average	< 1	Low	Ineffective, with growth rates that can be deferred over time
Measure 3	High/average	< 1	High/average	Effective, requires additional analysis as growth rates may be deferred over time
…	High/average	> 1	Low	Effective in terms of growth rates, ineffective by demand criterion
Source: own compilation.				

Table 2. Change in the values of target indicators of the Strategy implementation between 2019 and 2021

No.	Indicator	2019	2020	2021	Delta end of the first stage (2019) and second stage
1	Internal expenditures on research and development from all sources in current prices, % of gross domestic product	1.03	1.1	1	-0.03
2	Ratio of extra-budgetary funds to budgetary allocations in internal research and development costs, %	0.55	0.53	0.55	0
3	Amount of extra-budgetary funds raised as part of the implementation of integrated scientific and technological programs (projects), federal scientific and technological programs and projects of the centers of the National Technological Initiative, million rubles	no data	4,328.7	6,374.7	-
4	Place of the Russian Federation in terms of specific weight in the total number of articles in the fields defined by the priorities of scientific and technological development in the publications indexed in international databases	7	8	9	-2
5	Position of the Russian Federation in terms of specific weight in the total number of invention patent applications filed worldwide in the directions determined by the priorities of scientific and technological development	10	10	11	-1
6	Share of innovative products (goods, services) created using the results of intellectual activity, the rights to which belong to Russian right holders, in the gross domestic product, %	1.09	1.18	1.09	0
7	Share of organizations implementing technological innovations in the total number of organizations, %	21.6	23	23	1.40
8	Ratio of exports to imports of technology and technological services (including intellectual property rights)	0.73	0.94	1.08	0.35
9	Exports of Russian high-tech goods, %	12.2	26.2	8.3	-3.90
10	Share of researchers under 39 years of age in the total number of Russian researchers, %	44.2	44.3	43.9	-0.30
11	Technical equipment of the research and development sector (book value of machinery and equipment per researcher). thousand rubles/person	1,046	1,080.2	1,187.9	141.90

Source: p. 1–2 and 4–11 – Rosstat data;
p. 3 – The methodology for calculating the indicator is approved by the Ministry of Education and Science in 2019.

Five indicators are trending downward with respect to 2019:

– internal expenditure on research and development from all sources at current prices as a percentage of gross domestic product;

– the place of the Russian Federation in terms of specific weight in the total number of articles in the fields defined by the priorities of scientific and technological development in the publications indexed in international databases;

– place of the Russian Federation in terms of specific weight in the total number of invention patent applications filed in the world in the areas determined by the priorities of scientific and technological development;

– export of Russian high-tech goods;

– share of researchers under the age of 39 in the total number of Russian researchers.

No data is available for the indicator "volume of extrabudgetary funds raised within the framework of implementation of integrated scientific and technical programs (projects), federal scientific and technical programs and projects of the centers of the National Technological Initiative" for the year 2019.

However, the indicator's value increased by 47% in 2021 compared to 2020. This increase is primarily due to the low base, as 2020 was characterized by a drop in economic activity caused by coronavirus pandemic restrictions, as well as changes resulting from the geopolitical situation and increased sanctions pressure.

At the same time, the indicators, the dynamics of which are subject to monitoring, do not fully reflect the current conditions of functioning of the Russian scientific complex, which is due to the significant sanctions pressure of Western countries. The risk of failing to achieve the set goals can be measured by the indicator "the place of the Russian Federation in terms of the specific weight in the total number of articles in the areas defined by the priorities of scientific and technological development in the publications indexed in international databases". This indicator is affected by the sanctions imposed on the Russian Federation and the termination of access to international databases. In March 2022, access to international scientific citation databases Web of Science and Scopus was restricted for Russian organizations, resulting in 97.5% of information being blocked for Russian researchers. Additionally, obstacles to the publication of Russian researchers in foreign journals included in these databases were reported. The methodological approach used to calculate this indicator should be adjusted and/or revised.

The third block is to assess the demand (usability, sufficiency) of state policy instruments and measures by the scientific community on the basis of a survey conducted by RIEPL in 2021. The survey aimed to evaluate the scientific and university community's awareness of state policy instruments and measures. The sufficiency, usability, and demand for state policy measures and activities in five directions of state policy of the Russian Federation were assessed by the scientific community in different ways *(Tab. 3)*.

Table 3. Summarized results by criteria for assessing the effectiveness of state policy instruments and measures in five directions

Direction	Performance score	Performance	Growth rate	Demand, usability, sufficiency	Conclusion on effectiveness
1. Human Resources and Human Capital	16.88	Average	< 1; decline in most indicators	Average	Effective, requires additional analysis as growth rates may be deferred over time
2. Infrastructure and Environment	14.29	Average	< 1; decline in most indicators	Average	Effective, requires additional analysis as growth rates may be deferred over time
3. Interaction and Cooperation	14.00	Average	< 1; decline in most indicators	Average	Effective, requires additional analysis as growth rates may be deferred over time
4. Management and Investments	16.00	Average	< 1; decline in most indicators	Average	Effective, requires additional analysis as growth rates may be deferred over time
5. Collaboration and Integration	13.33	Average	< 1; decline in most indicators	Low	Ineffective, with growth rates that can be deferred over time
Total indicator by directions of the S&T Development Strategy	74.5	Average	< 1; decline in most indicators	Average	Effective, requires additional analysis as growth rates may be deferred over time
Source: own compilation.					

The **"Human Resources and Human Capital"** and **"Management and Investments"** directions showed the highest performance, with 16 points or more, corresponding to the average implementation performance. In the "Human Resources and Human Capital" direction, 11 out of 16 measures were fully implemented, while 5 were partially implemented. In the "Management and Investments" direction, 6 out of 10 measures were implemented, while 4 were partially implemented.

Activities aimed at preventing the spread of newly emerging infections have been implemented. Rospotrebnadzor prepared a strategy to combat potential new epidemics in Russia in 2021 "Sanitary Shield of the Country – Safety for Health".

– Rospotrebnadzor's strategy contains four projects:

– using artificial intelligence to monitor emerging threats;

– new educational programs in medicine;

– development of laboratory diagnostics in the country;

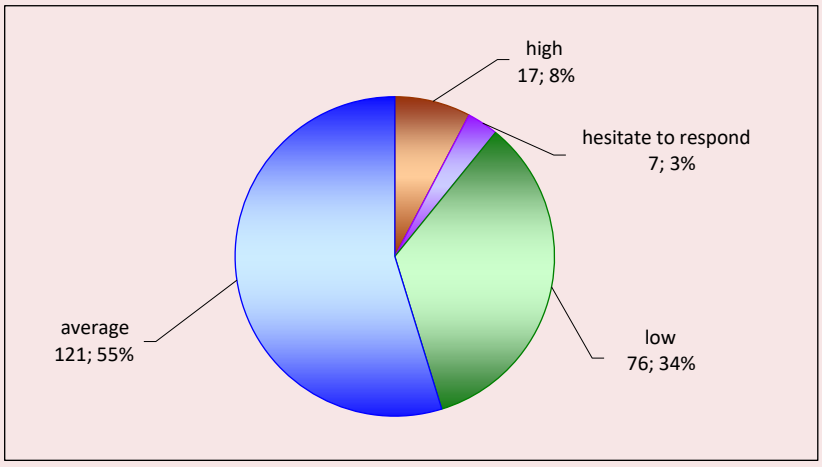
– accelerated implementation of mass testing and immunization.

It can be concluded that the restrictions associated with the pandemic in 2020–2021, as well as increased sanctions pressure, had a lesser impact on the implementation of activities in these directions compared to other directions such as "Infrastructure and Environment", "Interaction and Cooperation", and "Collaboration and Integration", which scored 14 points or lower.

However, the scientific community assesses the sufficiency and usability of measures and activities of state policy in the above two directions in different ways. Thus, more than half of the respondents assess the level of reproduction and growth of personnel in the research and development sector as medium and high. More than half of the respondents (55%) claim that the country has sufficiently developed the mechanism of targeted support for building a career in science and innovation *(Fig. 2, 3)*.

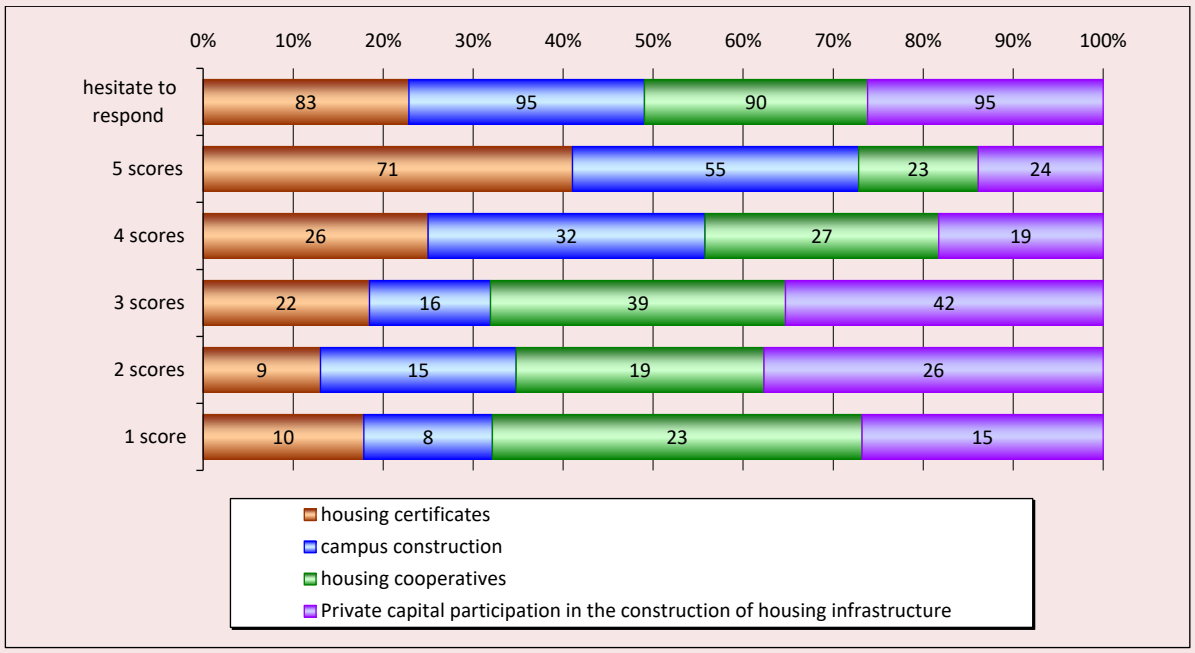
Respondents assessed the sufficiency and demand for measures and activities of state policy in the "Management and Investments" direction as low in terms of supporting and protecting small and medium-sized businesses engaged in research and development (42%; *Fig. 4*).

Figure 2. Distribution of answers to the question "Assess the level of reproduction and growth of highly qualified personnel in the research and development sector", people, %



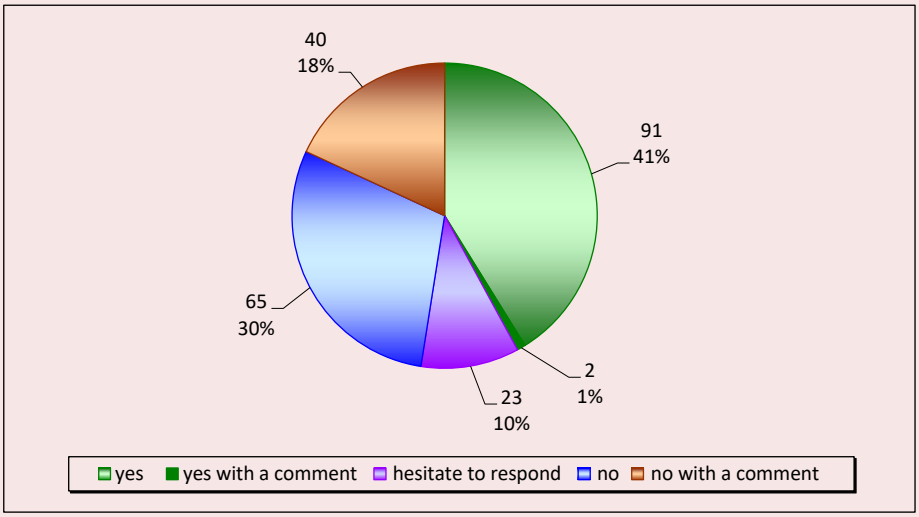
Source: own compilation.

Figure 3. Distribution of answers to the question "On a five-point scale, assess the effectiveness of the following measures to ensure housing conditions", people



Source: own compilation.

Figure 4. Distribution of answers to the question "Do you consider measures to support small and medium-sized businesses engaged in research, development and commercialization of intellectual activity results sufficient?", people, %?



Source: own compilation.

On the other hand, respondents frequently mentioned the lack or difficulty in obtaining support for small and medium-sized businesses, insufficient level of financing and benefits in terms of taxation and equipment purchase, high level of bureaucratization or cumbersome paperwork, high risks associated with doing business. Respondents identified a low level of awareness regarding support measures. They suggest the development of a system to support small and medium-sized businesses in research and development. It is noteworthy that 15% of scientific organization representatives found it difficult to answer, indicating a need for improved communication about support measures.

In the **"Infrastructure and Environment"** direction the sum of points is equal to 14.28, which corresponds to the average performance of measures of the state policy. As of the second quarter of 2023, 3 out of 7 measures have been implemented, and 4 have been partially implemented. The main reason is the increase of sanctions pressure on the Russian Federation in 2022, which caused problems with the supply of equipment and parts, as a consequence, the postponement of several projects. It became necessary to search for alternative suppliers from Russia or friendly countries.

For example, equipment for "Siberian Ring Source of Photons" (SKIF Center), a unique core shared research physics center, was previously planned to be purchased from Europe and Japan. However, the Budker Institute of Nuclear Physics SB RAS now manufactures the necessary equipment at its own production facilities or orders it from Russian organizations.

The **"Interaction and Cooperation"** direction suggests the formation of an effective system of communication in the field of science, technology and innovation, increasing the receptivity of the economy and society to innovations, development of knowledge-intensive business. The weighted average performance score was 14, which is one of the lowest scores. This is largely due to the fact that during the implementation period the world faced the pandemic and most of the events on scientific interaction and cooperation were canceled or moved to the online format.

Of the planned results, 100% have been achieved for four objectives, six objectives out of 10 measures have been partially achieved. It is worth noting that one hundred percent of the activities that can be conducted remotely have been implemented successfully. The partially implemented activities involve communication with the population and partners (format of introduction of digital, remote feedback technologies, formation of feedback).

Cooperation between corporations and structures that have mastered the work in the remote mode has also been successfully realized, and the result of such cooperation is the systems of distributed and remote mode of work.

The item related to support for projects included in the National Technology Initiative (hereinafter – NTI) was successfully implemented. This is largely due to the fact that NTI project lines were defined as the most demanded and competitive, and residents of the NTI program are high-tech, highly motivated subjects.

The level of demand and sufficiency of support measures in this direction is average.

Respondents named science cities, engineering centers, NTI centers and research and education centers as the most effective tools for forming requests for the results of scientific and scientific-technical activity.

Three activities related to **"Collaboration and Integration"** were evaluated, and the weighted average score was 13.3. However, only one of the three activities were fully implemented.

The implementation of this section largely fell on the period of the pandemic in 2020–2021, as a result, there is a decline in the implementation of measures and instruments of state policy in

the field of S&T Development. In addition, the strengthening of sanctions pressure and the subsequent breakdown of scientific ties in 2022 had a negative impact on international scientific and technological cooperation and the implementation of activities in this direction.

Cooperation with the scientific communities of the CIS countries continues despite the limitations. Russia is defining new vectors for partnership development, including cooperation with Middle Eastern and Mediterranean countries, African states, members of the BRICS and SCO interstate associations, and others.

During the previous stage, there was a significant push toward the development of scientific diplomacy mechanisms. This requires coordinated and verified collaboration with representatives of the Russian scientific community living and working abroad.

Among the surveyed respondents, 40% consider the support mechanisms aimed at promoting high-tech products abroad to be insufficient *(Fig. 5)*.

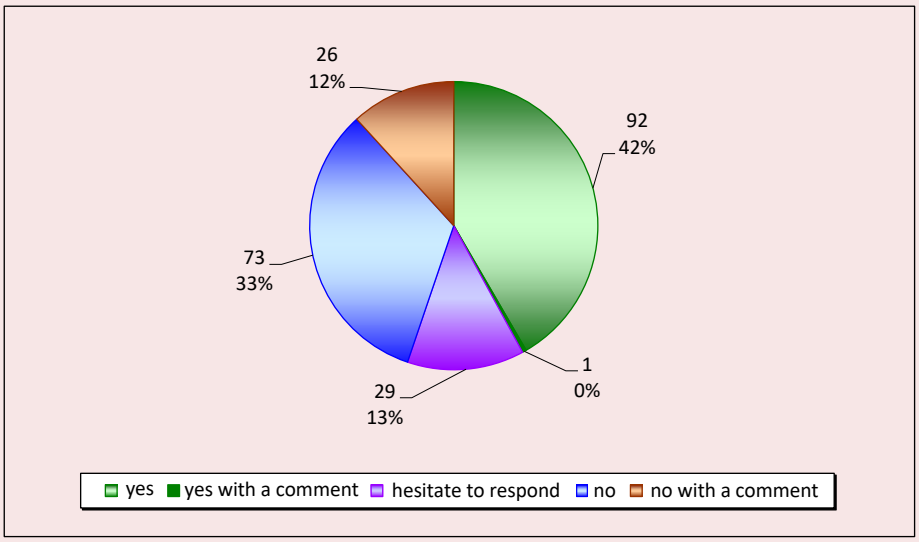
Additionally, 42% of respondents consider the efforts made by trade missions of the Russian Federation in foreign countries to promote Russian scientific and innovative developments in international markets as insufficient.

Conclusion

Within the framework of the conducted research we have developed and tested the methodology for assessing the effectiveness of measures and instruments of the state policy of the Russian Federation.

The study showed that despite the postponement of deadlines for some activities and the average performance of activities due to coronavirus restrictions, as well as the complex geopolitical situation, Russia is building capacity and striving to strengthen its global competitiveness in a number of priority directions: information and communication technologies, artificial intelligence, cybersecurity technologies and biomedicine, which are crucial for the development of advanced dual-use technologies.

Figure 5. Distribution of answers to the question “Do you think that trade missions of the Russian Federation in foreign countries make sufficient efforts to promote Russian research and innovation developments in international markets?”, people, %?



Source: own compilation.

It is the development of the country's information and telecommunication basis and the accelerated development of medicine and biotechnology that open up huge opportunities for Russia. There is a wide space for scientific and engineering work in these areas (Malinetskii, 2021). It is extremely important to maintain Russia's competitive position in strategically important areas (Dmitrenko, 2018).

The period under consideration (2020–2022) has become a transition period to the second stage of the S&T Development Strategy implementation. Organizational, financial and legislative mechanisms have been created; an integral system of sustainable reproduction and attraction of personnel for scientific and technological development of the country has been formed; scientific and technological projects within the framework of the priorities of scientific and technological development of the Russian Federation have been launched and are under implementation; conditions necessary for the growth of investment attractiveness of scientific, scientific and technological and innovation activities have been created.

The study suggests a successful form of support for the creation of solutions and technologies in the priority areas of the S&T Development Strategy. Nevertheless, efforts should be made to enhance the motivation of representatives of the industrial sector in order to form Russian technological base for the creation of high-tech production systems, as well as Russian cloud systems, artificial intelligence technologies and the practice of working with big numerical data.

The COVID-19 pandemic in 2020–2021 and the geopolitical situation, which changed in 2022, resulted in the suspension of cooperation between the Russian scientific and industrial complex and partners from European countries, the United States, and other states. This has accelerated the transition from market industrial policy to the policy of ensuring technological sovereignty and highlighted the need to adjust science and technology policy. However, Russian scientists persist in conducting research and development. Currently, scientific and technological collaboration is being redirected toward Asian, African, and Latin American countries, with a clear ambition toward global leadership in scientific development.

The research findings can be useful for executive authorities in the development and substantiation of corrective measures aimed at improving approaches to assessing the effectiveness, including the efficiency and relevance of state policy measures and instruments.

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Journal Rankings: Theory, Methodology, Bibliometry

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Abstract. The article presents the findings of a scientometric study of publication activity and ranking of journals registered with the RSCI on the subject "Economics. Economic sciences". The analysis of a new methodology proposed by the RSCI for determining journal rankings has revealed its serious shortcomings. The article formulates three main critical postulates to prove that the journal ranking results derived according to this methodology are incorrect. One of its most vulnerable aspects is the unsubstantiated choice of journals carried out by an anonymous group of experts for the purpose of determining the composition of the RSCI core. The situation is complicated by the fact that this subjective choice leads to the discrimination of other journals, whose citation rate is recorded in the RSCI only if the article is cited in a journal that is part of the core. The choice of bibliometric indicators determining the aggregate rating of journals is unsatisfactory, and first of all this applies to the indicator "length of the article text", which, strictly speaking, has no relation to scientometric indicators whatsoever. The formula for determining the aggregate rating itself, in which the weights of bibliometric indicators are "adjusted" to comply with

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a certain expert rating from five years ago, cannot be called justified. The constructive criticism provided in the article is accompanied by a description of an alternative approach with the elimination of the identified shortcomings of the new RSCI methodology. We are talking about a fundamentally different way of allocating the journals core: it does not use subjective assessments of any expert groups; instead, it uses certain formal criteria related to the production of knowledge and its dissemination in the form of publication activity of academic institutes of the Russian Academy of Sciences and leading universities that are founders of economic journals. The article presents a new approach to the methodology for determining a journal rating based on the application of MW analysis (Multiway data analysis), which is a generalization of factor analysis applied to a multidimensional matrix. As a result, we put forward another set of journals included in the core; this ranking is called Yadro.RU; we also propose a more reasonable version for the ranking of journals registered with the RSCI on the subject "Economics. Economic sciences".

Key words: journals, citation, impact factor, Hirsch index, Herfindahl index, aggregate rating, ranking, RSCI Core, Yadro.RU, MW analysis.

Introduction

The reorganization of the Russian Academy of Sciences followed by the subordination of academic institutes to the Ministry of Science and Higher Education of the Russian Federation has led to the consolidation of the intervention of the paternalistic state in the scientific life of the country with the introduction of various formal indicators. All this has transformed into increasing demands on publication activity, the number of articles, and the "arithmetic of citation". Against this background, the "Scientific Electronic Library eLIBRARY.RU" has become one of the most popular websites, and a very convenient place for the "game of figures". The popularity of this Internet resource is actually due to the availability of opportunities to quickly compare the biometric indicators of journals for any sample and with a large number of indicators.

Critically assessing this trend, we would like to draw attention to the fact that citation indicators can be considered *"proxy indicators"* at best. We are talking about such indicators that are not directly related to the process under consideration, but serve as a kind of "substitute" for an unobservable or immeasurable variable. In fact, the existence of a link between the citation of an article and the quality of the published research result is only a hypothesis that is currently almost impossible to verify.

We should also emphasize that bibliometric indicators based on citations and references lists do not always indicate that the authors are familiar with the works of other researchers and, unfortunately, do not reflect in any way the quality of articles and the level of journals in which they are published. As a confirmation to this thesis, we can cite the words of the Polish researcher S. Kozyr-Kowalski, who drew attention to pseudo-erudition, which promotes bureaucratic advancement, the practice of adding the works that the researcher did not read and often did not even hold in their hands, to the footnotes and references" (Kozyr-Kowalski, 1967, p. 35).

With this in mind, any attempts to use bibliometric indicators to clarify the "better–worse" ratio almost always suffer from subjective interpretation, for which they are regularly and reasonably criticized (Seglen, 1997; Adler et al., 2011; Waltman, 2016; *Ideas and Numbers...*, 2016). Let us note once again that economists hold different opinions regarding citation and scientometrics in general. Some consider it an important assessment of scientific activity, while others criticize this "game of figures". There is no definite answer here. The whole point is where and how this information resource is used.

This work presents the results of research on the problems of dissemination of knowledge within the framework of the current theory of the humanities sector of the paternalistic state. We are talking about science, more precisely, academic and university science, where knowledge is mainly produced, and about the system of its dissemination, the most important channel of which is represented by scholarly journals. This topic is endless and, clearly, it cannot be fully covered in one article, so it makes sense to immediately identify the problems that the article is devoted to. First of all, we want to discuss the place that participants in the processes of knowledge production and dissemination occupy in economic theory. Taking into account the clearly increased interest in citation, reinforced by the monetary motivation of publication activity, which increased the importance of scientometric ranking of journals, we consider it important to look into a number of theoretical and methodological issues of using this tool, including specific methods for constructing journal ratings and the allocation of certain samples of journals from their total population.

In this regard, the main role belongs to the information bases Web of Science, Scopus, RePEc and of course the RSCI, created in 2005 by the "Scientific Electronic Library eLIBRARY.RU", where at the beginning of September 2023, more than 500 journals on the subject "Economics. Economic sciences" were registered. And although, after the well-known events, foreign databases have largely lost their importance, the authority of the journals registered in these databases remains high. The development of the RSCI quite naturally led to the allocation of narrower samples in this information base, defining the leading groups of journals – the RSCI (33 journals) and the Core (38 journals).

Based on the data from eLIBRARY.RU, another participant serving the processes of production, reproduction and dissemination of knowledge, the Higher Attestation Commission (VAK), determined its own selection of journals in the same database, which began to consider candidate and doctoral dissertations only if there are publications included in the list of journals from the VAK sample. The presence of these three samples – RSCI, RSCI Core, VAK list – which assess the level of the same journals in different ways raises an obvious question about the validity of each of them.

Taking this into account, let us formulate the main goals of this study: first, theoretical substantiation for the formation of the core of economic journals, based on constructive criticism of eLIBRARY.RU methodology and the basic principles of the "knowledge economics"[1]; second, critical analysis of a set of bibliometric indicators used by the RSCI in the methodology of ranking journals; third, algorithmic support for the construction of journal ratings based on the authors' developments in the field of MW analysis.

Questions of methodology

It seems that one should start with analyzing the practice of forming the eLIBRARY.RU information base and the methodology for constructing the corresponding journal samples, according to which information on the citation of publications and their authors is collected in the RSCI. Constructing such an information base and relevant samples corresponds to the general trend of dividing the list of publications into several ordered groups. Foreign information databases, as is known, use the division into four quartiles, reflecting journal citation rate. In the Russian literature, various recommendations can be found considering ways to arrange the analyzed set of scholarly journals registered in the RSCI on the subject "Economics. Economic sciences" into several groups.

[1] For more detail, see: (Hayek, 1945; Arrow, 1962; Machlup, 1962, 1984; Machlup, 1966; Maunoury, 1972; Simon, 1982; Foray, Mairesse, 1998; Foray, 2006; Ivanova, 2002; Makarov, Kleiner, 2007; Rubinstein, 2023).

We should note that eLIBRARY.RU has moved away from simple digital solutions in its methodology, singled out a group of journals called the RSCI Core, and established, in accordance with the principles of determining the SCIENCE INDEX rating, that "all bibliometric indicators used in calculating the rating take into account citations only from the RSCI Core"[2]. At the same time, the Higher Attestation Commission, using the same bibliometric information of the RSCI, created its own list of academic journals.

Two samples. According to the methodology accepted by eLIBRARY.RU, the RSCI Core includes the leading journals represented in the RSCI, as well as publications that have passed the *expert selection* procedure and are represented in the Web of Science Core Collection international scientific citation information systems[3]. The advantages of such a decision include the use of meaningful criteria developed by an expert group, which simultaneously causes its well-known flaw, which can be formulated in the form of a traditional question: "And pray who are the judges?"

This traditional question cannot be answered by the name "working group" alone. Apparently, first, a transparent democratic procedure for selecting a group of experts in each scientific field and/or determining a representative sample from a statistically large array of specialists is required here; and then – a reasonable methodology for the examination itself. Otherwise, distrust is generated in the formation and expertise of such a group, and thereby in the subjective definition of a sample of journals called the RSCI Core.

The sample provided by the Higher Attestation Commission on the subject "Economics. Economic sciences" is divided into several ordered groups based on its own methodology4, which, as in the RSCI, contains two components: quantitative (bibliometric indicators) and qualitative (estimates of the expert group). At the same time, the list of scholarly journals was arranged in descending order of the "scientific significance rate" and divided into categories in the ratio: K1 – 25%, K2 – 50% and K3 – 25%[5]. Thus, the K1 category – the VAK version of the core – includes 85 journals on the subject "Economics. Economic sciences".

In this case, the question remains: "And pray who are the judges?" Let us add three more comments. First, it turned out that the core of scientific journals according to the VAK version is more than twice as large as the RSCI Core. If we take into account that the Science Index ranking of journals takes into account the citation of articles only by the core, then the differences in the lists turn out to be very significant. Second, and perhaps most important, qualitative assessments are incomparable, because they are determined by different specialists, called "working" and "expert" groups. Third, obviously, this notorious "battle of the frogs and mice" (Rubinstein, 2023) must be ended. Even if we do not evaluate both approaches to determining the core of scientific journals in any way, we can draw a fairly simple conclusion about the need to create a unified group of specialists that contributes to solving the problem for both the RSCI and the Higher Attestation Commission.

Journals base. We proceed from the fact that when determining the appropriate sample of

[2] See: https://www.elibrary.ru/projects/science_index/ranking_info.asp

[3] See: Article 31 of the Regulations of the bibliographic database Russian Science Citation Index (edition of March 1, 2023). Available at: https://elibrary.ru/projects/rsci/reglament_RSCI.pdf. After the expert selection procedure, five more journals were included: *Journal of Tax Reform, Terra Economicus, Sever i rynok: formirovanie ekonomicheskogo poryadka, The Manager, and Economy of Regions.*

[4] See: Letter of the Higher Attestation Commission under the Ministry of Science and Higher Education of the Russian Federation sent to the editors-in-chief, chairpersons of editorial boards and editorial boards of peer-reviewed scholarly journals (dated December 6, 2022, No. 02-1198) "On categorizing the List of peer-reviewed scientific publications", on the distribution of journals included in the list of peer-reviewed scientific publications, which should publish the main scientific results of dissertations for the degree of Candidate of Sciences, for the degree of Doctor of Sciences (https://psyjournals.ru/news/2151).

[5] See: https://vak.minobrnauki.gov.ru/uploader/loader?type=19&name=92263438002&f=14239

journals, a different approach should be used, which is not based on the subjective assessments of an unknown group of experts, but rather on formal motives that have a consistent basis. And first of all, it should be borne in mind that there is a connection between publication activity and the production of knowledge, which is mainly created in academic institutions and leading universities.

At the same time, research centers and institutes of the Russian Academy of Sciences, whose main task is to conduct fundamental research, act in two guises: as a kind of factory for the production of knowledge – 15 scientific organizations, and as publishers – 23 scientific journals that ensure the dissemination of knowledge and communication of scientists on the subject "Economics. Economic sciences" *(Tab. 1)*. And it seems strange that most of these journals (13 out of 23) were not included in the eLIBRARY.RU sample, named the RSCI Core.

Table 1. Journals of institutes and research centers of the Russian Academy of Sciences on the subject "Economics. Economic sciences"

N1	24 journals	RSCI Core	Institutes and research centers of the Russian Academy of Sciences	N2
1	Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz (Economic and Social Changes: Facts, Trends, Forecast)	No	**RAS Vologda Research Center**	**1**
2	Problemy razvitiya territorii (Problems of Territory's Development)	No		
3	Regional'nye issledovaniya	No	**RAS Institute of Geography**	**2**
4	Sovremennaya Evropa (Contemporary Europe)	Yes	**RAS Institute of Europe**	**3**
5	Problemy prognozirovaniya (Studies on Russian Economic Development)	Yes	**RAS Institute of Economic Forecasting**	**4**
6	Nauchnye trudy: Institut narodnokhozyaistvennogo prognozirovaniya RAN	No		
7	Kontury global'nykh transformatsii: politika, ekonomika, pravo (Outlines of Global Transformations: Politics, Economics, Law)	Yes	**Institute of Scientific Information for Social Sciences**	**5**
8	Problemy rynochnoi ekonomiki (Market Economy Problems)	No	**RAS Market Economy Institute**	**6**
9	Problemy upravleniya (Control Sciences)	Yes	**V.A. Trapeznikov Institute of Control Sciences**	**7**
10	Region: ekonomika i sotsiologiya (Region: Economics and Sociology)	Yes	**Institute of Economics and Industrial Engineering, Siberian Branch of RAS**	**8**
11	Voprosy teoreticheskoi ekonomiki (Issues of Economic Theory)	No	**Institute of Economics**	**9**
12	Uroven' zhizni naseleniya regionov Rossii (Living Standards of the Population in the Regions of Russia)	No		
13	Vestnik Instituta ekonomiki Rossiiskoi akademii nauk (The Bulletin of the Institute of Economics of the Russian Academy of Sciences)	No		
14	Ekonomika regiona (Economy of Regions)	Yes	**Institute of Economics, Ural Branch of RAS**	**10**
14	AlterEconomics	No		
16	Prostranstvennaya ekonomika (Spatial Economics)	Yes	**Institute for Economic Studies, Far Eastern Branch of RAS**	**11**
17	Regionalistika (Regionalistics)	No		
18	Sever i rynok: formirovanie ekonomicheskogo poryadka	Yes	**Kola Science Center**	**12**
19	Rossiya i novye gosudarstva Evrazii (Russia and New States of Eurasia)	No	**Primakov National Research Institute of World Economy and International Relations**	**13**
20	Mirovaya ekonomika i mezhdunarodnye otnosheniya (World Economy and International Relations)	Yes		
21	Ekonomicheskaya nauka sovremennoi Rossii (Economics of Contemporary Russia)	No	**RAS Section of Economics**	**14**
22	Ekonomika i matematicheskie metody (Economics and Mathematical Methods)	Yes	**RAS Central Economics and Mathematics Institute**	**15**
23	Tsifrovaya ekonomika	No		

Source: own compilation.

Among them were the journal *Economic and Social Changes: Facts, Trends, Forecast** issued by RAS Vologda Research Center, its English version is indexed in WoS; *Economics of Contemporary Russia*, the only journal issued by the Economics Department of the Russian Academy of Sciences; a number of other well-known publications, such as, for example, Regional Research of Russia issued by RAS Institute of Geography; and all the journals of one of the leading economic organizations – RAS Institute of Economics. As for the quality of academic journals that are not included in the RSCI Core, its assessments should be the result of appropriate research, rather than the *a priori* judgments of experts, who often defend only their own interests.

We believe that the very fact that the journal is published by a research center or institute of the Russian Academy of Sciences is a sufficient argument for its inclusion in the journal database that serves as the foundation for scientometric research, including journals citation and ranking. It is in these scientific organizations that the main research potential is concentrated, which makes it possible to ensure the necessary level of peer review and editorial preparation of articles. The basic set of analyzed journals on the subject "Economics. Economic sciences" should be determined taking into account what has been said above.

Subjecting the eLIBRARY.RU methodology to constructive criticism regarding the allocation of the journals core sample, we do not call for introducing drastic changes to it. Believing that much of the activities of the RSCI should be evaluated positively, we consider it advisable to expand the core to include the abovementioned 13 journals of research centers and institutes of the Russian Academy of Sciences.

At the same time, a meaningful analysis of the composition of the current RSCI Core makes it possible to identify five groups of journals: "Journals of RAS institutes" (Q_1), "University journals indexed in WoS or Scopus" (Q_2), "Journals of other publishers indexed in WoS or Scopus" (Q_3), "University journals not indexed in WoS or Scopus" (Q_4) and "Journals of other publishers not indexed in WoS or Scopus" (Q_5). Taking into account the knowledge production factor, which is created in academic institutions as well, a sixth group (Q_6) should be added to these five groups of journals – "Journals of RAS institutes not included in the RSCI Core" *(Tab. 2–4)*.

Table 2 shows that when the RSCI Core includes journals, the founders of which are RAS institutes (Q_6), the number of journals included in the general "journal base" (G) will be 51. We believe that this collection of journals – Baza.RU *(Appendix 1)* – should be the basis for any scientometric research and, we emphasize especially, for taking into account citations when calculating all bibliometric indicators used in ranking journals. It should also be noted that, as for the samples under consideration, it makes no sense to limit ourselves to journals included in the RSCI or the RSCI Core.

Thus, the Yadro.RU sample is no less interesting; this sample, instead of subjectively choosing two groups of journals (Q_4 and Q_5) issued by universities and other publishers, but not indexed in WoS and Scopus, could formally include in the analysis the journals of group (Q_6) issued by RAS institutes. The RAN.RU sample is of particular interest, representing the union of two groups (Q_1 and Q_6). It includes all journals published by research centers and institutes of the Russian Academy of Sciences.

Comparing the RSCI Core with Yadro.RU, it is easy to see that they have a common part – the association of journals (Q_1, Q_2 and Q_3), which presents scientific publications indexed in WOS and Scopus and which are founded by institutes of the Russian Academy of Sciences, universities and other publishers. Let us define this part of the "journal

* *Editorial note:* The English version of the journal is included in the RSCI Core as indexed in WoS. In author profiles, Russian-language articles, along with English-language ones, are marked as part of the RSCI Core. While in the general list of journals, the Russian version does not have information about its inclusion in the Core.

Table 2. Quantitative characteristics of the total array of the Baza.RU journals

Journals of RAS institutes not included in the RSCI Core (Q_6 group)	Journals included in the RSCI Core					Baza.RU (G)
	Indexed in WoS and Scopus			Not indexed in WoS and Scopus		
	Journals of RAS institutes (Q_1 group)	University journals (Q_2 group)	Journals of other publishers (Q_3 group)	University journals (Q_4 group)	Journals of other publishers (Q_5 group)	
13	**10**	**14**	**4**	**4**	**6**	**51**

Table 3. Quantitative characteristics of the RSCI Core sample

Journals of RAS institutes not included in the RSCI Core (Q_6 group)	Journals included in the RSCI Core					RSCI Core
	Indexed in WoS and Scopus			Not indexed in WoS and Scopus		
	Journals of RAS institutes (Q_1 group)	University journals (Q_2 group)	Journals of other publishers (Q_3 group)	University journals (Q_4 group)	Journals of other publishers (Q_5 group)	
NO	**10**	**14**	**4**	**4**	**6**	**38**

Table 4. Quantitative characteristics of the Yadro.RU sample

Journals of RAS institutes not included in the RSCI Core (Q_6 group)	Journals included in the RSCI Core					Yadro.RU
	Indexed in WoS and Scopus			Not indexed in WoS and Scopus		
	Journals of RAS institutes (Q_1 group)	University journals (Q_2 group)	Journals of other publishers (Q_3 group)	University journals (Q_4 group)	Journals of other publishers (Q_5 group)	
13	**10**	**14**	**4**	NO	NO	**41**

base" as G_1= (Q_1, Q_2 and Q_3). By introducing two more notations in sequence: G_2 = (Q_4 and Q_5) and G_3 = (Q_6), we can see that the sample of journals in the RSCI Core = (G_1 and G_2), and the sample in Yadro.RU = (G_1 and G_6). In this case, the general journal base – Baza.RU – can be represented as G = (G_1 and G_2 and G_3).

Bibliometric indicators. Let us start with the Declaration on Research Assessment (DORA) adopted in San Francisco in 2012, the first paragraph of which reads: "Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions"[6]. Unfortunately, this important declaration did not change anything and the journal impact factor calculated over one, two, three, four or five years remains the basis for virtually all journal rankings (Garfield, 1955).

Scopus uses three main indicators: "CiteScore" calculated by a 4-year impact factor; "SNIP" (Source-Normalized Impact per Paper) calculated using normalized values of journal impact factors; SCImago (SJR) which, in addition to the usual impact factor, uses a Google algorithm (Brin, Page, 1998). Without dwelling on the first two indicators, special attention should be paid to the SJR indicator that calculates the journal rating taking into account the weight of each of its articles; the higher the rating of the journal where this work is cited, the higher the weight of the article. In other words, by citing articles published in another journal, this journal, in fact, *delegates its prestige to it*[7].

The abovementioned indicator and the corresponding method for determining the rating of journals have both advantages and disadvantages. It is noteworthy that the calculation of the impact factor takes into account the different weight of the cited works. However, it seems necessary to be

[6] The Declaration was developed within the framework of the American Society for Cell Biology (ASCB) by a group of editors and publishers of scholarly journals (https://sfdora.org/read/read-the-declaration).

[7] The closest to this approach, focused on the use of network structures, in Russian science are the algorithms proposed in the works (Aleskerov et al., 2016; Rubinstein, Slutskin, 2018).

critical about the fact that in this case journals are ranked only by one criterion based on the average citation of articles. Therefore, the eLIBRARY.RU proposal to use several different indicators characterizing different citation metrics looks quite justified.

Thus, to determine the ranking of SCIENCE INDEX journals in the new RSCI methodology, it is proposed to use four bibliometric indicators: first, the "five-year normalized impact factor", which characterizes the value of the average citation of articles in the journal; second, the "ten-year normalized Hirsch index of the journal", reflecting the number of highly cited articles in the publication; third, the "average Hirsch index of authors of articles over the past three years", reflecting the number of highly cited authors in the journal; this indicator, according to the RSCI, was specially calculated for this rating; fourth, the "average length of the text of articles over the past three years", which, according to the authors of this methodology, "correlates well with the quality level of the journal based on expert assessment". All indicators used in calculating the rating are normalized by dividing by the maximum value of the indicator in the journals sample[8].

It must be said that the first three indicators do not cause much doubt; the specified set of indicators can be called the basic one for ranking journals. As for the fourth indicator, "average length of the text of articles over the past three years", its inclusion in the methodology for calculating the rating of journals is at least surprising. It turns out that the longer the article, the higher the rating of the journal. Leaving this conclusion without comment, let us pay attention to the explanation given by the authors of the methodology: "This indicator turned out to be quite unexpected. Nevertheless, it consistently showed a good correlation with the quality level of the journal based on expert assessment". We think that such an explanation indicates only the quality of the expert assessment, which leads to such an absurd result.

At the same time, the authors of the methodology considered it advisable that the indicators determining the overall rating of the journal should not include such an indicator of scientometric analysis as the Herfindahl index, used, as is known, to assess the degree of markets monopolization. In our case, we are talking about the possibility of correcting calculations taking into account the artificial improvement of the journals' bibliometric indicators as a result of combining journals for cross-citation and/or increasing articles by employees of the founding organizations.

We agree with the authors of the methodology that an increased level of self-citation is often quite natural for specialized journals, in which most of the articles on a certain topic are concentrated. In such a situation, the Herfindahl index unreasonably lowers the rating of the journal with a sufficiently high quality of publications. And yet, given the fact that the majority of economic journals on the subject "Economics. Economic sciences" are broad-based publications, it seems appropriate to consider this bibliometric indicator as a possible addition to the basic set of indicators that determine the overall rating of journals.

On the methodology for determining journal ratings. Let us first consider the methodology for calculating the rating of journals proposed by the RSCI working group. According to its authors, the final result of the journals ranking – their cumulative rating – can be determined as a linear combination of selected bibliometric indicators with an appropriate set of their weights. As the authors of this methodology point out, "the problem lies in the fact that the choice of both the composition of the indicators involved in the formula and their weight coefficients was carried out purely intuitively and was not confirmed biometrically in any way"[9]. We understand the authors of the methodology, who expressed their doubts about its correctness. Indeed, it is difficult to count on the correct result with an arbitrary (intuitive) choice of the weight function.

[8] See: https://www.elibrary.ru/projects/science_index/ranking_info.asp

[9] See: https://www.elibrary.ru/projects/science_index/ranking_info.asp

The correct determination of these weights is not an easy task when constructing any integral indicator. And yet, the solution chosen by the authors of the methodology cannot be called acceptable in any way. In fact, we are talking about an adjustment, though it is veiled: when from various combinations of the desired weights, presumably belonging to the range from 0 to 10, one was selected that showed a large correlation of the calculated rating with the rating of public expertise10. Such a solution has obvious disadvantages. First, if the calculated bibliometric rating is adjusted depending on its proximity to the rating of public expertise, then a natural question arises, why is bibliometrics needed at all? Second, the irrelevance of the public expertise itself, which was carried out five years ago, is confusing.

In general, the ranking of journals is based on solving the well-known problem of folding a set of parameters into a single criterion. Without repeating the well-known criticism of existing approaches to aggregating particular indicators, when, in addition to the analyzed RSCI methodology, one proceeds from the hypothesis of equality of weights or considers their random set, we will use the previously created methodology for assessing the contribution of individual biometric indicators to the aggregate rating.

We are talking about the application of MW analysis (Multiway data analysis), presented in the work (Rubinstein, Slutskin, 2018) and repeatedly tested in relation to various objects (Burakov et al., 2019; Burakov, Rubinstein, 2020; Burakov, 2021). It should also be noted that this method is a generalization of factor analysis, including the principal component analysis, in relation to a multidimensional matrix (tensor).

[10] As a result of such manipulations, the RSCI working group settled on the following set of weights: for the impact factor for 5 years – 8, for the Hirsch index of articles in the journal for 10 years – 7, for the Hirsch index of authors of articles in the journal for 3 years – 4, for the average length of the text of articles for 3 years – 4.

See: https://www.elibrary.ru/projects/science_index/ranking_info.asp

In this study, we are talking about the trivalent tensor $\mathbf{V} = \{V_{ijg}\}$. It forms an information parallelepiped containing 204 numbers, each of which can be represented by three coordinates: projections on the axis of the totality of analyzed journals $i \in [1, 51]$; on the axis of bibliometric indicators $j \in [1,4]$ – five-year impact factor [j =1], ten-year Hirsch index of the journal [j = 2], average Hirsch index of authors of articles over the past three years [j = 3], Herfindahl index [j = 4]; on the axis of samples from the general journal database $g \in [1,3]$ – groups of journals G_1, G_2, G_3.

The main idea of the MW analysis is related to the restoration of the original tenor characterizing the abovementioned three-dimensional space by means of its representation as an external product of three vectors of different dimensions, which can be interpreted as an aggregate rating of journals $\mathbf{V_i}$; the weights in this rating of individual bibliometric indicators $\mathbf{V_j}$ and the contributions to this rating of individual groups of journals $\mathbf{V_g}$ characterizing the corresponding components of the RSCI Core and Yadro.RU.

Let us consider the results of the MW analysis for two calculation options. In the first version, three bibliometric indicators were used, corresponding to the RSCI methodology (with the exception of the "average length of the text of articles over the past three years"); in the second version, another indicator was added – "Herfindahl index for authors' organizations". The results of these calculations for the general array of journals (**G**) are shown in *Tables 5* and *6*.

The calculation results (option I) indicate that the "Hirsch index of authors of articles" demonstrates the strongest influence, and the impact factor makes the least contribution to the aggregate rating of journals. When using an additional indicator, the Herfindahl index (option II), the ratios remained the same, but the contribution of each of the three basic indicators decreased slightly, "transferring" part of its influence to the fourth indicator.

Table 5. Contribution of individual indicators to the aggregate rating of journals, %

Rating option	Weights in the aggregate rating			
	5-year impact factor	10-year Hirsch index	Average Hirsch index for 3 years	Herfindahl index
I	24.2	30.5	45.3	
II	20.9	26.5	41.8	10.9

Table 6. Contribution of individual samples of journals to their aggregate rating, %

Rating option	Weights in the aggregate rating		
	Sample G_1	Sample G_2	Sample G_3
I	45.5	26.4	28.1
II	35.6	34.6	29.8

In addition we should point out that the idea of including the Hirsch indices in a set of indicators based on which the rating of journals is calculated is a definite innovation. This is the first time that this scientometric indicator has been used to rank scholarly journals. And despite all the failures of the new RSCI methodology, the three selected bibliometric indicators deserve the attention of specialists. At the same time, we note that the results of applying the MW analysis procedure for a set of indicators not only indicate the incorrectness of the RSCI methodology using a priori set weights, but, most importantly, refute the ingrained idea that the main indicator in the formation of journal ratings is the impact factor, that is, the average number of citations of one article for a certain period.

This conclusion proceeds from a number of considerations. First of all, they are associated with a chronic lack of any average values that do not take into account the nature of the distribution of the analyzed indicator. In this sense, the Hirsch index, which is well known in scientometrics, compares favorably with the impact factor. Moreover, in recent years it has become the most popular for "evaluating the scientific performance of individual scientists, research teams and organizations" (Nazarenko, 2013). And, as the calculations have shown, higher values of the Hirsch indices increase the rating of journals with highly cited articles and articles by highly cited authors.

Table 6 shows equally interesting results. The calculations performed prove that with three bibliometric indicators (option I), the group of journals G3 that are part of Yadro.RU has a greater impact on the aggregate rating than the journals from sample G2 included in the RSCI Core. Taking into account the fact that both cores of economic journals have the same common part G1, it is possible to make a statistically substantiated conclusion about the greater informational significance of Yadro.RU in comparison with the RSCI Core (see Tab. 5). This result is an additional argument for a fundamental conclusion about the expediency of using Yadro.RU journals in the scientometric ranking, because Yadro.RU is based on meaningful criteria that take into account the links between publication activity and knowledge generation.

The results of MW analysis are also very remarkable for another calculation option, due to the introduction of an additional indicator – the Herfindahl index. In this case, the situation is reversed: group of journals G3 that are part of Yadro.RU has less impact on the overall rating than journals from G2 sample (option II). In other words, if the ranking of journals on the subject "Economics. Economic sciences" is based on an aggregate rating that uses four bibliometric indicators, taking into account the Herfindahl index, then the RSCI Core is more informative.

Given the role of this indicator, which, as we already noted, consists in assessing the decline in the importance of journals with a high proportion of self-citations or co-citations, these differences are easy to explain. Apparently, such influence of the Herfindahl index has the greatest effect on journals founded by scientific centers and institutes of the Russian Academy of Sciences.

The fact that the state assignment combines the substantive aspects of research related to the production of knowledge with the number of journal publications related to its dissemination leads to an increase in the publication of articles in journals by the own staff of academic institutions. As an example, let us name the journal Regionalistics, in which in 2022 75% of all articles were published by employees of the journal's founding institute. Based on the results of the performed analysis, several conclusions can be drawn.

First, the core of the journals should not stand out from their total array, regardless of the set of indicators that determine the aggregate journal rating. Second, if the purpose of ranking journals is to determine their authority solely for reasons of citation, then the most informative is Yadro. RU. Third, if one wants to "revise" the citation of journals and adjust their impact estimates on this basis, the RSCI Core is more useful.

Ranking scholarly journals

The results obtained allow us to conclude that the use of MW analysis not only changes the ratio of contributions of bibliometric indicators to the aggregate rating in relation to the RSCI methodology, but, equally importantly, changes the ranking of journals themselves. We should note that, in our opinion, the very procedure for selecting journals that the expert group has included in the core is insufficiently substantiated and, therefore, vulnerable.

The RSCI Core journals. Using the weights of bibliometric indicators obtained as a result of the application of MW analysis (see Tab. 5), and the corresponding rating of journals, the obtained ranking options can be compared with two variants of journal ratings calculated on the basis of the RSCI methodology – the old (as of January 9, 2023) and the new (as of October 24, 2023) variants of the SCIENCE INDEX[11]. The results of this comparison are presented in *Table 7*, which contains three ranking options for scholarly journals included in the RSCI Core.

The analysis of Table 7 allows us to identify several journals that, according to MW analysis, have improved their position in the RSCI Core compared with the accepted methodology. Let us name, for example, the following journals: Journal of Institutional Studies (by 2 and 8 points), Economics and Mathematical Methods (for 8 and 9 points), Region: Economics and Sociology (by 2 and 6 points), St Petersburg University Journal of Economic Studies (by 2 and 12 points). We should also note the journals whose positions according to MW analysis have deteriorated in the RSCI Core: Economy of Regions, World Economy and International Relations, Foresight and STI Governance, Financial Journal, Economic Policy and Business Informatics. As for other journals included in the RSCI Core, the changes were insignificant.

Comparing the ranks of journals corresponding to the old and new versions of Science Index, we see that they arouse a certain distrust regarding the results of RSCI calculations; especially striking is the sharp change in the position of Foresight and STI Governance, which literally in one month plummeted from the 6th to the 31st place. It is clear that in such a situation any subjective decisions in the construction of this core of journals and flaws in the methodology of calculations of their ranking can lead to negative consequences for the entire system of publication activity and, importantly, for the current system of incentives for researchers. Next, let us consider a sample of journals based on their connection with the processes of knowledge generation.

[11] We should note that from the point of view of methodology, the new version of the SCIENCE INDEX does not differ much from the old version: there remain the same four biometric indicators and the same weights used in calculating the rating (elibrary.fa.ru/page.asp?id=35030).

Table 7. Ranking of scientific journals included in the RSCI Core

No.	JOURNAL	RSCI methodology (Science Index, option I)	RSCI methodology (Science Index, new option)	MW analysis (4 indicators, option III)
13	Voprosy ekonomiki	1	1	1
21	Problemy prognozirovaniya (Studies on Russian Economic Development)	2	2	2
5	Russian Journal of Economics	5	8	3
15	Zhurnal Novoi ekonomicheskoi assotsiatsii (Journal of the New Economic Association)	8	9	4
36	Ekonomika regiona (Economy of Regions)	3	3	5
3	Journal of Institutional Studies	14	13	6
6	Terra Economicus	9	10	7
34	EKO (ECO)	7	7	8
23	Prostranstvennaya ekonomika (Spatial Economics)	10	18	9
18	Mirovaya ekonomika i mezhdunarodnye otnosheniya (World Economy and International Relations)	4	4	10
24	Region: ekonomika i sotsiologiya (Region: Economics and Sociology)	17	15	11
33	Forsait (Foresight and STI Governance)	6	31	12
26	Rossiiskii ekonomicheskii zhurnal (Russian Economic Journal)	15	17	13
16	Kontury global'nykh transformatsii: politika, ekonomika, pravo (Outlines of Global Transformations: Politics, Economics, Law)	12	12	14
28	Sovremennaya Evropa (Contemporary Europe)	19	11	15
22	Problemy upravleniya (Control Sciences)	18	6	16
37	Ekonomicheskaya politika (Economic Policy)	13	16	17
35	Ekonomika i matematicheskie metody (Economics and Mathematical Methods)	27	19	18
9	Vestnik mezhdunarodnykh organizatsii: obrazovanie, nauka, novaya ekonomika (International Organisations Research Journal)	11	21	19
8	Vestnik MGIMO Universiteta (MGIMO Review of International Relations)	20	14	20
29	Universitetskoe upravlenie: praktika i analiz (University Management: Practice and Analysis)	23	24	21
27	Sever i rynok: formirovanie ekonomicheskogo poryadka	29	26	22
30	Upravlenets (The Manager)	30	28	23
38	Ekonomicheskii zhurnal Vysshei shkoly ekonomiki (The HSE Economic Journal)	16	22	24
20	Prikladnaya ekonometrika (Applied Econometrics)	21	23	25
12	Vestnik Sankt-Peterburgskogo universiteta. Ekonomika (St Petersburg University Journal of Economic Studies)	38	36	26
32	Finansy: teoriya i praktika (Finance: Theory and Practice)	28	25	27
4	Journal of Tax Reform	32	32.	28
19	Prikladnaya informatika (Journal of Applied Informatics)	25	29	29
31	Finansovyi zhurnal (Financial Journal)	24	20	30
7	Biznes-informatika (Business Informatics)	26	5	31
2	Journal of Applied Economic Research	33	33	32
25	Rossiiskii zhurnal menedzhmenta (Russian Management Journal)	36	34	33
14	Den'gi i kredit (Russian Journal of Money and Finance)	22	27	34
17	MIR (Modernizatsiya. Innovatsii. Razvitie) (MIR (Modernization. Innovation. Research))	31	30	35
1	Ars Administrandi	34	37	36
10	Vestnik Moskovskogo universiteta. Seriya 6: Ekonomika (Moscow University Economic Bulletin)	35	35	37
11	Vestnik Sankt-Peterburgskogo universiteta. Menedzhment (Vestnik of Saint Petersburg University. Management)	37	38	38
Source: own compilation.				

The Yadro.RU journals. We recall that this sample, in addition to journals representing academic science (Q_1 and Q_6), includes university journals directly involved in knowledge generation (Q_2), and journals of other publishers (Q_3) whose indexing in foreign databases Web of Science Core and Scopus is the criterion for their inclusion in Yadro.RU. Thus, 23 academic journals, 14 university journals and 4 journals of other publishers were included in Yadro.RU. The total number of academic journals amounted to 41.

As in the case with the RSCI Core, we present the results of the ranking of scientific journals included in Yadro.RU *(Tab. 8)*. Comparing the rankings of journals in Yadro.RU and the RSCI Core calculated using the same MW analysis procedure, it is easy to see that the ranks of journals included in both Yadro.RU and the RSCI Core do not have big differences. We should note that 6 out of 11 journals included in the first quartile Q_1 of the aggregate journal database Baza.RU are publications of scientific centers and institutes of the Russian Academy of Sciences. At the same time, we cannot ignore another fact: 6 out of 10 journals included in the fourth quartile Q_4 of the aggregate journal database, represent institutes and scientific centers of the Russian Academy of Sciences with low ratings, which occupy positions from 32 to 41 in Yadro.RU.

Recommendations by eLIBRARY.RU

As a conclusion to this article, we considered it advisable not only to point out critical comments regarding the methodology used in the RSCI, but also formulate specific recommendations related to the activities of the "Scientific Electronic Library eLIBRARY.RU". The elimination of a number of identified shortcomings in the ranking methodology used for scholarly journals is not only relevant from the point of view of adequately determining their rating, but, more importantly, it may somewhat mitigate the situation with the imposed "publication race" for academic and university scientists involved in knowledge generation. The recommendations can be formulated as follows.

Table 8. Ranking of scholarly journals included in Yadro.RU

No.	JOURNAL	Founder	Part of the RSCI Core	Quartile in Baza.RU	JOURNAL RANK		
					BAZA.RU	RSCI CORE	YADRO.RU
1	Voprosy ekonomiki	Other	-	Q1	1	1	1
2	Problemy prognozirovaniya (Studies on Russian Economic Development)	RAS	YES	Q1	2	2	2
4	Journal of Institutional Studies	Other	-	Q1	4	4	3
5	Zhurnal Novoi ekonomicheskoi assotsiatsii (Journal of the New Economic Association)	Other	-	Q1	5	5	4
6	Russian Journal of Economics	Other	-	Q1	7	7	5
7	Ekonomika regiona (Economy of Regions)	RAS	YES	Q1	6	6	6
8	Terra Economicus	Univer.	-	Q1	8	9	7
9	Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz (Economic and Social Changes: Facts, Trends, Forecast)	RAS	-	Q1	9	-	8
11	Prostranstvennaya ekonomika (Spatial Economics)	RAS	YES	Q1	11	10	9
10	Mirovaya ekonomika i mezhdunarodnye otnosheniya (World Economy and International Relations)	RAS	YES	Q1	10	8	10
13	Kontury global'nykh transformatsii: politika, ekonomika, pravo (Outlines of Global Transformations: Politics, Economics, Law)	RAS	YES	Q1	13	13	11
14	Forsait (Foresight and STI Governance)	Univer.	-	Q2	14	11	12
15	Regional'nye issledovaniya	RAS	-	Q2	15	-	13

End of Table 8

No.	JOURNAL	Founder	Part of the RSCI Core	Quartile in Baza.RU	JOURNAL RANK		
					BAZA.RU	RSCI CORE	YADRO.RU
16	Region: ekonomika i sotsiologiya (Region: Economics and Sociology)	RAS	YES	Q2	16	14	14
17	Sovremennaya Evropa (Contemporary Europe)	RAS	YES	Q2	17	15	15
18	Ekonomicheskaya politika (Economic Policy)	Univer.	-	Q2	18	16	16
19	Problemy upravleniya (Control Sciences)	RAS	YES	Q2	19	17	17
20	Ekonomika i matematicheskie metody (Economics and Mathematical Methods)	RAS	YES	Q2	20	18	18
24	Voprosy teoreticheskoi ekonomiki (Issues of Economic Theory)	RAS	-	Q2	24	-	19
22	Vestnik mezhdunarodnykh organizatsii: obrazovanie, nauka, novaya ekonomika (International Organisations Research Journal)	Univer.	-	Q2	22	19	20
25	Nauchnye trudy: Institut narodno-khozyaistvennogo prognozirovaniya RAN	RAS	-	Q2	25	-	21
23	Biznes-informatika (Business Informatics)	Other	-	Q2	23	21	22
29	Sever i rynok: formirovanie ekonomicheskogo poryadka	RAS	YES	Q3	29	27	23
28	Upravlenets (The Manager)	Univer.	-	Q3	28	25	24
31	Uroven' zhizni naseleniya regionov Rossii (Living Standards of the Population in the Regions of Russia)	RAS	-	Q3	31	-	25
30	Finansy: teoriya i praktika (Finance: Theory and Practice)	Univer.	-	Q3	30	26	26
33	Ekonomicheskii zhurnal Vysshei shkoly ekonomiki (The HSE Economic Journal)	Univer.	-	Q3	33	24	27
34	Ekonomicheskaya nauka sovremennoi Rossii (Economics of Contemporary Russia)	RAS	-	Q3	34	-	28
36	Journal of Tax Reform	Univer.	-	Q3	36	31	29
37	Prikladnaya ekonometrika (Applied Econometrics)	Univer.	-	Q3	37	30	30
38	AlterEconomics	RAS	-	Q3	38	-	31
40	Regionalistika (Regionalistics)	RAS	-	Q4	40	-	32
41	Rossiiskii zhurnal menedzhmenta (Russian Management Journal)	Other	-	Q4	41	33	33
43	Vestnik Instituta ekonomiki Rossiiskoi akademii nauk (The Bulletin of the Institute of Economics of the Russian Academy of Sciences)	RAS	-	Q4	43	-	34
44	Problemy razvitiya territorii (Problems of Territory's Development)	RAS	-	Q4	44	-	35
46	Vestnik Moskovskogo universiteta. Seriya 6: Ekonomika (Moscow University Economic Bulletin)	Univer.	-	Q4	46	37	36
48	Problemy rynochnoi ekonomiki (Market Economy Problems)	RAS	-	Q4	48	-	37
47	Ars Administrandi	Univer.	-	Q4	47	36	38
49	Tsifrovaya ekonomika	RAS	-	Q4	49	-	39
50	Vestnik Sankt-Peterburgskogo universiteta. Menedzhment (Vestnik of Saint Petersburg University. Management)	Univer.	-	Q4	50	38	40
51	Rossiya i novye gosudarstva Evrazii (Russia and New States of Eurasia)	RAS	-	Q4	51	-	41

Source: own compilation.

1. It is necessary to create a common array of the journals – Baza.RU – which includes 51 academic journals. At the same time, for analytical purposes, it makes sense to keep the samples such as the RSCI Core, Yadro.RU and RAN.RU.

2. The Higher Attestation Commission should be proposed to establish the K1 category for all scholarly journals included in Baza.RU.

3. The citation of publications, which is appropriately reflected in bibliometric indicators, should be recorded in the RSCI only if the article is cited in a journal that is part of the aggregate journal database Baza.RU.

4. Considering the practical importance of taking into account citation and "purified" citation when ranking journals, it is advisable to use both versions of bibliometric indicators. We are talking about a basic set that includes a five-year impact factor, ten- and three-year Hirsch indices, as well as an expanded set of indicators supplemented by the Herfindahl index.

5. It is necessary to support the proposal by V. Glukhov, Deputy Director General of the Scientific Electronic Library eLIBRARY.RU, about uploading reviews of articles to the RSCI system together with publications, which, in addition to public evidence of peer review, can improve the ongoing examination of journals, making it less subjective and more professional.

6. It is necessary to make fundamental changes to the methodology for determining the overall rating of journals. We are talking about the application of MW analysis, which, using real data contained in the information base of the "Scientific Electronic Library eLIBRARY.RU" allows identifying the statistically substantiated contribution of each bibliometric indicator to the overall rating, as well as calculating the value of this rating for each journal.

7. It is advisable to establish a procedure according to which the journals ranking results should be reviewed every year (no later than February 1) on the basis of up-to-date information from the "Scientific Electronic Library eLIBRARY.RU".

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Appendix

"Baza.RU" journals on the subject "Economics. Economic sciences"

No.	JOURNAL	Quartile BAZA.RU	JOURNAL RANK			
			BAZA.RU	RSCI CORE	YADRO.RU	RAN.RU
1	Voprosy ekonomiki	Q1	1	1	1	-
2	Problemy prognozirovaniya (Studies on Russian Economic Development)		2	2	2	1
7	Russian Journal of Economics		3	3	3	-
5	Zhurnal Novoi ekonomicheskoi assotsiatsii (Journal of the New Economic Association)		4	4	4	-
6	Ekonomika regiona (Economy of Regions)		5	5	5	2
4	Journal of Institutional Studies		6	6	6	-
8	Terra Economicus		7	7	7	-
3	EKO (ECO)		8	8	8	-
11	Prostranstvennaya ekonomika (Spatial Economics)		9	9	9	3
10	Mirovaya ekonomika i mezhdunarodnye otnosheniya (World Economy and International Relations)		10	10	10	4
9	Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz (Economic and Social Changes: Facts, Trends, Forecast)		11	-	11	5
15	Regional'nye issledovaniya		12	-	12	6
16	Region: ekonomika i sotsiologiya (Region: Economics and Sociology)		13	11	13	7
14	Forsait (Foresight and STI Governance)	Q2	14	12	14	-
12	Rossiiskii ekonomicheskii zhurnal (Russian Economic Journal)		15	13	-	-
13	Kontury global'nykh transformatsii: politika, ekonomika, pravo (Outlines of Global Transformations: Politics, Economics, Law)		16	14	15	8
17	Sovremennaya Evropa (Contemporary Europe)		17	15	16	9
19	Problemy upravleniya (Control Sciences)		18	16	17	10
18	Ekonomicheskaya politika (Economic Policy)		19	17	18	-
20	Ekonomika i matematicheskie metody (Economics and Mathematical Methods)		20	18	19	11

No.	JOURNAL	Quartile BAZA.RU	JOURNAL RANK			
			BAZA.RU	RSCI CORE	YADRO.RU	RAN.RU
22	Vestnik mezhdunarodnykh organizatsii: obrazovanie, nauka, novaya ekonomika (International Organisations Research Journal)	Q2	21	19	20	-
27	Vestnik MGIMO Universiteta (MGIMO Review of International Relations)		22	20	-	-
24	**Voprosy teoreticheskoi ekonomiki (Issues of Economic Theory)**		23	-	21	12
25	Nauchnye trudy: Institut narodnokhozyaistvennogo prognozirovaniya RAN		24	-	22	13
21	Universitetskoe upravlenie: praktika i analiz (University Management: Practice and Analysis)		25	21	-	-
29	Sever i rynok: formirovanie ekonomicheskogo poryadka		26	22	23	14
28	Upravlenets (The Manager)	Q3	27	23	24	-
33	Ekonomicheskii zhurnal Vysshei shkoly ekonomiki (The HSE Economic Journal)		28	24	25	-
31	**Uroven' zhizni naseleniya regionov Rossii (Living Standards of the Population in the Regions of Russia)**		29	-	26	15
37	Prikladnaya ekonometrika (Applied Econometrics)		30	25	27	-
32	Vestnik Sankt-Peterburgskogo universiteta. Ekonomika (St Petersburg University Journal of Economic Studies)		31	26	-	-
34	Ekonomicheskaya nauka sovremennoi Rossii (Economics of Contemporary Russia)		32	-	28	16
30	Finansy: teoriya i praktika (Finance: Theory and Practice)		33	27	29	-
36	Journal of Tax Reform		34	28	30	
35	Prikladnaya informatika (Journal of Applied Informatics)		35	29	-	-
39	Finansovyi zhurnal (Financial Journal)		36	30	-	-
40	Regionalistika (Regionalistics)		37	-	31	17
23	Biznes-informatika (Business Informatics)		38	31	32	-
26	Journal of Applied Economic Research		39	32	-	-
38	Alter Economics	Q4	40	-	33	18
41	Rossiiskii zhurnal menedzhmenta (Russian Management Journal)		41	33	34	-
43	**Vestnik Instituta ekonomiki Rossiiskoi akademii nauk (The Bulletin of the Institute of Economics of the Russian Academy of Sciences)**		42	-	35	19
42	Den'gi i kredit (Russian Journal of Money and Finance)		43	34	-	-
44	Problemy razvitiya territorii (Problems of Territory's Development)		44	-	36	20
45	MIR (Modernizatsiya. Innovatsii. Razvitie) (MIR (Modernization. Innovation. Research))		45	35	-	-
47	Ars Administrandi		46	36	37	-
48	Problemy rynochnoi ekonomiki (Market Economy Problems)		47	-	38	21
49	Tsifrovaya ekonomika		48	-	39	22
46	Vestnik Moskovskogo universiteta. Seriya 6: Ekonomika (Moscow University Economic Bulletin)		49	37	-	-
50	Vestnik Sankt-Peterburgskogo universiteta. Menedzhment (Vestnik of Saint Petersburg University. Management)		50	38	40	-
51	Rossiya i novye gosudarstva Evrazii (Russia and New States of Eurasia)		51	-	41	23

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Challenges of Social Integration of Young Temporary Migrants from Russia in the Republic of Kazakhstan in the Context of Geopolitical Instability

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Abstract. Modern social reality is characterized by a significant level of uncertainty, which creates risks both in a global and local context. This led to a temporary outflow of a large number of the male population from Russia in the autumn of 2022. The Republic of Kazakhstan was among the countries that received the largest number of temporary migrants from Russia. The article presents a brief analysis of the conditions existing in Kazakhstan for the integration of temporary migrants from Russia; we also provide findings of a survey we have conducted with the help of an in-depth interview method; the survey considers social integration of young men who temporarily left Russia. The resource approach was chosen as the main theoretical approach, and the social capital of temporary migrants was considered as a key resource.

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To address the research tasks, we conducted 20 in-depth interviews with temporary male migrants from Russia who had arrived in Kazakhstan. As a result, we have revealed that social capital plays a significant role in the social integration of temporary migrants. First, the formation of new ties contributes to the formation of a community of migrants from Russia, which is supported by mutual assistance practices. Second, the accumulated social capital in the transnational social space allows temporary migrants to receive assistance from the country of origin, which greatly simplifies the integration process. Third, the social capital formed in the offline and online space is actively transformed from one form to another, which helps to address migrants' issues in the process of social integration. However, a lack of financial and personal resources in the first place can hinder successful social integration in a new environment.

Key words: social integration, temporary migrants, Russia, Kazakhstan, social risks, social capital, uncertainty.

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Introduction

For Russia and for the whole world, 2022 is marked by the emergence of new global risks and uncertainties. One of the signs of such uncertainty was the temporary migration from Russia. Migration, especially among young people, often serves as a way to achieve personal goals (Thulin, Vilhelmson, 2016), which an individual cannot achieve or has limited prospects for them in the country of origin. Among the main factors, influenced the departure of young Russians, we can mention political, financial and economic risks, social and technological factors associated with sanctions restrictions (Taisheva, 2022). Researchers also consider the departure of male Russians abroad as a strategy of self-preservation behavior (Saralieva et al., 2023) due to the desire to avoid uncertainty and overcome new social risks. A large number of migrants from among Russian citizens arrived in visa-free countries of the post-Soviet space, including the Republic of Kazakhstan.

Russia and Kazakhstan have a long history of cooperation in different contexts. Currently, relations between the two countries continue developing, with the states engaging in business, economic, cultural and political interaction within the Commonwealth of Independent States (CIS), the Eurasian Economic Union (EAEU), the Common Economic Space (CES) and other international organizations. Russia and Kazakhstan also support cultural and scientific exchanges, which has an impact on the migration policy of both countries. Given the high level of socio-economic development of the Republic of Kazakhstan compared to other Central Asian states, citizens of countries in this region also consider it for labor migration, especially citizens of Uzbekistan (Ryazantsev et al., 2020). At the same time, due to the collapse of the USSR and the emergence of the so-called new (near) abroad in 1992, internal migration flows between Russia and the former Soviet republics were transformed into international ones, which is reflected in statistical data. For instance, in 1991–2014, irreturn migration (classical emigration) from Russia amounted to 4.9 million people. Among them, 3.3 million people (67%) were from the countries of the near

abroad. Along with general emigration, including its new forms (labor, shuttle, business migration, educational, etc.), significantly increasing its scale, the outflow of high skilled specialists is increasing (Iontsev et al., 2016). However, until recently Russia was clearly the leading country in receiving migrants from EAEU countries, including Kazakhstan. For example, before the COVID-19 pandemic, the inflow of migrants to Russia from the Republic of Kazakhstan was five times greater than from Russia to Kazakhstan. At the same time, citizens of Kazakhstan more often than citizens of other CIS countries focused on long-term migration to Russia (Ryazantsev, 2016; Gaeva, 2019; Yugai, 2022). At the moment, there is a significant change in the structure of migration, not only with regard to the direction, but also the purposes of migration. Purely economic reasons are not dominant, which is confirmed by the data on the intensification of temporary migration from Russia precisely during the period of partial mobilization under the Special Military Operation (SMO).

For instance, the intensified migration of Russian citizens to Kazakhstan is confirmed by the statistics of the International Organization for Migration: in 2022, the number of international labor migrants arriving in Kazakhstan from Russia almost doubled compared to 2021, which amounted to 8% of the total number of foreign labor force[1]. During the mass departure of Russians abroad, the media published various estimates of the number of those who left: 100 thousand people a week after the announcement of partial mobilization[2], 200 thousand – in 2 weeks[3], etc. According to the estimates of the Ministry of Internal Affairs of the Republic of Kazakhstan as of the end of November 2022, more than 400 thousand Russians entered Kazakhstan after mobilization, but only 100 thousand of them stayed in the country[4]. At the same time, according to statements by Russian authorities in February 2023, more than 60% of all those who left returned to Russia[5].

In this regard, it is possible to consider the occurred mass migration as temporary, i.e. not implying a change of permanent place of residence. However, we should note that temporary migration can be both short-term and long-term. Temporary migration is often not associated with the need for social integration, which is reflected both in the deliberate exclusion of temporary migrants from the sphere of integration policies and in the lack of social integration mechanisms at the state level, including in countries such as Canada and the UK, which are active recipients of temporary migrants (Samuk, 2020). However, researchers note that temporary migrants face the need for social integration and social support in the new society to be able to fully function in the receiving country. At the same time, social integration is understood as a dynamic, two-way process of mutual accommodation of all immigrants and residents of recipient states (Alencar, Tsagkroni, 2019). Integration is a continuous process and the notion of an integrated society is difficult to visualize because the integration process requires

[1] Kazakhstan – Baseline assessment and surveys: international migrant workers in Kazakhstan (December 2022 – February 2023). Available at: https://dtm.iom.int/reports/kazakhstan-baseline-assessment-and-surveys-international-migrant-workers-kazakhstan) (accessed: September 26, 2023).

[2] Nearly 100,000 Russians have entered Kazakhstan since the beginning of partial mobilization. Available at: https://www.forbes.ru/society/478195-v-kazahstan-s-nacala-casticnoj-mobilizacii-v-ehali-pocti-100-000-rossian. (accessed: September 26, 2023).

[3] About 700,000 citizens left Russia after September 21. Available at: https://www.forbes.ru/society/478827-rossiu-posle-21-sentabra-pokinuli-okolo-700-000-grazdan (accessed: September 26, 2023).

[4] About 100,000 Russians remained in Kazakhstan after the end of mobilization. Available at: https://www.rbc.ru/rbcfreenews/6385ab1e9a794704354b1a34 (accessed: September 26, 2023).

[5] "There was no longing for birch trees": Why relocants return to Russia. Available at: https://news.ru/society/obratnaya-volna-pochemu-rossiyane-relokanty-vozvrashayutsya-iz-za-rubezha/ (accessed: September 26, 2023).

continuous efforts on both sides (Phillimore, 2011). It means that this study also takes into account the adaptation of temporary migrants, which is seen as a necessary stage of the integration process. It is worth noting that at the moment there is a lack of studies in the scientific field that describe the process of integration of temporary migrants who arrived in the receiving country primarily due to external circumstances arising in the country of origin, whereby the recipient of temporary migrants is a country that was previously primarily a donor of migrants for the country of origin. Thus, the aim of our study is to identify the specifics of integration of temporary migrants from Russia in the Republic of Kazakhstan. The objectives of the research are related to the consideration of resources, barriers and opportunities for social integration.

Opportunities for social integration of Russian citizens in Kazakhstan

Social integration of migrants implies both their activity for inclusion in the local society and the creation of institutional opportunities at the state level. Thus, the integration policy of the country of immigration plays a significant role in the process of social integration. It largely depends on two groups of factors: on the one hand, on the characteristics of the host community, and on the other hand, on the characteristics of migration flows (Varshaver, Rocheva, 2016).

The characteristics of the host community are often considered through the prism of social cohesion and social inclusion (Taylor, Foster, 2015), which reflect the readiness of representatives of different cultures for intercultural dialog. According to UNESCO data, the level of social cohesion in Kazakhstan in 2022 was one of the highest in the world and exceeded the global values of this indicator by almost 1.5 times. In turn, the level of social inclusion in Kazakhstan also exceeded the global value of the indicator, but by 1.17 times[6]. At the same time, according to the results of a mass survey conducted in November 2022, 38% of Kazakhstan residents did not support the Russians' migration. At the same time, most of those who did support it were more often guided by considerations of humanity rather than pragmatic interests[7].

Table 1. Ranking of CIS countries by quality of life indicator in 2022

Country	Include in CIS	Include in the CES	Include in the EAEU	Place in the global ranking of countries by quality of life	Total value of the quality of life indicator
Armenia	+	+	+	71	52
Moldova	+			74	52
Kazakhstan	**+**	**+**	**+**	**76**	**51**
Uzbekistan	+			90	47
Russian Federation	+	+	+	92	47
Azerbaijan	+			99	46
Kyrgyzstan	+	+	+	100	46
Belarus	+	+	+	109	43
Tajikistan	+			110	43
Turkmenistan	+			-	-

Source: Comparison of quality of life worldwide. Available at: https://www.worlddata.info/quality-of-life.php (accessed: September 26, 2023).

[6] Kazakhstan Framework for Enabling Intercultural Dialogue Profile. Available at: https://www.unesco.org/en/enabling-interculturaldialogue/kazakhstan-country-profile (accessed: September 26, 2023).

[7] DEMOSCOPE Bureau conducted another survey of citizens of Kazakhstan. Available at: https://demos.kz/opros-tret-kazahstancev-stala-huzhe-otnositsja-k-rossii-posle-nachala-vojny/ (accessed: September 26, 2023).

Although Kazakhstan was one of the countries that received the largest influx of temporary migrants from Russia after the announcement of partial mobilization, most of the migrants who arrived left for other countries or returned to Russia. Kazakhstan proved attractive to Russian citizens as the first or only country for temporary stay for a number of reasons. First, as of 2023 it was characterized by the second highest quality of life indicator among the EAEU and CES member states, and the third among all CIS countries *(Tab. 1)*.

Second, access to the country is easier for Russians, as entry with a Russian passport is possible, and there is no visa requirement when crossing the state border with a foreign passport, which is stipulated by the terms of the Agreement on Visa-Free Travel of Citizens of CIS States[8]. Until January 27, 2023, citizens of the EAEU member states, including Russians, had the opportunity to stay in Kazakhstan for up to 90 days, but to make a "border run" (a short trip out of the country and back in order to restart the countdown of the permitted period of stay) to re-enter the country and stay in it for another 90 days. However, this rule was changed in early 2023[9], and now longer stays in Kazakhstan require a temporary residence (TR) or a residence permit (RP).

Third, Russian citizens often do not need to make significant efforts in connection with language adaptation. Kazakhstan is a multi-ethnic country with population of 19.76 million at the beginning of 2023, of which 70.7% are Kazakhs, 15.2% Russians, and 3.3% Uzbeks[10]. Also, given the shared history of Russia and Kazakhstan, the Russian language is still quite widespread in the Republic. This is facilitated by the fact that, according to the Constitution of the Republic of Kazakhstan, it is possible to use the Russian language on equal footing with the state Kazakh language.

Fourth, in accordance with the Agreement on Mutual Recognition and Equivalence of Documents on Education, Academic Degrees and Academic Titles in the EAEU[11], Russian diplomas are valid in the territory of its members, which creates opportunities for employment and continuing education, bypassing bureaucratic costs. At the same time, migrant workers from the EAEU countries and members of their families have the same social security (except for pensions) as citizens of the Republic of Kazakhstan, as well as the right to receive emergency and urgent medical care. Thus, migrant workers can claim all types of benefits for temporary disability and maternity. Children of labor migrants, in turn, have the right to receive preschool and school education in the country of employment of their parents (Gaeva, 2019).

Despite these benefits associated with the social integration of Russian migrants in the Republic of Kazakhstan, the net migration balance of the ethnic group "Russians" remains negative: at the end of 2022, the migration

[8] Agreement on visa-free movement of citizens of the Commonwealth of Independent States within the territory of its members. Available at: https://docs.cntd.ru/document/1900412 (accessed: November 5, 2023).

[9] Resolution of the Government of the Republic of Kazakhstan 1146, dated December 31, 2022 (2022). Available at: https://primeminister.kz/ru/decisions/31122022-1146 (accessed: September 26, 2023).

[10] Population of the Republic of Kazakhstan (at the beginning of 2023) (2023). Available at: https://stat.gov.kz/ru/industries/social-statistics/demography/publications/6373/ (accessed: September 26, 2023).

[11] On signing the Agreement on mutual recognition and equivalence of documents on education, academic degrees and academic titles in the Eurasian Economic Community: Resolution of the Government of the Republic of Kazakhstan 114, dated February 11, 2013. Available at: https://adilet.zan.kz/rus/docs/P1300000114 (accessed: September 26, 2023).

balance amounted to -41.4 thousand people[12]. However, there are no official statistics on the movements of Russian citizens arriving in Kazakhstan in 2022. Anyway, it can still be stated that Kazakhstan turned out to be unattractive for a number of Russian migrants in the long term, as evidenced by the empirical data obtained in the course of our study, which, although not statistically significant, confirm this statement. Among the main reasons are: limited conditions for long-term (more than 90 days) stay in the country; unfavorable environmental situation in the region, which also provokes environmental migration within the country (Koldobskaya, 2022); predominance of the population practicing Islam (69.3%)[13], which may be a problem for some Russians, as migrants practicing Islam are often associated with the terrorist threat (Borodkina et al., 2017), although in reality they are not its source. In addition, Kazakhstan does not imply the possibility of having a second citizenship, which is important for migrants who are focused on expanding their opportunities by obtaining a second citizenship in addition to Russian citizenship.

Thus, in the context of a significant inflow of migrants from Russia, Kazakhstan has a number of limitations for long-term temporary migration. In this regard, it seems relevant to consider the possibilities of social integration of Russian citizens in the Republic of Kazakhstan, taking into account the emerging new limitations in the context of modern social policy, as well as taking into account the resources that temporary migrants possess.

[12] Migration of the population of the Republic of Kazakhstan. Available at: https://stat.gov.kz/ru/industries/social-statistics/demography/publications/6356/ (accessed: September 26, 2023).

[13] Census 2021. National composition of the population. Available at: https://app.powerbi.com/view?r=eyJrIjoiYmJiNjU5NzItNWYyZi00Mjc2LTg5OWQtN2I2Y2QxY2I0NzEzIiwidCI6ImRlNzAxMmMyLTI0M2MtNDFjMi04NjRmLWE5YmEyMGY0YzUxOSIsImMiOjl9&pageName=ReportSection7e0131f57a0773bd8643 (accessed: September 26, 2023).

Theoretical framework of the research

There are many approaches to the study of social integration of international migrants: macro-sociological institutional approach (Soysal, 1994; Freeman, 2004), systemic approach (Esser, 2004; Heckmann, 2005), microsociological contact theory (Allport, 1979), the concept of cosmopolitan sociability (Glick-Shiller et al., 2011) and its adaptation (Ni, Lisitsyn, 2017), etc. However, in this study, we draw on a resource-based approach, which assumes that resources are accessed through multiple social ties – social networks of interaction. These resources influence the opportunities and outcomes of immigrants' purposive-rational actions (Lin, 2002), which are also oriented toward social integration. Here we should mention D. Massey's theory of network migration, according to which migrant networks are a set of interpersonal ties that connect migrants, former migrants and people without migration experience in the country of origin through ties of kinship, friendship and common ancestry. Such ties increase the likelihood of international movement because they reduce the costs and risks of moving and increase the expected net benefits of migration (Massey et al., 1993).

In turn, social ties are understood as stable forms of interaction that can take place in both real and virtual formats. Their use as a resource refers us to the theory of social capital, first introduced into scientific circulation by French sociologist P. Bourdieu (Bourdieu, 2005). Later, social capital as a resource was considered by R. Putnam, defining it as ties between individuals, social networks and norms of reciprocity that arise from these networks. The author divided the norm of reciprocity into "balanced" and "generalized". Balanced reciprocity implies a simultaneous exchange of equivalent services, while generalized reciprocity implies a sustained provision of services even when the exchange is not simultaneous or equivalent, but involves the realization of mutual expectations in the future (Putnam, 1996).

In the context of temporary migration to Kazakhstan, in our opinion, Russians were situationally guided by the above norms of reciprocity, which united them primarily by the purpose of migration, namely by providing an opportunity to continue achieving personal life goals, but in other conditions. Thus, we assume that mutual assistance has become one of the key resources of social integration of Russians in Kazakhstan. In this case, mutual aid is considered as a series of acts in the system of reciprocity, each of which is altruistic in the short term (benefits are provided at the expense of the altruist), but which together benefit everyone without exception (Putnam, 1971). The purpose of migration is linked to rational calculations of the costs and benefits of moving and migrants' perceptions of the expected positive net benefits (monetary or otherwise) of moving (Massey et al., 1993). Therefore, we consider social capital as a relationship of the following components: resources (information and/or assistance), sources of resources (previous migrants) and recipients of resources (potential migrants) (Garip, 2008). Moreover, an additional resource for successful social integration for temporary migrants from Russia was the social capital of transnational social space, i.e. family, friendship and professional social ties that were maintained with people in the country of origin (Glorius, 2019). Research shows that maintaining and accumulating social capital in the transnational social space facilitates subsequent reintegration after returning to the country of origin of temporary migrants (Glorius, 2019).

We should take into account that modern migration processes are closely associated with the use of online social networks (Tregubova et al., 2021), which strengthens the connection of migrants with transnational social space. In the framework of this study, we consider networks as a tool for accumulating, increasing and utilizing resources of offline and online (virtual) social capital and their mutual transformation (Spottswood, Wohn, 2020).

Research methods

In our research, the main method of data collection is an in-depth interview conducted using a guide, which included the following blocks of questions: "adaptation in Kazakhstan", "state support for migrants in Kazakhstan", "receiving medical and social assistance", "belonging to transnational social space". To recruit informants, we used two methods of sample formation: the first one is the recruiting of informants through social networks (mainly Telegram channels for migrants in Kazakhstan), and the second one is a "snowball" method. It is important to note that the use of Telegram channels was not effective enough – it was possible to recruit only three informants to participate in the study, while most of them were attracted by "snowball" approach. We carried out data analysis using specialized software for qualitative data analysis – Atlas.ti using the method of thematic coding.

The informants include 20 young single men under the age of 35. This sample was determined by the structure of the migration wave that began at the end of September 2022. Although migration affected not only men, but also entire families, married men, men in unregistered partnerships, and women separately, the focus of our study is on young single men. The majority of informants were single when they moved to Kazakhstan and therefore moved alone (N = 15), while some experienced relationship breakdown during the integration process already in the country of arrival (N = 5). We should also say that the respondents were skilled migrants, which facilitated their integration due to skills that may be in demand on the labor market in the country of arrival. Both those migrants who planned to leave Kazakhstan in the near future (N = 7) and those who had received a temporary or permanent residence permit and planned to stay for a longer period of time (N = 13) participated in the interviews. The informants were mainly from Almaty and Astana, two of the largest cities in Kazakhstan that were traditionally attractive to

migrants, with one respondent each from Shymkent and Karaganda. Each of the informants had been in Kazakhstan for more than five months at the time of the interview. Before moving to Kazakhstan, the informants lived in the largest cities of Russia – Moscow and Saint Petersburg, 1 informant – in Togliatti. This is a limitation of the sample, as it does not represent all migrants who left Russia in September 2022. However, the inclusion of highly skilled migrants in the sample, who have more opportunities and chances for successful social integration, makes it possible to identify integration problems, which may be more pronounced for other temporary migrants.

Research results

Migrant community and mutual assistance as a key resource for social integration

Taking into account the fact that migration was of a mass character and a rather large number of Russians arrived in Kazakhstan in a limited period of time, a certain community of migrants who came from Russia was formed, who in one way or another interacted with each other, had some common goals and shared some common norms and values. In view of the limited nature of support for migrants from such a social institution as the state, in the Republic of Kazakhstan the most significant resource for social integration was mutual assistance, which was expressed primarily in solving everyday tasks related to finding housing, employment, financial self-sufficiency, solving psychological problems, and adapting to new living conditions. At the same time, Russians themselves stated that they had no expectations of support from the Kazakh authorities, noting positively the measure to open a separate public service center (PSC) in a number of cities in Kazakhstan in the fall of 2022 specifically for migrants. However, the question remains whether this measure was intended to reduce barriers to access to state social services for Russians or was a tool to prevent social tensions on the part of the local population.

Solution of housing problems

The primary task for migrants was to find housing. There were four main tactics that Russians used to solve the housing issue: 1) renting temporary housing (a room, apartment or hotel room); 2) temporary accommodation with acquaintances, friends or relatives; 3) temporary accommodation with previously unknown people; 4) living in a shelter opened within the framework of a non-profit project specifically to support Russians. When searching for accommodation for temporary rent, Russians turned both to the website *krisha.kz*, which was the main service for finding accommodation in Kazakhstan, and to *Booking* and *Airbnb* services for renting apartments or hotel rooms. In this case, Russians either cooperated to live together and reduce the financial burden, or rented larger premises than they needed, which provided an opportunity to help those Russians who, for financial reasons, could not afford to rent housing during this period, although they needed it. Given that there was a crisis in the rental housing market, it was difficult to find rental offers on the one hand, and on the other hand, if they could be found, they were priced above market value: *"When I first came to Astana, there were either really bad hostels or hotel rooms for 10,000 rubles a night. But I was lucky, I found an apartment for 3 thousand rubles per day <...> Then my friend came to Astana and stayed with me" (economist, Moscow – Astana, 27 years old)*.

Some Russians turned to previously established social ties and stayed for a while with friends, acquaintances or relatives who were either citizens of Kazakhstan and had lived there since birth, or had migrated earlier due to work, personal circumstances or also in a situation of global uncertainty. This circumstance allowed, on the one hand, saving resources for further stages of integration, on the other hand, provided an opportunity for mutual assistance in crisis conditions.

Such an opportunity could be obtained by applying for assistance to non-profit projects that help with temporary residence, adaptation and integration in a new environment. Among them, informants mentioned "The Ark"* (Aktobe, Almaty, Astana) and "Logovo" (Astana). One of the informants, who learned about such a project from friends, applied for help to this project, where he received an opportunity to temporarily live in co-living[14] in Almaty with other migrants from Russia. There were 30 beds in the project at the time of his application for assistance, but all of them were already occupied, so he was allocated a place in the common room where activities and meals were held. Accommodation was provided on different grounds - the informant received assistance as a "person without family". At the same time, while living in the co-living, there were a large number of leisure activities (including drawing lessons, watching movies and discussing them, etc.) aimed at social integration of temporary migrants both among themselves and with the local community, whose representatives were periodically guests of the co-living residents. For instance, according to an informant: *"There were many creative people in "The Ark"* who organized some events... Then I myself started to hold English classes once a week. <...> Yes, I participated in a psychological support group... In group contact, people's true feelings became clear" (IT specialist, Moscow – Almaty, 29 years old).*

In this way, not only opportunities were created for solving the most acute issues, such as temporary housing, but also opportunities for leisure, daily socialization and psychological support. In addition, gaining new social ties made it possible to more quickly find people to rent a house together in the future after the expiry of the permitted period of residence in the co-living.

In a number of cases, Russians received support from the local population willing to provide their own housing for temporary residence of migrants from Russia: *"...one of my friends who came from Russia, he initially lived in a family that sheltered him..." (entrepreneur, Saint Petersburg – Karaganda, 25 years old).*

In the context of finding accommodation, it is also necessary to mention the obligation of Kazakh host individuals and legal entities to notify of the foreigner's stay in the Republic of Kazakhstan within three days of their arrival, both by personally contacting the Migration Service office in their district and by filling out a form on the *gov.kz* website. In the absence of notification of stay, foreigners did not have the opportunity to issue a bank card. In this regard, Russians requested notification from both direct landlords, relatives and acquaintances, as well as third parties who offered unofficial services for a fee to issue notification of temporary stay in the territory of the Republic. The result of such applications was not only assistance in resolving bureaucratic issues, but also the strengthening of social ties between people, which are usually maintained throughout the entire period of stay of Russians in Kazakhstan.

Employment opportunities

Turning to the resources of social capital in a new environment helped not only to preserve resources for further integration, but also to find a job. For example, 5 informants reported that they were able to find a job in Kazakhstan thanks to social connections. At the same time, the context of receiving job offers was both spontaneous, when the offer came unexpectedly from strangers (e.g., in a queue at a service center) and planned (e.g., as part of a meeting with potential employers and/or customers).

One of the common tactics of social integration in the labor market is the registration by a foreigner

* The Ministry of Justice of the Russian Federation recognized the project "The Ark" as a foreign agent.

[14] A form of co-habitation of people with common intentions in a common space (house, apartment, room, etc.). A distinctive feature of this type of housing is joint activities of both domestic and interactive nature.

of a legal entity – a limited liability partnership (LLP), which subsequently also gives the right to hire employees. Migrants by themselves registered such LLPs in Kazakhstan primarily to ensure their own legality of long-term stay in the receiving country as an individual entrepreneur or general director of a legal entity. In some cases, managers of these LLPs are willing to employ the same temporary migrants. In such cases, employees' registration is often fictitious and imposes on "employees" the obligation to pay taxes and fees for their affiliation with the organization: *"... the main thing is that they pay taxes themselves. It is unlikely that anyone will be hired there" (IT-specialist, Moscow – Almaty, 31 years old)*. This practice definitely creates risks for the person who formalized the LLP, and as a result, a sufficiently high level of trust between people is required for its application.

The informants note great demand for high skilled specialists in Kazakhstan. *"I know that people with engineering and medical specialties find jobs in general [easily]. And high-paying ones at that... With other spheres... it is harder. It is clear that all sorts of IT-companies consume migrated specialists with great pleasure. So, in general,... there are no problems in the labor market... there is a staff hunger of high skilled specialists due to the fact that there are not many locals left" (higher school teacher, Moscow – Almaty, 27 years old)*.

In other words, high skilled specialists in priority economic sectors from among the citizens of Kazakhstan often migrate abroad themselves, while some of the migrating Russians fill the lack of labor force in these professional niches. At the same time, Russians who are considering long-term migration for themselves stated the positive effect of employment in Kazakhstan with a local organization. *"...I started working with Kazakhs together, and due to this situation I got much closer to adapt somehow... I made friends there... Both in terms of language and in terms of understanding how to [communicate]..." (engineer, Saint Petersburg – Almaty, 25 years old)*. In other words, employment helped to integrate faster into the local community.

Health care and medical services

One of the significant spheres influencing successful integration in a new environment is medical care. The majority of informants sought medical service mainly in private clinics: *"I went to a private clinic, I didn't even consider looking for some kind of insurance or something like that. I saw that it was quite budget-friendly compared to Russia – appointments and treatment – everything was much cheaper, and I just found a good clinic, it was easy to do, given that there were a lot of Russian-language websites and Russian-language hospitals, so there were no problems at all" (entrepreneur, Saint Petersburg – Karaganda, 25 years old)*.

Temporary migrants noted the help of other migrants and local population in providing recommendations of specific specialists. However, in situations where the assistance of a narrow specialist was needed, the choice was usually made randomly. At the same time, the work of medical services, regardless of the availability of recommendations, was rated by Russians as high and above average, which contributed to integration in Kazakhstan. However, we should take into account that such an opportunity was primarily available to well-off migrants who had the financial ability to apply to a private medical center.

Among other things, informants repeatedly drew attention to assistance from both other migrants and the local population in everyday practices, including leisure activities, currency exchange, one-time household assistance, provision of information about bureaucratic procedures, and recommendations for seeking medical and psychological help. As a rule, such support was provided on a case-by-case basis as needed and contributed to strengthening of ties and social integration of Russians in Kazakhstan.

Social capital as a resource of transnational social space for social integration

It is worth pointing out that Russians' temporary migration has a transnational character, as social ties with Russia remain: temporary migrants continue working in Russian companies, study at Russian universities, and maintain contacts with relatives and friends living in Russia. Such social ties, on the one hand, help to cope with the stress caused by migration, and on the other hand, allow them to use resources to maintain their previous standard of living during the first stages of social integration.

Existence of labor relations in Russia

A significant part of migrants from Russia try to maintain employment in Russian organizations. One respondent noted: *"Yes, I continue studying and working at Russian university and in the Russian company, but I come to Russia only when necessary" (political scientist, Saint Petersburg – Almaty, 28 years old)*. Employers in Russia often went along with and issued a remote employment contract, such cases were found even among state organizations or private companies affiliated with the state. However, we should say that when a Russian citizen stays in the country for less than 183 days during the last 12 months, they automatically lose the status of a tax resident of Russia[15]. This may affect both their current employment and potential employment in a Russian organization, especially because at the moment Russian companies are focused on the return of employees who have left, and in the long term may lead to the loss of employment in Russia.

Assistance of relatives from Russia in solving everyday problems

Most respondents counted on help from relatives and friends from Russia: *"I am very grateful to my parents because after the new year my contract in Russia ended, and they are sending me money now – it's a very significant support for me now. It is clear that I try to save money. It is clear that I rent not the apartment that I would like to rent, but the apartment that I can afford" (economist, Moscow – Almaty, 26 years old)*.

Due to the complexity of currency transfers and other financial transactions, cryptocurrency financial solutions began gaining popularity among migrants: *"...did it through cryptocurrency because it was very fast, easy, you don't need any communication with any services in general, and there was always a good exchange rate <...> everything is done through bank cards [and internet platforms]" (anthropologist, Saint Petersburg – Almaty, 25 years old)*.

In addition to money transfers, transportation of belongings was in demand, as for many informants leaving Russia was unforeseen and rushed. Russians who left for Kazakhstan often turned for help to friends and relatives who had access to informants' housing or had received keys by mail: *"I just made a power of attorney for my parents. I did a significant part of the things I had to take care of by mail. Mail, parents, a little bit of interaction with friends" (higher school teacher, Moscow – Astana – Almaty, 27 years old)*.

To successfully integrate into the new environment, Russians in some cases required documents that they could obtain only in Russia. To solve such legal and bureaucratic issues, the informants used their social ties in Russia by issuing a notarial power of attorney, since in accordance with the CIS Agreement of March 20, 1992 "On the Procedure for Resolving Disputes Related to the Exercise of Economic Activities", a notarial power of attorney issued in Kazakhstan is also valid in Russia without additional certifications.

Opportunities and experiences of receiving psychological help

Informants noted that family and friends in Russia helped not only in solving current issues,

[15] P. 2.1., Art. 207. Tax Code of the Russian Federation 117-FZ, dated August 5, 2000. Available at: https://www.consultant.ru/document/cons_doc_LAW_28165/c0d77f0e201172d5cd9978bf9dfa1ecd2ba4cf60/ (accessed: September 26, 2023).

but also provided psychological support. Often this format of interaction involved psychological mutual assistance because, as one informant said: *"...now everybody needs support"*.

For Russians in conditions of uncertainty, the issue of maintaining their own mental health has become one of paramount importance. The informants repeatedly mentioned psychological help, and many of them sought psychological help for the first time. At the same time, psychological help was provided, as a rule, remotely via videoconferencing, and the psychologists themselves were from Russia. Among the sources of psychological help were non-profit projects that provided a series of free psychological consultations, for example, the project "The Right Hemisphere of Introvert" in Saint Petersburg, which provided three free psychological consultations. Another resource was corporate services for obtaining certain services within the framework of voluntary medical insurance (VMI) and corporate well-being programs. Such assistance was available to employees of both Russian and transnational large companies. However, informants said that psychological consultations within the framework of corporate programs often did not satisfy the requests, as they did not deal with deep existential feelings. Although there were some exceptions: *"I have a VMI at work, and there is a platform called "I Understand" where all kinds of specialists are gathered for online consultations. My friend once told me that she goes to a great psychologist, although there are a lot of bad ones who start telling you that you are young, you need to go out and have a walk – everything will pass" (economist, Saint Petersburg – Astana, 24 years old)*.

Among informants there were also those who had previously sought psychological help. They noted changes in their psychological requests after the move – requests to psychologists became related to the need for psychological adaptation to living in a new country: *"When I got a job, it was very hard emotionally, I had... a depressive state, such distress, dissatisfaction with myself, in general, with everything that was going on. It was a psychologist from Russia – online, he was recommended to me by my friend, a psychotherapist" (vehicle repair technician, Saint Petersburg – Taldykorgan – Almaty, 27 years old)*.

Intertransformation of social capital in online and offline spaces: resource of online social networks

In conditions of uncertainty and, in some cases, lack of social ties in a new country, it is social networks that play a key role in social integration, which allow maintaining social contact with already familiar people and establishing new useful social ties.

First of all, it is necessary to speak about the Telegram channels that were created in large numbers in the fall of 2022 to provide information to Russian migrants about life in Kazakhstan. Telegram channels were created both as part of personal initiatives of interested individuals and as part of non-commercial projects. Informants mentioned two types of channels: 1) channels that published information related to adaptation (receiving a notice of arrival, obtaining an individual identification number (IIN), border run, medical issues, etc.), and 2) channels aimed at bringing together different kinds of communities: professionals in certain fields, representatives of ethnic or sexual minorities, people with migration experience, and other vulnerable groups. For instance, one of the informants shares their experience of receiving help thanks to one of the chat rooms: *"I added myself to a huge number of chat rooms for people leaving. One of the chat rooms was called "Asians of Russia" – it was largely aimed at Kalmyks, Buryats, but other ethnic minorities too. And I'm a Tatar. And there... we found a driver in an Indriver'e who agreed to take us to Astana" (economist, Moscow – Astana, 27 years old)*.

In a number of cases, Telegram chats were closed and required a personal invitation from one of the community members. In this case, migrants were assisted by both personal and already

established online contacts. Participation in these communities allowed them not only to receive help later, but also to integrate into local communities, including the Russian immigrant community: *"I was invited to a chat room for migrants by a friend we met in Almaty. As a result, I have already been to several events with them: a movie screening, we went to the countryside. There are also breakfasts on Sundays. Of course, everyone there is older than me – people are about 30–40 years old, but there is something to learn" (economist, Moscow – Almaty, 26 years old)*.

Thus, social ties established in person contribute to the inclusion in the digital community of migrants linked by certain characteristics. This inclusion can be further transformed into personal acquaintance, accordingly, the real network of social contacts expands, which will contribute to social integration.

It is also necessary to pay attention to those cases when, due to the lack of legal ways to obtain a residence permit for long-term stay on the territory of Kazakhstan, some Russians resorted to registration of a partial or full package of documents through private individuals who provide assistance either in registration at the place of residence or in fictitious employment for further obtaining a residence permit. People often found such specialists through personal contacts, because in addition to financial costs, there are high risks of fraud: *"Yes, I saw a lot of advertisements in Telegram – that it is possible to prepare a full package of documents, but I was afraid that I [would be deceived] and I would only lose money. So, I talked to acquaintances who had used such services and had already chosen a suitable option for myself" (IT specialist, Saint Petersburg – Almaty, 27 years old)*.

Social networks facilitated the search for jobs and helping professionals, including suitable psychologists. *"And here the second [psychologist] is also a guy from Russia, but now living in Georgia, who also left [the SMO]. I found him through Instagram*, through my acquaintances... I wrote to him, I said, listen, so and so, let's basically work" (vehicle repair technician, Saint Petersburg – Taldykorgan – Almaty, 27 years old)*.

At the same time, it is important to say that the algorithms for issuing information to users in some social networks function on the basis of "friends' recommendations", i.e., what is of interest to the user's friends or people their subscribes to in social networks is also broadcast in their news feed. In the case of mass migration of Russian men, it also facilitated the accidental finding of useful resources and information needed during the move.

Leave or stay: lack of resources as a social disintegration factor

Despite the significant contribution of social capital to the successful integration of temporary migrants in Kazakhstan, it is worth noting that this resource is often insufficient. Most respondents noted the need for financial resources, good health and successful social experience. In a number of cases, Russian citizens who considered Kazakhstan as a country for long-term stay were apprehensive about the prospects of their stay in the country. At the first stage, this was related to the risks of changes in migration policy toward Russians. After the abolition of the "border run" there were fears related to the lack of opportunities to obtain a residence permit. Some people managed to overcome fears and resolve issues related to long-term legal stay in Kazakhstan, but a number of informants stated about further plans to change their country of residence: *"Now I do not have a job in Kazakhstan, and most likely soon I will have to go somewhere else. For now, I plan to go to Turkey" (IT specialist, Moscow – Almaty, 29 years old)*.

* The social network is blocked in Russia (it belongs to Meta, a company recognized as extremist and banned in Russia).

One of the informants, a pharmacist, said that it was necessary to collect a large package of documents for employment. Also, the difficulties of integration in the employment market are associated with different labor conditions compared to Russia, and problems in communicating with the local population: *"The salary is 100–120 thousand tenge – ours is about 20 thousand rubles. The pharmacy is half-empty, there are many things missing. I was handed a huge list of papers to collect for employment. But the most interesting thing is that [clients] come and speak Kazakh" (pharmacist, Saint Petersburg – Shymkent, 35 years old).*

In the context of mentioning the language barrier, we note that despite the prevalence of the Russian language in Kazakhstan, it is more widespread in the northern part of the country, which borders Russia, as well as in Almaty. In other cities, the local population is less proficient in Russian, which is certainly a barrier to the successful integration of Russians.

In the labor sphere, the most vulnerable situation was faced by Russians in precarious employment, i.e. those whose work is regulated by a temporary contract, or those who are on probation in organizations in Russia, in other words, those who do not have a stable position in the labor market (Golenkova, Goliusova, 2015). Some informants reported unilateral termination of cooperation at the initiative of employers and customers themselves. Such circumstances created risks for migrants to find themselves without means of subsistence. There were also cases when informants found a job already in Kazakhstan, but they lacked the competencies to keep a job or the resources to master these competencies: *"I understand that I am required to have skills that I am not ready to learn quickly, and looking for a new job is possible, of course, but I just don't have the energy for it <...> We live with six people in a three-room apartment – in Saint Petersburg I at least have my own room" (train driver, Saint Petersburg – Almaty, 24 years old).*

Among other things, the financial situation of Russians is aggravated by the unstable ruble exchange rate, which is especially important for those who continue working in Russian organizations and receiving their salaries in rubles. The financial situation was also affected by the restriction of withdrawals from bank cards of the MIR payment system from March 6, 2023.

One of the main problems in the fall of 2022 was the search for housing. The large influx of Russians to Kazakhstan provoked a high jump in rental prices, which required significant financial resources from arriving Russians. The largest influx of migrants came to the cities of Almaty and Astana as administrative centers of the republic. At the same time, the problem was relevant not only for Russians, but also for Kazakhs renting and searching for housing, because in the narratives of informants we repeatedly encountered references to violations of rules in the institution of rental housing. For example, people were evicted from apartments because landlords raised the rent several times to accommodate wealthier immigrants from Russia. Established mechanisms of interaction were violated in the process of renting out housing: *"After viewing the apartment, the landlord approached us, bypassing the realtor, and offered to rent the apartment directly through him so that we would not have to pay a commission. It seemed strange to us that he wanted to scam her, so we refused" (IT specialist, Moscow – Almaty, 28 years old).*

Despite such situations, informants repeatedly noted: *"Those landlords who did not give in to panic won"*. At the same time, such situations contributed not only to a decrease in the level of social cohesion of the host society, but also to the formation of negative attitudes of the local population toward Russians. Nevertheless, in none of the interviews conducted did the respondents talk about negative attitudes on the part of the local population of Kazakhstan. In general, this circumstance testifies to the basic favorable conditions of social integration.

Conclusion

As a result of the study it is possible to determine that the migration policy of the Republic of Kazakhstan assumes an integration model that is predominantly socio-economic in nature, as the most accessible way of social integration in the country is to find a job or register a legal entity, which allows obtaining a residence permit and subsequently a residence permit for long-term stay. At the same time, the membership of Russia and Kazakhstan in the EAEU provides Russians with an expanded range of opportunities for social integration. However, the external migration policy of the Republic of Kazakhstan tends to gradually limit access to resources for long-term stay of foreigners who do not contribute to the socio-economic development of the country. Under such conditions, the main resource of social integration for Russians has become precisely social capital, which allows both solving current bureaucratic issues and supporting the necessary social activity.

Activation of already existing social ties and establishment of new contacts contributed to a more comfortable passage of the first stages of integration in the host society. For instance, thanks to the existing social capital, the informants were able to find housing, employment, and pass the first stage of integration relatively successfully, including by receiving psychological assistance. Material and psychological support of the social environment in Russia proved to be a significant resource. The expansion of the network of social contacts and facilitation of the process of social integration was facilitated by active filling of the social network space with resources useful for migrants. In other words, the hypothesis that the key resource for social integration of Russians who temporarily left Russia for Kazakhstan was primarily mutual assistance was confirmed.

We should note that the majority of those who left maintain close ties with Russia not only for personal, but also for work and educational reasons, and also regularly maintain contact with the online social environment. In this situation, there is a clear need to create conditions for professional and personal fulfillment, in which young people can achieve their life goals despite the emergence of new risks. Such measures could contribute to reducing emigration from Russia and to the preservation and sustainable development of the country's human capital.

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Assessing the Potential of the Diaspora in the Formation of Socio-Economic Well-Being of Migrants from Armenia in Russia

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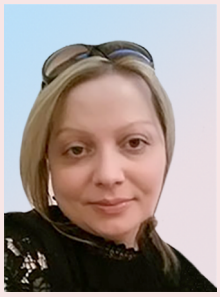

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Abstract. The relevance of the research topic is due to the need to develop the theory and methodology of analysis, assessment of socio-demographic well-being of migration-attractive regions, as well as prospects of its changes taking into account the contribution of migrants from Armenia to the development of Russian regions. The problem that is touched upon in the study is of an urgent nature, since the modern world is very dynamic and migration processes in it are quite intense. Migrant communities, called diasporas, are forming in many countries and are beginning to influence the situation in the host country. The study presents our own approach to the study of the provision of migrants with material, social, spiritual and other benefits, examines the factors promoting the formation of the socio-economic potential of the Armenian diaspora community in Russia, assesses the current state of socio-economic well-being of migrants from Armenia, identifies the directions of development and increasing the

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efficiency of the use of the socio-economic potential of migrants. Special attention is paid to the analysis of the peculiarities of migration processes in Russia and Armenia as a form of economic activity of communities in foreign cultural spaces. The scientific significance of the study is due to our contribution to the theoretical understanding of the phenomenon of socio-economic well-being of migrants, enriching the theory with empirical data that allows us to define the features and stable trends of the transformation of labor migration, its impact on socio-economic processes in Russia and Armenia. We note that getting into a new social environment and trying to adapt to it, representatives of ethnic groups either occupy free zones in the national economic system, or adopt their own forms of economic activity associated with their ethno-cultural traditions.

Key words: adaptation, Armenian diaspora community, return migration, integration, migration processes, Russia, socio-economic well-being, labor migrants.

Acknowledgment

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Introduction

Russian scientific literature has established a tradition of analyzing migration processes, migration policy as a source of growth or decline in the number of diasporas in Russia, and various aspects of migrants' adaptation. Russian researchers focus on the social, economic and political prospects of Eurasian integration and legal issues of the Eurasian Economic Union (EAEU) member states. The relevance of the research is to study the contribution of migrants to the socio-economic well-being of Russia and Armenia. The aim of our work is to determine the socio-economic well-being of Armenian labor migrants in Russia, as well as to prepare proposals to increase the efficiency of migrants' potential use to improve the quality of life in the host country (Vartanova, 2022). The fundamental scientific task set in the study is to develop a methodological approach to studying the socio-economic situation of migrants in Russia's regions and their contribution to socio-economic well-being. The research is based on the study of the situation of migrants from the Republic of Armenia in Russia and the processes of their embedding in the host society (Guzhavina, Hayrapetyan, 2022). The potential for practical application of the expected scientific results, including taking into account the priorities of the demographic development strategy of the Russian Federation, lies in the possibility of effective response of the Russian society to great challenges, taking into account the interaction of human and nature, man and technology, social institutions at the current stage of global development, including using the methods of humanities and social sciences.

Literature review

In the Russian Federation, leading scientists of the Institute for Demographic Studies of the FCTAS RAS, and in Armenia, scientists of the Institute of Philosophy, Sociology and Law of the National Academy of Sciences of the Republic of Armenia conducted an interesting sociological research. The collective monograph "Integration VS Repatriation: Socio-Economic Potential of the Armenian Diaspora in Russia" (Integration..., 2022) analyzes the problems of mobility of migrants from Armenia, social well-

being and adaptation of labor migrants. The paper also presents a theoretical analysis of the results of sociological studies conducted in Russia and Armenia under a joint research project. Scientific works conducted by researchers of the Institute for Demographic Studies of the FCTAS RAS is devoted to the applied sociological study of the socio-economic potential of the Armenian diaspora in Russia and its repatriation potential for the foreseeable future (Osadchaya et al., 2022a; Osadchaya et al., 2022b).

The problems of formation of socio-economic potential of the diaspora are poorly studied by modern science. The Armenian diaspora, which was formed in Russia in the 17th century, is a traditional diaspora with deep historical roots. Its influence on the economy, social policy, culture, interethnic relations and other spheres of life of the population in the host country and country of origin is steadily increasing (Topilin et al., 2021).

The analysis of the features of implementing demographic policy in Russia and the CIS countries in the period of socio-economic transformation, as well as the new conditions for the functioning of the diaspora in the socio-territorial space of Russia has been reflected in the works of scientists. For example, the systematic measurements of the dynamics of changes in the "human potential of Russia under the conditions of integration processes, based on the idea of the empirical model of integration, planning and forecasting" (Osadchaya, Vartanova, 2022a), conducted by G.I. Osadchaya and M.L. Vartanova, lay the foundation for the study of socio-economic potential of representatives of the Armenian diaspora.

The approach formulated by us earlier, according to which "the assessment of human potential dynamics is based on modern approaches to the study of the problems of demographic potential of societies" (Osadchaya, Vartanova, 2022a), is valuable. At the same time, to strengthen Eurasian integration, it is advisable to form a single labor market in this territory.

In some cases, scholars carry out comparative studies, trying to conduct an in-depth analysis of global experience regarding the socio-economic effects of migration, accumulation and use of its potential. For example, the work of E.S. Sadova proves that "the socio-economic potential of migrants is laid during their stay on the territory of the host country" (Sadova, 2022). As a result, realization of the socio-economic potential of migrants acquires positive significance both for the migrant themselves, and for the region and the whole country.

The socio-economic potential of return migrants is directly related to their state of health, as well as to the medical services and goods that are available to them. Moreover, we are talking not only about compulsory or additional health insurance programs, which are not always available to labor and return migrants and members of their families, but also about projects implemented by public organizations. For example, O.A. Volkova and A.A. Gorsky study medical charity, which is understood as "the activities of nonprofit organizations in the sphere of helping citizens to receive medical services: raising funds for treatment, rehabilitation, assistance to accompanying persons, psychological support" (Gorsky, Volkova, 2020).

V.N. Rakacheva and Yu.V. Rakacheva consider the mechanism of transformation of national identity in modern migration processes (case study of the Armenia–South of Russia migration network) (Rakacheva, Rakacheva, 2022).

The research results concern socially significant differences in the perceptions of the ethnocultural ideal among respondents of the titular Armenian ethnic group and the Armenian diaspora (Berberyan, Tuchina, 2016), elements of self-esteem in the

context of ethnocultural norms and values, as well as socio-economic well-being of Armenian migrants from Armenia in Russia.

Foreign works also present interesting studies of Armenian migration (see, for example, Hairapetyan, 2020).

A fundamental contribution to its study was made by the scientific works of G.A. Poghosyan, Academician of the National Academy of Sciences of the Republic of Armenia, on the prospects of repatriation or integration of the Armenian diaspora in Russia (Poghosyan, 2022a; Poghosyan, 2022b).

A number of foreign researchers assess international migration policy (Faist, 2013) and the importance of diaspora (Brubaker, 2005). M.M. Kritz reviewed the main problems of international migration (Kritz, 1987), and the works of (Todaro, 1969) describe the model of labor migration. Considerable attention is paid to the processes of influence of social, political and economic factors on migration (Ryazantsev, Bragin, 2023).

Source review allows concluding that the problem of migration risks and reproduction of migrants' human capital (Marzpanyan et al., 2016) was most often touched upon in a fragmented manner and mainly on the examples of return of labor migrants from economically developed countries. Researchers conclude that migration eventually leads the country (of return) to a higher level of economic development. It happens because migrants returning from developed countries have better education, better health, more savings, more comfortable working conditions, more competitive position in the labor market, higher incomes.

The analysis of the genesis of the formation of socio-economic well-being of migrants from Armenia and the assessment of the degree of cohesion and corporatization of Armenian migrants in Russia helped to make a comprehensive study of the place and role of migrants in the Russian socio-territorial space, the influence of Armenian migrants on the internal and external socio-economic policy of the country of residence (Leskova et al., 2021), the features of adaptation, integration, and self-organization of migrants from Armenia.

Methodology and methods

The choice of methodology is conditioned by the specifics of the subject under consideration, our research approach to measuring this phenomenon, the aim of the work, as well as theoretical constructs of economic integration and social cohesion that allow articulating the results more clearly. The article expands the understanding of integration practices in the Armenian diaspora community in Russia and the specifics of its functioning.

The methodological strategy is represented by quantitative and qualitative methods that provide a comprehensive analysis of the research problem. In the qualitative analysis, we used the following data collection and processing methods: data systematization; questionnaire survey methods; interviews; document analysis; expert evaluation method.

The relevance of the work helps to develop a scientifically sound approach to identifying the dynamics of changes in the socio-economic potential of migrants in Russia.

The current migration situation in Armenia is characterized by a tendency to increase the number of citizens leaving for permanent residence and employment outside the Republic. At the same time, the Russian Federation still remains the dominant state in terms of Armenian labor migrants' choice of a foreign country for work and place of residence.

We analyzed the features of integration of Armenian migrants in Russia on the basis of a quantitative empirical study conducted in April–

June 2021 by researchers of the Department for the Study of Socio-Demographic Processes in the EAEU of the Institute for Demographic Research of the FCTAS RAS. The number of respondents was 1,273 people (in Moscow agglomeration – 658 people, in the Krasnodar and Stavropol territories – 310 and 305 people, respectively). We assume that the depth of integration is characterized by job satisfaction, housing conditions, material well-being, tolerance and complementarity of migrants in interaction with the local population, and identity.

Monitoring research and analyzing information sources of positive/negative memory includes:

1) development of social technologies to localize/neutralize negative information and replace negative information with positive information;

2) development of cultural and educational exchanges; creation of a common cultural space;

3) overcoming the negative effects associated with the "desovietization" of the past, introducing censorship on the falsification of past events;

4) more effective use of sociological survey tools.

We also used general methodological methods and techniques of research: analysis, synthesis, induction, abstraction, modeling to develop theoretical and methodological approaches of analysis, model of empirical research, coordinated analysis tool in the mode of monitoring the dynamics of the contribution of migrants from Armenia to the socio-demographic well-being of Russian regions.

Genesis of formation of socio-economic potential of Armenian labor migrants

After the collapse of the USSR, post-Soviet countries experienced quite complicated social processes associated with both changes in the socio-political model and socio-cultural shifts (Hairapetyan, Pokrovskaya, 2022).

Traditionally, migration from CIS countries has been associated with the unsatisfactory socio-economic situation there and emotional pessimism. In this respect, the desire to leave is conditioned by the fact that people are looking for a place where life is better. Despite the fact that Armenia is not the most depressed republic, life in many places in the Russian Federation and other countries is still much better. Statistics from recent years have shown that since 2020 Armenia has seen a sharper increase in out-migration compared to previous years, with about three percent of the total population leaving Armenia in 2021.

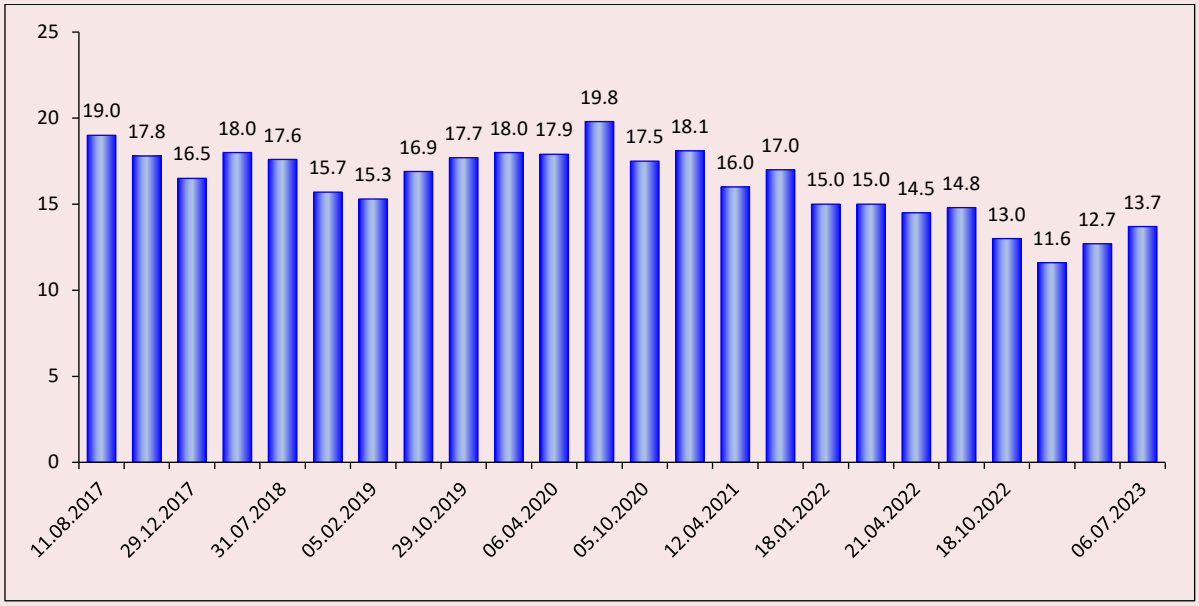
It is traditionally believed that there are a large number of reasons for migration, among them both economic and political. Following economic reasons, there are social reasons as well. For a person to decide to migrate, even to a neighboring state, a set of reasons is necessary. According to the respondents' estimates, the following can be attributed to the main factors causing the migration of Armenians to Russia.

1. Military actions. The catastrophic effects of the military actions in Nagorno-Karabakh in the fall of 2020 and the large number of people who lost their homes in their homeland due to these events. Most of all people felt fear for life. First of all, these are the risks associated with the threat of military action and the possible escalation of the situation on Armenia's borders.

2. Poverty. It includes a deteriorating economic situation in Armenia, rising prices for basic necessities, general environment of political and economic crisis.

3. Standard of living and employment. Opportunities for the formation and realization of entrepreneurial activity, earnings; lack of jobs, small businesses cannot provide full employment. Moreover, there is working-age population outflow, which, naturally, forms a growing threat associated with depopulation of the country.

Figure 1. Unemployment rate in Armenia, 2017–2023, %



Source: Unemployment rate in Armenia. Available at: https://take-profit.org/statistics/unemployment-rate/armenia/

Table 1. Unemployment rate in Armenia

Indicator	Meaning	Period
Unemployment rate	13,7%	1 quarter of 2023
Number of the employed	853 thousand people I 0.853 million people	June 2023
Total number of the unemployed	47.1 thousand people I 0,047 million people	June 2023
Source: Unemployment rate in Armenia. Available at: https://take-profit.org/statistics/unemployment-rate/armenia/		

GDP rate and unemployment directly depend on each other. For instance, in the last decade Armenia has maintained an unemployment rate equal to 18–20% of the total working-age population on average *(Fig. 1)*.

However, nothing was done to somehow change the situation by reducing the number of the unemployed and slowing down the working-age population outflow abroad. On the contrary, the migration of citizens was seen as a new temporary source of treasury replacing the existing foreign trade deficit (Zhirnova, 2020). In the first quarter of 2023, the unemployment rate rose to 13.7% *(Tab. 1)*, its maximum level reached 21.1%, and its minimum level was 6.3%, which indicates its decrease compared to previous periods.

Armenian diasporas are among the oldest and well established in many countries, such as France and the United States of America. Currently, the Armenian diaspora community "is ranked in the "world ethnic grid" as one of the top ten in the world in terms of numbers and one of the top three in terms of influence and resources. The total number of Armenians in the world far exceeds the population of the Republic of Armenia itself" (Leontieva, Mkrtchyan, 2020).

Russia is a friendly state with a stronger economy than Armenia. Armenians more often leave for neighboring countries, where it is possible to easily formalize legal residence and work. Most of them are young people who want to work, get stable money and spend their time in an interesting way. As a rule, people leave because they do not find what they need for life at home. First of all, they want to realize their ambitions, to provide for their families or to achieve something to start a family. A key aspect of migration is the economic issue, and Moscow, Krasnodar and other large Russian cities have more opportunities for development.

It is much easier for Armenians to move than for Russians, who often go "nowhere". If there is such a situation among Armenians, it is related to instability caused by military actions on the borders. In other words, most often the outflow is caused by military actions and unfriendly statements of the parties to the conflict about their continuation. Traditional factors of outflow in Armenia were, on the one hand, the socio-economic situation and, on the other hand, the fact that a powerful pull factor outside Armenia is the presence of network migration ties with the diaspora.

Thus, the diaspora itself acts as a magnet attracting new migrants. This is especially visible in educational migration, when children are sent to study in a country where they have relatives or acquaintances. Therefore, it is possible that Armenia has in a sense fallen into a migration trap, becoming one of the few countries in the world with a larger diaspora than the population of the ancestral land, which in a new turn provokes a more active immigration outflow from the country.

Results

Socio-economic well-being of a country is a set of resources that, when fully utilized, allow producing the maximum volume of gross national product (GNP). Region's socio-demographic well-being is an integral indicator of the effectiveness of its socio-demographic development, a marker of satisfaction and success of life, which reflects the social well-being, level of well-being, quality of life, opportunities for realizing matrimonial, reproductive, migration attitudes, is an indicator of socio-economic security of the public system as a whole.

Socio-demographic well-being is characterized by comfortable living conditions for people, in which their creative potential and opportunities are fully revealed, positive (upward) demographic dynamics, which is sustainable for at least five years, characterized by positive total population growth due to natural and migratory growth, the ratio and dynamics of birth and death rates, its balanced gender and age structure with optimal proportions of youth and pensioners, availability of labor resources necessary for socio-economic development.

Socio-economic well-being of labor migrants is the cumulative ability of people accumulated in pre-migration and migration periods to demonstrate in practice their financial, material, educational, professional and qualification, socio-communicative, psychophysical, gender, age and motivational resources and opportunities to improve their life situation and achieve comprehensive self-realization.

Russia is the major migration destination, which is explained by the simplicity of the visa regime and the minimal number of restrictions. Knowledge of the Russian language is also rather important1.

Historically formed in Russia, the Armenian diaspora plays an important role in socio-economic processes, affecting all spheres of life both in the

[1] How many Armenians in Russia 2020–2021: Number, diaspora. Available at: https://armeniagid.com (accessed: January 31, 2022).

host country and in the historical homeland. The history of Armenians in Russia goes back more than a thousand years, since the times of close contacts with the Byzantine Empire. The presence of Armenians in the territory of Kievan Rus has been recorded since the 11th century. Tsars Ivan the Terrible and then Alexei Mikhailovich promoted the settlement in Moscow of many Armenians – merchants, craftsmen and doctors. Armenians have been living in Moscow for 800 years2. The advancement of the Armenian diaspora as an ethno-cultural and ethno-political phenomenon is rooted in the features of the formation of its socio-economic potential throughout the history of good-neighborly relations between Russia and Armenia (Topilin et al., 2021).

Up to 3 million Armenians permanently reside in the Russian Federation, of which almost half have Russian citizenship and almost 1 million have Armenian citizenship (2021 data)[3]. The majority of Armenians with Russian citizenship are Russian citizens of Armenian origin who have lived in Russia since the Soviet era and after the 1990s, as well as descendants of Armenians of Tsarist Russia. About half of them compactly reside in the three large southern regions of the Russian Federation – the Krasnodar and Stavropol territories, and the Rostov Region. Armenians are most numerous in Moscow (100 thousand people, almost 1% of the total population of the city) and the Moscow Region. Saint Petersburg is in 7th place (over 20 thousand people, 0.5%). If we consider the regional level, most Armenians live in the Krasnodar Territory. For instance, only in Sochi they are the second largest nation – 20% of the population (80 thousand); in Krasnodar – about 30 thousand (about 4% of the population), in Armavir, which was founded by Armenians in 1839, – almost 20 thousand (8.4%). There are 42 thousand Armenians (3.5%) in Rostov-on-Don, 20 thousand (13%) in Pyatigorsk, 18 thousand (4.5%) in Stavropol, and 15 thousand (1.5%) in Volgograd4.

Based on the results of interviews with representatives of the Armenian diaspora living in Moscow and the Moscow Region, the Krasnodar and Stavropol territories, the opinions of migrants' families and our experts largely confirmed the survey results of Armenian migrants in Russia regarding their socio-economic well-being and expected conditions for returning home. This research allows distinguishing four groups in the Armenian diaspora structure in Russia: the largest is the central group, two peripheral groups and one marginal group. The first group is a solid core representing the majority of Armenians (70–73% of respondents). This group demonstrates high values of such variables as trust, unity of judgment, which represent the subjective level of cohesion, and joint participation in solving issues of the Armenian diaspora community and everyday problems of its representatives – the objective level of cohesion *(Fig. 2)*.

One of the peripheral groups (15–16%) is characterized by distrust in the community, key institutions and insufficient investment in the reproduction of social capital, which may indicate insufficient inclusion (insufficient social inclusion) in the social and economic life of the community and characterize personal features.

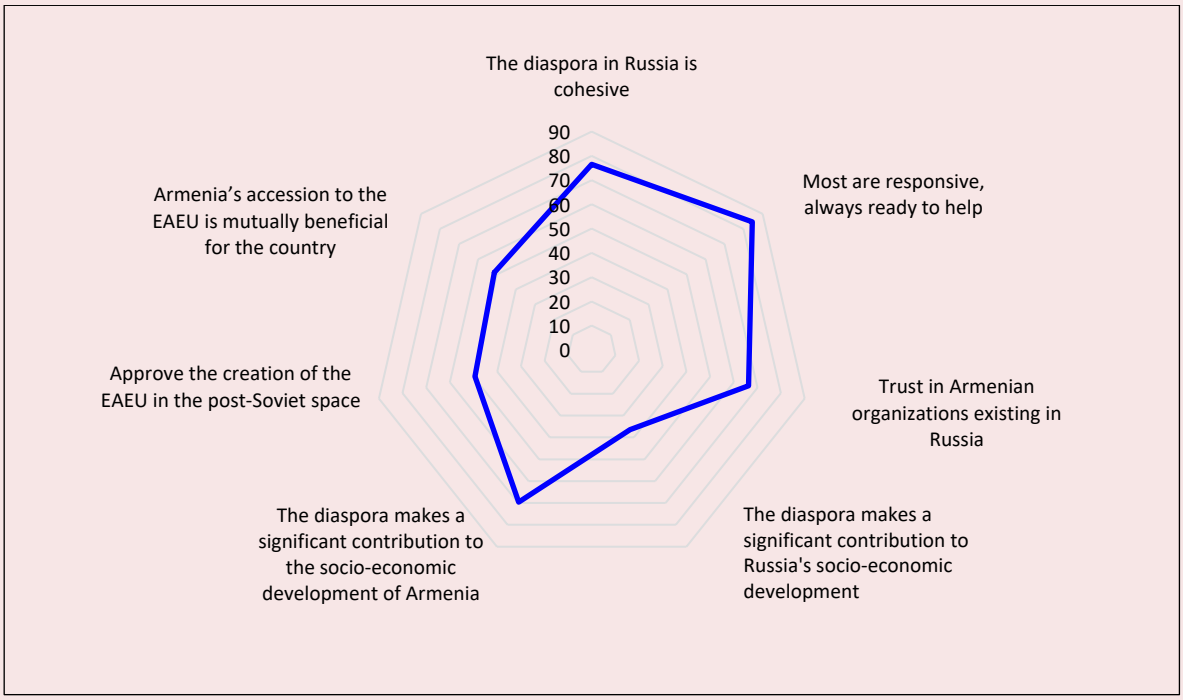
Socio-economic well-being of labor migrants from Armenia can be characterized in the context of whether they have their own housing in Russia and for their return to Armenia. First, some migrants

[2] History of Armenians in Russia. Armenian diaspora of Russia. Available at: https://nashaarmenia.info/2023/09/10/армяне-россии/ (accessed: November 10, 2023).

[3] Federal State Statistics Service. International migration. Available at: https://rosstat.gov.ru/folder/12781 (accessed: February 5, 2022).

[4] Armenian diaspora in Russia. Available at: https://armeniagid.com/kultura/armyanskaya-diaspora-v-rossii (accessed: March 22, 2020).

Figure 2. Indicators of social cohesion of the central group of the Armenian diaspora community in Russia, % of respondents



Source: (Osadchaya et al., 2022a).

have their own housing either in Russia or in Armenia; second, a large share of migrants live in Russia with relatives and may return to the housing of their parents or relatives when returning to the homeland; third, migrants rent housing in Russia and will also have to rent housing when returning. Of the three categories, the highest level of socio-economic well-being (depending on the availability of housing) belongs to those migrants who have their own housing in Armenia and are planning to buy or have already bought it in Russia.

According to the results of the analysis of interviews carried out by researchers from the Institute for Demographic Studies of the FCTAS RAS, the economic potential of migrants from Armenia can be related to the fact that migrants: 1) earn money; 2) receive the desired quality profile education; 3) acquire skills for self-realization; 4) broaden their general outlook.

Thus, most often it is about earning money, which can contribute to the accumulation of economic potential of labor migrants. When asked in which sector of the economy Armenians in Russia mainly work, the respondents answered as follows:

– "in a variety of fields, from entrepreneurship to medicine, but most of the people I know have their own firms".

– "entrepreneurship, small and medium-sized retail trade, although many people are now actively moving into IT, and this is right because the times have passed when lawyers and solicitors were needed. You have to keep up with the times".

– in the Krasnodar Territory, primarily it is restaurant business, construction, and private medical clinics;

– in the Moscow Region traditionally they are the spheres of construction and repair of highways, construction business in general.

In the employee cluster, members of the Armenian diaspora with a higher level of qualification are more represented. These are mainly people who operate machinery. Many also work in the production sphere, which is connected with the activities of representatives of Armenian nationality in Russian business, who are more willing to hire their compatriots.

The results of the qualitative research conducted using the interview method confirm the quantitative data *(Tab. 2)*.

Thus, the employment of the Armenian diaspora representatives in the context of Moscow and the Moscow Region, the Krasnodar and Stavropol territories can be characterized as follows:

– in Moscow, the largest share of Armenians is employed in trade (20%), in science and technology (10.9%), and 6–7% each in manufacturing, transportation, health care, education, and information technology;

– in the Krasnodar Territory, they are in trade (17.6%), transportation and communications (17.9%), agriculture, hunting and forestry (13.4%), manufacturing (11.4%), real estate transactions, renting and services (11.4%);

– in the Stavropol Territory, they are in trade (20.7%), agriculture, hunting and forestry (14.5%), manufacturing (10.8%), construction (8%), about 7% in health care and social services, education, and transportation and storage of products.

According to the results of the survey conducted among the Armenian diaspora members, we can say that the range of their occupations is quite wide and has no limitations. Mostly Armenians are not represented in the service sector, but some of them have organized such a business. There are a lot of highly qualified personnel among Armenians, but over time they become a little less. Nevertheless, the seasonality of the works carried out is obvious, especially in megapolitan cities, for example, in Moscow – asphalt paving and road construction in general. If we talk about representatives of the Armenian diaspora living in the Stavropol Territory, the main types of work they perform are trade and construction. They are mostly self-employed, i.e. trade or other types of business.

Thus, the formation and adaptation of the Armenian diaspora in Russia is taking place step by step, and then the formation of the next generations who are no longer satisfied with the niche in the trade sphere. As a rule, these are established socio-economic groups that can afford to pay for their children's expensive education. Naturally, over the many years of living in Russia, a new round of vertical social mobility has already been formed, contributing to the improvement of the level of education, i.e. young people have the opportunity to study at the best universities, in specialties and professions that are in demand on the labor market in Russia. Diaspora employment in some segments

Table 2. Types of employment of the Armenian diaspora in Russia and Armenia according to the survey results, %

Respond option	Moscow and Moscow Region		Krasnodar Territory		Stavropol Territory	
	in Armenia	in RF	in Armenia	in RF	in Armenia	in RF
Other (indicate)	33.3	10.2	12.9	3.5	24.4	8.6
Head	6.0	8.2	8.1	12.6	6.9	6.6
Qualified employee	23.5	44.6	40.3	43.9	28.1	52.7
Unqualified employee	15.8	13.7	16.1	10.9	23.1	14.8
Entrepreneur, businessman	5.8	9.0	4.0	7.0	3.8	5.8
Individual entrepreneur, self-employed	7.0	8.5	12.9	19.1	9.4	9.5
Freelancer	8.7	5.8	5.6	3.0	4.4	2.1
Source: own compilation.						

Figure 3. Types of employment of the Armenian diaspora representatives, %

	Other (indicate)	Head	Qualified employee	Unqualified employee	Entrepreneur, businessman	Individual entrepreneur, self-employed	Freelancer
Stavropol Territory	8.6	6.6	52.7	14.8	5.8	9.5	2.1
Krasnodar Territory	3.5	12.6	43.9	10.9	7.0	19.1	3
Moscow	10.2	8.2	44.6	13.7	9.0	8.5	5.8

Source: own compilation.

of the post-industrial economy, e.g. in management, public administration, is also increasing. Some displacement occurs when diaspora representatives are to some extent mothballed in employment in their places of residence. This point requires study and consideration not only in terms of territorial dynamics, but also in the context of social mobility of the population. For example, Moscow is likely to have more people employed in the spheres of management, medicine, and education *(Fig. 3)*. In Russia, the types of employment will not differ greatly, and if there is a difference, it will not be due to the mentality, education level or employees' capabilities, but primarily due to the direct difference between the economies of the regions.

The research also reveals some aspects of socio-economic situation and social attitudes of the Armenian diaspora. In particular, the Armenian diaspora generally assesses some aspects of their life in Russia satisfactorily[5]. According to statistics, the average per capita cash income in 2020 amounted to 75655.2 rubles per month in Moscow; 36165 rubles in Krasnodar Territory; 23791.3 rubles in Stavropol Territory. At the same time, the number of population with monetary incomes over 60 thousand rubles (according to the survey): Moscow and the Moscow Region – 47%; the Krasnodar Territory – 14.5%.

[5] How many Armenians in Russia 2020–2021: Number, diaspora. Available at: https://armeniagid.com (accessed: January 31, 2022).

Rising rates of return have the potential to stimulate economic growth as an economically productive population with new and improved skills emerges. However, they can also constrain development, as returnees tend to be economically poor.

The COVID-19 pandemic also qualitatively changed the flows of labor migrants from Armenia to Russia (increased duration of stay, more responsible attitude to registration of stay, etc.) and led to only a temporary decrease in the quantitative indicators of migration. We found that the volume of remittances from individuals to Armenia recovered by 2021, but the crisis phenomena led to a decrease in the share of funds coming from labor migrants in the Russian Federation, which began to be replaced by other sources (Ryazantsev, Kuznetsov, 2022). Representatives of the Armenian diaspora are quite active in Armenian life and interact with the embassy. The key role is given to the Union of Armenians of Russia as a structure that unites members of the Armenian diaspora in the Russian Federation. In fact, it is the only organization whose activities cover the entire region and which involves in its activities the largest number of persons of Armenian nationality living in Russia. The Russian authorities see the diaspora as an assistant in the rapid adaptation of migrants. There are very few Armenian schools in Russia or schools where the Armenian language is studied in depth. However, not all Armenians living in Russia consider themselves to be members of the diaspora. Their level of cohesion is not the highest. The Armenian diaspora in Russia has no serious support in Armenia[6]. Strengthening the socio-economic well-being of migrants is the basis for maximizing the positive impact of international migration on the sustainable development of countries of origin (from where migrants leave), transit (where they stay during their movement) and destination (where they arrive)[7]. To improve the life situation and comprehensive self-realization of migrants, the following directions of development and increasing the efficiency of the use of the socio-economic potential of migrants in Russia are appropriate:

– financial (income growth);

– material (improving living conditions and infrastructure);

– educational (improving educational level, mastering new competencies);

– qualification (improving qualification level, employment status);

– socio-communicative (social networking);

– psychophysical (accessibility of health insurance programs, receipt of medical services and purchase of medicines);

– age and gender (social adaptation of different socio-demographic groups of the population);

– motivational (self-actualization skills development).

Thus, the research results are our theoretical and methodological approach to the study of socio-economic potential of the Armenian diaspora and the model of applied sociological research of socio-economic potential of the Armenian diaspora in Russia[8].

Conclusion

The research results allow combining the research potential of scientists from Russia and Armenia in the theoretical and empirical understanding of the phenomenon of diaspora (Vartanova, 2022), as well as in the creation of

[6] Armenian diaspora in Russia. Available at: https://armeniagid.com/kultura/armyanskaya-diaspora-v-rossii (accessed: January 31, 2022).

[7] Demoscope Weekly, 887–888, dated January 25–February 7, 2021. Institute of Demography of the National Research University Higher School of Economics Available at: http://www.demoscope.ru/weekly/2021/0887/barom04.php (accessed: September 12, 2023).

[8] International Integration: REU Experts and Armenian Academicians on Mutual Cooperation. Available at: https://www.rea.ru/ru/news/Pages/seminar-armenia.aspx (accessed: September 9, 2023).

scientific and educational content on the topic of the study for use in the educational process in the areas of "Sociology", "Economics", "Management", etc., in the process of professional training, retraining and advanced training.

The study also provides an opportunity to combine the scientific potential of Russian and Armenian scientists in the theoretical and empirical understanding of the phenomenon of return migrants, namely:

1) to work out a set of measures for the executive and legislative authorities of Russia's regions on the effectiveness of measures to implement the national project "Demography" (Ryazantsev, Rostov, 2022), to adjust the current concept of migration policy in order to improve the socio-economic development of the country;

2) to develop a scheme for sociological monitoring of the comparative link of migrants' return to their home country, taking into account their contribution to the socio-economic development of Armenia.

The study of the socio-economic well-being of migrants also depends on the migration statistics currently collected and analyzed by Russian and foreign researchers being integrated and available to all relevant agencies.

Thus, the results of the analysis of the socio-economic well-being of migrants in Russia can be used to develop programs aimed at improving the efficiency of using the socio-economic potential of migrants from Armenia, improving the comprehensive self-realization of migrants in Russian society, for sociological monitoring of region's social well-being, objective assessment of the contribution of the Armenian diaspora to the implementation of the Strategy of socio-economic development of Russia – 2023[9] and for the planning period 2024–2025, to create an empirical basis for management decision-making in the area of social, demographic and migration policy

We believe that migration policy will bring positive results, taking into account the possibilities of forecasting migration processes and specific migration flows, comprehensive assistance from the state authorities of the Russian Federation, assistance to migrants from Armenia in adaptation and integration to new places of residence.

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Relationship between Informal Employment and Socio-Economic Development in Russian Regions

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Abstract. The relevance of the study is due to the prevalence and long-lasting nature of informal employment practices among the Russian population, as well as the ambiguity of their social and economic implications. The article presents the results of a multidimensional statistical analysis of socio-economic processes in the regions of Russia for 2018 and 2020. The empirical base includes a system of indicators we formed according to Rosstat data. More than 100 variables characterizing the state of the regions have been tested: macroeconomic conditions, labor market, standard of living and quality of life, human capital, and demographic development. According to the calculated factor models for 2018 and 2020, two key components are identified, which we interpret as integral indicators characterizing the intensity of various manifestations of unemployment and informal employment in Russian regions. Further, on the basis of correlation analysis, we show the nature of the interrelationships of the integral indicator (factor) "informal employment" with key macro indicators of regional development. There is a close relationship between informal employment and indicators of economic growth, investment, consumption and income levels, and the lack of connection with indicators of the social sphere. We also classify regions according to indicators of informal employment and analyze the (non)stability of the composition of groups over time and their relationship with the dynamics of regions' socio-economic development. The novelty of the study consists in an attempt to find hidden patterns and features of manifestation of informal employment in regions and assess their stability over time. The value of the results obtained lies in clarifying the nature of the interrelationships between the specifics of socio-economic development of territories and informal employment models; and also, in designing the approaches to assessing its social and economic effects and identifying regional specifics.

Key words: informal employment, economic development, social development, factor model, region.

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Introduction

Informal employment covers a significant part of the country's working population.

According to the research center of the company Zarplata.ru, in 2022, 21% of respondents received part of their salary in an envelope, and 6% of respondents received their full salary in an envelope[1]. Rosstat data show that the fund of hidden labor remuneration in 2022 amounted to more than 19% of the total wages of hired workers[2]. This is still a high rate, despite being down from previous periods (25.9% in 2019)[3]. Data from the Russian State University for Social Sciences (Toshchenko, 2018) confirm that almost half (49.6%) of the working population is constantly or occasionally looking for sources of additional income, with income from

[1] Who in Russia most often receives an envelope wage? *Vesti Podmoskov'ya*. Available at: https://vmo24.ru/news/opros_6_rossiyan_poluchayut_zarplatu_v_konverte (accessed: November 12, 2023).

The survey was conducted by the research center of the company Zarplata.ru from April 21 to 27, 2022. The number of Russians polled was 1,780.

[2] Expert assesses the amount of envelope wages paid in Russia. *Rossiiskaya gazeta*. Available at: https://rg.ru/2023/04/28/ekspert-ocenil-masshtaby-vyplaty-zarplat-v-konvertah-v-rossii.html (accessed: November 12, 2023).

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secondary employment most often being unofficial. These findings suggest a deficiency in regulating the labor market and social and labor relations.

However, workers may perceive informal employment as a positive option (From precarious employment..., 2022). For example, two studies in Russia 10 years apart reveal the same results: employees registered under the Russian Labor Code are more likely to experience job instability and uncertainty compared to those who are not registered; conversely, workers with experience in informal and unstable employment have adapted to uncertainty and developed a certain level of immunity to the fear of job loss (Sinyavskaya, 2005; Avdeev et al., 2021). Moreover, informal employment can provide the worker with some valuable subjectively significant advantages that are difficult to obtain in formal employment (Baimurzina, Turakaev, 2021; Burkhanova et al., 2018). Thus, there is a contradiction between benefits (and opportunities) for some subjects of labor relations and risks (and foregone benefits) for others. Along with this, experts unanimously believe that in the long term, informal employment has adverse consequences, including alienation of people from the state and society, decreased trust in institutions, dehumanization and de-intellectualization of the population, etc.

The relationship between informal employment and the level of development of territories is also ambiguous. First, it exists to a greater or lesser extent in all countries and regions. While in less developed societies it occurs predominantly in traditional forms of small-scale domestic and rural employment and handicrafts, in developed societies it occurs in more advanced activities, including those that use modern digital technologies (Kubishin, 2022). Informal employment can serve as a transitional state for new types of employment, professions, a field for testing new modes of work, which, being institutionalized in social practices, gradually move into the category of legal norms (e.g., remote employment, flexible work modes, platform work). Second, there is no "sufficient reason to believe that formalization definitely improves or worsens the socio-economic situation of the country [region]" (Barsukova, 2017). As demonstrated later, informal employment can either promote or hinder development depending on the context. Regional labor markets are known to be significantly differentiated (Oshchepkov, Kapelyushnikov, 2015) due to various factors such as socio-economic, natural-climatic, and socio-cultural. This, in turn, cannot but affect the specifics of informal employment.

Informal employment is a widespread social phenomenon characterized by long-lasting nature; it has given rise to new forms and types of work due to the digitalization of the economy and labor relations. At the same time, there is a lack of relevant data on this topic. In this regard, the study of the diversity and structure of informal employment (professional and qualification, socio-demographic, sectoral, etc.), as well as the factors contributing to its development (objective and subjective; general and specific) in the regions of Russia become important areas of research. Additionally, a system of indicators should be created to monitor changes in the informal labor market, to identify regional specifics and improve employment management. No less important is the development of approaches to the assessment of social and economic effects.

The article presents the results of the factor analysis of socio-economic processes in Russian regions for 2018 and 2020; the integral indicator of population involvement in informal employment is identified as one of the main components, the interrelations of the selected factor with key macro-indicators of regional development are characterized.

The scientific problem solved in this paper is an attempt to find hidden regularities and features of the manifestation of informal employment in the

regions and to assess their sustainability over time. The significance of the obtained results lies in the clarification of the nature of interrelations between the specifics of socio-economic development of territories and models of informal employment; development of approaches to assessing its social and economic effects, identification of regional specifics.

Current state of research

The problem of studying informal economic relations began to take shape in the middle of the twentieth century. J. Boeke in the early 1950s noted the phenomenon of "dual economy" (Boeke, 1953). Then K. Geertz proposed a division into "bazaar-economy" and "firm-centered economy" (Geertz, 1963). He characterized the first as labor-intensive, low-productivity, small-scale and low-margin, while the second conversely was more efficient, capital-intensive, with higher labor productivity. The problem of "informality" gradually matured in the scientific community, acquiring increasingly clear contours.

The classic authors of modern approaches to the study of informal employment are C. Hart, who introduced the term "informal sector" (structural approach) (Hart, 1973), and D. North, the author of the institutional approach, who distinguished formal and informal institutions-regulators of economic relations (Douglas, 1997). Among the fundamental works are also the works of the Peruvian scientist and politician H. de Soto (Soto, 1989), who explained the reasons for the growth of the shadow sector by excessive bureaucratic organization of the legal sector, therefore, some researchers call his approach legalistic.

Gradually, the informal economy, initially associated with underdevelopment, expanded its conceptual framework and transformed into a "basic component" of both developing and developed economies of the world, differing across countries "not only in scale, but also in form, causality, and social composition of those involved" (Barsukova, 2012). In modern Russian literature on informal employment, the most well-known studies are those of V.E. Gimpelson and R.I. Kapelyushnikov (Non-standard employment..., 2006), S.Y. Barsukova (Barsukova, 2017), V.V. Radaev (Barsukova, Radaev, 2012), D.O. Strebkov, A.V. Shevchuk et al.

Study of mutual influence of informal employment indicators and socio-economic development of territories

The analysis of studies examining the relationship between the indicators of informal employment and socio-economic development of territories indicates that the results depend on many reasons: socio-economic context, level of development, institutional and socio-cultural characteristics of the society (country, region) under consideration. For instance, a study using panel data for 20 developing countries for 2011–2019 shows that employment in the informal sector has a positive effect on economic growth (Sultana et al., 2022). However, in terms of labor productivity, informally employed workers are 22–25% inferior to the corporate sector (Uzyakova, 2022).

China's significant economic growth is also largely attributed to labor market deregulation and the increase in informal employment, such as self-employment, odd and short-time work, hourly wages, etc. (Meng, 2012). However, the impact of informal labor relations on workers does not lead to such positive consequences. Studies show that in China, for example, it penalizes 44% of wages for urban residents and 33% for rural residents (Wang et al., 2016).

Studies reveal the positive impact of informal employment on socio-economic inequality: its ability to reduce the values of the Gini coefficient and, consequently, income inequality is confirmed (Bhattacharya, 2011; Costas et al., 2015). Numerous studies demonstrate a negative correlation between inflation and informal employment; specifically, an increase in informal employment leads to a decrease in inflation and vice versa (Zubaidullina, Akchurina,2023; Çelik et al., 2021).

However, the negative impact of informal employment on the subjective well-being and health of workers has been noted (Aronsson et al., 2023; Batool et al., 2015; Hurtado et al., 2017), which in many cases is due to the absence of social guarantees. There is a statistically significant relationship between involvement in the informal labor market and poverty risks (Biryukova et al., 2022).

The impact of informal employment on labor market indicators in Russia was studied using data on 83 regions for 2006–2020 (Karpushkina et al., 2021). It is revealed that the instability of the labor market is due to a higher level of employment in the informal sector. The study of the impact of this parameter on public finances has shown that in the regions with a high share of informal employment (over 50%) the budgets of the constituent entities of the Russian Federation receive almost 25 times less taxes, fees and other payments (Salin, Narbut, 2017).

The probability that a worker will be employed informally is found to be lower in regions with better public administration efficiency and higher average education level of the population (Jonasson, 2012).

Research methodology

In general, the assessment of informal employment is a rather difficult task. First of all, this is due to the difficulties in fixing the processes of informal employment, which are poorly amenable to state, statistical accounting. Nevertheless, a large amount of data has now been accumulated on the basis of statistical measurements that characterize informal employment in one way or another. Among them we can distinguish directly statistical indicators (unemployment rate, coefficient of tension in the labor market, etc.), as well as data obtained through sample observations, reflecting the qualitative characteristics of this type of employment (form, conditions of employment and other indicators). However, these indicators characterize separate aspects of informal employment and do not allow assessing it comprehensively.

As part of the research task implementation, we formed a database of statistical data and social indicators of Rosstat for all constituent entities of the Russian Federation in the statistical package for data analysis IBM SPSS Statistics. The aim was to identify the impact of socio-economic indicators on the prevalence and severity of informal employment in the regions of Russia. The indicators included various economic and demographic processes, as well as indicators of the development of social infrastructure and the labor market.

The database comprises macroeconomic indicators that characterize the level of socio-economic development of the regions (38 indicators), labor market indicators (54), including characteristics of informal employment, and indicators of human capital and demographic development of the regions (18) for 2018 and 2020. The labor market indicator system includes data from Rosstat's official statistics, the sample labor force survey (LFS) results, and the comprehensive monitoring of living conditions (KOUZH), which we consider as subjective assessments of the quality of employment in the regions. The system of indicators on the labor market contains data from official statistics of Rosstat, the results of the sample labor force survey (LFS), as well as the results of the comprehensive monitoring of the living conditions (KOUZH), which we consider as subjective assessments of the quality of employment in the regions. The indicators were selected by expert judgment, taking into account their direct or indirect impact and perceived importance for a comprehensive analysis of informal employment.

The study attempts to develop an integral estimate of such employment using data from the most recent most stable statistical period – 2018. The choice of the year is conditioned by the completeness of the system of indicators – statistical (macroeconomic) and sociological (subjective). Rosstat implements the KOUZH every two years.

Despite the availability of KOUZH data for 2022, a number of regional statistical indicators were not available at the time of data collection and analysis. Therefore, the factor model was calculated for 2018 and 2020 (to check its stability over time and in pandemic conditions).

Factor analysis allows reducing the dimensionality of data and obtaining variables that are more convenient for interpretation and further analysis. In addition, we tested the hypothesis of identifying factors that would be structural components of informal employment. To build the model, we selected the indicators characterizing the labor market and employment in Russian regions from the formed statistical database. The final model contains a list of 18 variables, based on which we identified three factors including:

1) sociological indicators based on sample observations: satisfaction with various aspects of work;

2) statistical indicators characterizing the informal labor market and unemployment;

3) characteristics of the labor market as a whole.

We obtained the following model characteristics: KMO and Bartlett's test = 0.701, significant at the $p < 0.000$ level, explained cumulative variance = 56%.

We find that the indicators of unemployment and informal employment stand out in a separate group and are characterized by some hidden factor, and with a rather high factor load (21%).

For further work, we selected the indicators forming this factor and supplemented with statistical indicators characterizing employment and informal labor market in order to identify hidden structural factors contributing to *informal employment* separately from the data related to unemployment.

Findings

Factor model analysis. Thus, we built models based on the data for 2018 and 2020. In each model there are two factors *(Tab. 1, 2)*, the totality of indicators in which can be conditionally interpreted as the expression of "informal employment" (IE) and "unemployment" (U).

Table 1. Factor model based on statistical data for 2018, factor loading coefficients

Statistical indicator	Unemployment (U)	Informal employment (IE)
Tension coefficient in the labor market, according to LFS data	0.803	
Employed in the informal sector, % of the total employed population	0.788	
Unemployed aged 15–72 in rural areas, thousand people	0.692	
Unemployment rate, according to LFS data, %	0.659	
Share of unemployed with secondary vocational education under worker training programs, according to the LFS data, % of the total	-0.773	
Share of respondents working full-time (shift) or full working week, %		-0.511
Share of the unemployed looking for a job for 12 months or more, according to the LFS data, %		0.968
Average time of job search by the unemployed, according to the LFS data, months		0.954
Share of respondents working on the basis of verbal agreement, without formalization, %		0.633
Share of respondents working on the basis of employment contract (civil contract) for an indefinite period of time, %		-0.679

Note:
KMO and Bartlett's test = 0.712, significant at the $p < 0.000$ level, total variance explained = 67%, factor correlation = 0.238, rotation method – direct oblimin.
Source: own compilation based on Regions of Russia. Socio-economic indicators. 2022: Stat. coll. Moscow: *Rosstat*. 2022; 2018 KOUZH database.

Table 2. Factor model based on statistical data for 2020, factor loading coefficients

Statistical indicator	Unemployment (U)	Informal employment (IE)
Employed in the informal sector, % of the total employed population	0.819	
Tension coefficient in the labor market, according to LFS data	0.800	
Unemployed aged 15–72 in rural areas, thousand people	0.776	
Unemployment rate, according to LFS data, %	0.674	
Share of respondents working full-time (shift) or full working week, %	-0.644	
Share of unemployed with secondary vocational education under worker training programs, according to the LFS data, % of the total	-0.600	
Share of the unemployed looking for a job for 12 months or more, according to the LFS data, %		0.956
Average time of job search by the unemployed, according to the LFS data, months		0.940
Share of respondents working on the basis of verbal agreement, without formalization, %		0.659
Share of respondents working on the basis of employment contract (civil contract) for an indefinite period of time, %		-0.574
Note: *KMO and Bartlett's test = 0,749, , significant at the p < 0,000 level, total variance explained = 67%, factor correlation = 0,330, rotation method – direct oblimin.* Source: own compilation based on Regions of Russia. Socio-economic indicators. 2022: Stat. coll. Moscow: *Rosstat*. 2022; 2020 KOUZH database.		

In general, the quality indicators of the obtained models are quite high, the variability of the structure of factors for the period under study is insignificant, which indicates the reproducibility of the results for these periods.

In the XOY coordinate system a pair of factors represents two perpendicular straight lines. Based on the intersection of the factors, four groups of regions were identified, in each of which the factors behave differently *(Tab. 3)*.

1. Both factors are strongly pronounced (values are positive).

2. The factor "unemployment" (U) has a strong expression (positive values), the factor "informal employment" (IE) is weakly expressed (negative values).

3. The factor "informal employment" has a strong expression (positive values), the factor "unemployment" is weakly expressed (negative values).

4. Both factors are weakly expressed (values are negative).

Quite logical changes in the distribution of groups are noticeable: the group of regions for which the indicators of informal employment and unemployment are quite intensive has significantly decreased: from 30.5% in 2018 to 16.9% in 2020. The group of regions for which the intensity of these processes is quite low has significantly increased from 18.3% in 2018, to 37.7% in 2020. These results, in our view, are due to the simultaneous growth (although not strong) of unemployment and

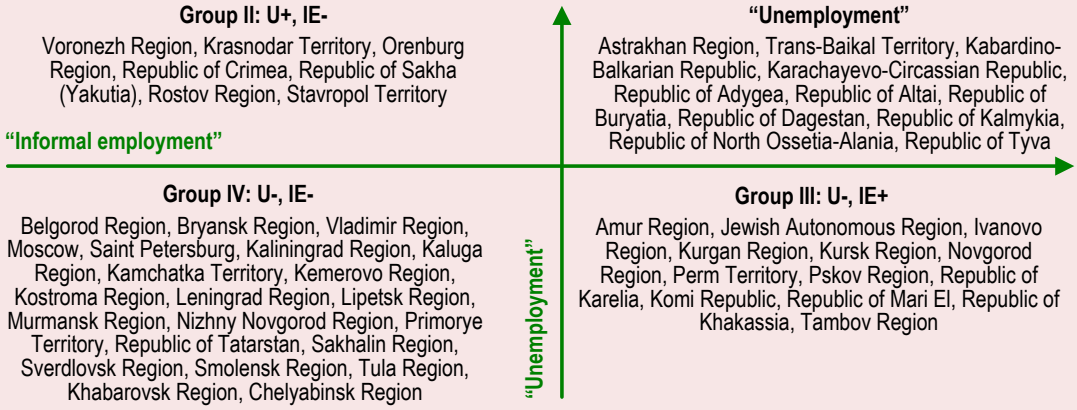
Table 3. Distribution of groups of regions according to the results of factor analysis based on statistical data for 2018 and 2020, %

Group of regions	2018	2020
U and IE values are positive	30.5	16.9
U values are positive, IE values are negative	19.5	20.8
U values are negative, IE values are positive	31.7	24.7
U and IE values are negative	18.3	37.7
Total	100.0	100.0
Source: own compilation.		

the reduction of unsustainable and non-guaranteed jobs in the informal sector of the economy due to the pandemic crisis.

The constancy coefficient of the composition for group I is 61%, group II – 58%, group III – 65%, group IV – 73%. We should keep in mind that that these indicators may have changed due to the pandemic, crisis and instability of the year 2020. It depends on a combination of factors, including managerial capabilities, economic structure, and volume of state revenues. The transition of regions from one group to another cannot always be explained by changes in certain socio-economic indicators alone. In some cases, changes in statistical indicators can easily explain seemingly positive developments, which may actually reflect negative phenomena. Therefore, it is important to consider the specifics of both the period under study and the object itself when interpreting the results.

Figure 1. Classification of the RF regions based on the main components of the factor model: "unemployment" and "informal employment"



Changes in the groups for 2018–2020

Group I U+, IE+	Group II U+, IE-	Group III U-, IE+	Group IV U-, IE-
Republic of Ingushetia (from gr. II) Chechen Republic (from gr. II)	Altai Territory (from gr. I), Volgograd Region (from gr. III), Krasnoyarsk Territory (from gr. IV), Moscow Region (from gr. IV), Novosibirsk Region (from gr. S), Omsk Region (from gr. gr. I), Samara Region (from gr. IV), Saratov Region (from gr. I), Chukotka Autonomous Area (from gr. IV)	Irkutsk Region (from gr. I), Magadan Region (from gr. IV), Orel Region (from gr. IV), Mordovia Republic (from gr. IV), Udmurt Republic (from gr. IV), Chuvash Republic (from gr. I)	Vologda Region (from gr. II), Kirov Region (from gr. II), Penza Region (from gr. II), Republic of Bashkortostan (from gr. I), Ryazan Region (from gr. III), Tver Region (from gr. III), Tomsk Region (from gr. I), Ulyanovsk Region (from gr. III), Yaroslavl Region (from gr. III)

Note: the upper part of the figure (four segments separated by axes) shows the permanent representatives of the groups; below, the regions are classified according to the group into which they moved in 2020 (their position in 2018 is shown in brackets).

Source: own compilation.

Over the period 2018–2020, the position of 14 Russian regions within the model obtained improved (Ryazan Region, Tver Region, Yaroslavl Region, Vologda Region, Volgograd Region, Kirov Region, Penza Region, Saratov Region, Ulyanovsk Region, Irkutsk Region, Novosibirsk Region, Tomsk Region, Republic of Bashkortostan, Chuvash Republic); 10 – deteriorated (Moscow Region, Orel Region, Republic of Ingushetia, Chechen Republic, Republic of Mordovia, Republic of Udmurtia, Samara Region, Krasnoyarsk Territory, Magadan Region, Chukotka Autonomous Area). The composition of the middle groups (groups II, III) has remained largely unchanged. However, it is evident that these regions face negative scenarios related to unemployment or informal employment *(Fig. 1)*.

Regarding the Republic of Bashkortostan and the Vologda Region *(Tab. 4)*, it is evident that the transition of the region from the groups with less favorable characteristics to the group with the most favorable ones had the strongest impact on the trends of changes in the component structure. The significant decrease in rural unemployment had a notable impact on informal employment in the Republic of Bashkortostan. In both cases, the regions' positions improved due to a reduction in the average job search time for the unemployed and a decrease in the percentage of unemployed individuals searching for work for 12 months or more. This improvement is attributed to the registration of a large number of new unemployed individuals, which led to these statistical effects. It is important to note that these effects are not positive. At the same time, the model is interpretable, and the change in the positions of regions between the highlighted groups can be explained.

Correlation analysis. To study the nature of the relationship between informal employment and features of socio-economic development of Russian regions, we conducted a correlation analysis of the component of the factor model interpreted as "informal employment" and indicators characterizing the socio-economic development of territories *(Tab. 5)*. The study's methodological novelty lies in the attempt to use an integral, complex indicator as one of the analysis variables.

Table 4. Dynamics of indicators characterizing the unemployment rate and informal employment in the Republic of Bashkortostan and the Vologda Region, 2018 and 2020.

Indicator	Republic of Bashkortostan		Vologda Region	
	2018	2020	2018	2020
Group of regions according to the factor model	I	IV	III	IV
Tension coefficient in the labor market	2.1	2.6	2.1	2.6
Employed in the informal sector, % of total employed population	23.9	24.2	24.0	24.6
Share of the unemployed with secondary vocational education under worker training programs, according to the LFS data, % of the total	29.6	27.3	30.7	24.6
Unemployed aged 15-72 in rural areas, thousand people	53	40	13	12
Unemployment rate, %	4.9	5.9	5.1	6.1
Share of the unemployed looking for a job for 12 months and more, according to the LFS data, %	31.9	19.9	37.3	19.2
Average time of job search by the unemployed, according to LFS data, months	7.5	6.6	8.3	6.5
Share of respondents working on the basis of labor contracts for an indefinite period, %	82.1	84.5	90.2	86.6 ↓
Share of respondents working on the basis of verbal agreement, without employment contract, %	7.4	5.3	4.9	5.8 ↑
Share of respondents working full-time (shift) or full working week, %	89.6	88.5	90.4	87.5
Source: own compilation based on Regions of Russia. Socio-economic indicators. 2022: Stat. coll. Moscow: *Rosstat*. 2022; 2018 and 2020 KOUZH database.				

Table 5. Correlation analysis results of the dependence of the component "informal employment" on the indicators of socio-economic development of the regions

№	Indicator	Pearson correlation / significance	
		2018	2020
1	Consolidated budget revenues per capita, total, million rubles (RF – billion rubles) per 1,000 people	-0.429** 0.000	-0.073 0.527
2	Gross regional product per capita; gross value added, data from the archives for the current year, since 2008, in current basic prices, rubles	-0.466** 0.000	-0.261* 0.022
3	Fixed capital investment per capita, data from the archives for the current year (in actual prices), rubles	-0.395** 0.000	-0.209 0.069
4	Value of fixed assets per capita (at the end of the year; at full accounting value), million rubles	-0.375** 0.001	-0.181 0.116
5	Retail trade turnover per capita (archive for the relevant year), in actual prices, rubles	-0.504** 0.000	-0.497** 0.000
6	Paid services per capita (archive for the relevant year), rubles	-0.582** 0.000	-0.393** 0.000
7	Real money income of the population, % to the previous year	-0.259* 0.020	0.121 0.293
8	Median average per capita money income of the population, rubles per month	-0.561** 0.000	-0.313** 0.006
9	Labor remuneration in the structure of households' money income, %	-0.354** 0.001	-0.279* 0.014
10	Value of the subsistence minimum established in the constituent entities of the Russian Federation for the fourth quarter of the year (average per capita), rubles per month	-0.352** 0.001	-0.077 0.507
11	The total space of accommodations per inhabitant on average (data from the current archive, at the end of the year), square meters	-0.237* 0.034	-0.366** 0.001
12	Morbidity rate per 1000 population (registered patients with a diagnosis established for the first time in life), persons	-0.103 0.362	-0.165 0.152
13	Number of students enrolled in bachelor's, specialist and master's degree programs per 10,000 population, per 10,000 people	-0.128 0.257	0.034 0.767

* The correlation is significant at the 0.01 level (2-sided).
** The correlation is significant at the 0.05 level (2-sided).
Source: own compilation based on Regions of Russia. Socio-economic indicators. 2022: Stat. coll. Moscow: *Rosstat*. 2022; 2018 and 2020 KOUZH database.

The results of correlation analysis confirm the existence of a relationship between the integral indicator of informal employment and indicators of socio-economic development of Russian regions – the level of income and consumption of the population, economic growth indicators and budget transfers, and it is important to note the inverse nature of this relationship.

Thus, the consequences of informal employment and unemployment are reflected differently in different socio-economic conditions and socio-cultural environments. For example, conditionally homogeneous less urbanized regions with a strong ethnic component (group I), regions with weak socio-economic dynamics (groups II-III) were united into one group. Regions with developed economies, financial, scientific and industrial centers formed the basis of group IV.

Conclusion

The empirical basis of the study was formed by the authors using statistical data of Rosstat. We tested more than 100 variables characterizing the state of the regions: macroeconomic conditions, labor market, standard of living and quality of life of the population, human capital, demographic development. Based on multivariate statistical analysis, we calculated a factor model for 2018 and 2020, consisting of two key components. We interpret the factors as integral indicators characterizing the intensity of various

manifestations of unemployment and informal employment in Russian regions. Further, we carried out a correlation analysis of the factor "informal employment" and macro indicators of economic and social development of Russian regions, which revealed a close relationship between informal employment and indicators of economic growth, investment, level of consumption and income of the population, and no relationship with indicators characterizing the social sphere.

Thus, an important practical result is to identify as a certain significant factor contributing socio-economic development of the region, which is characterized by the indicators of informal employment and unemployment. The study suggests that the degree of expression of this hidden factor and indicators of socio-economic development of the region are interrelated, and the relationship is of an inverse nature. The attempt to group regions by the degree of unemployment and informal employment led to satisfactory results. However, for affirmative conclusions it is necessary to carry out similar tests both in the long run and in retrospect.

The main methodological results of the work are the use of microdata along with macroeconomic indicators to build a multidimensional analysis of informal employment in the constituent entities of the Russian Federation (regions) and Russia as a whole; calculation and allocation of the integral indicator of informal employment for Russian regions; typologization of regions by indicators of informal employment; analysis of (non)stability of the composition of groups over time and their relationship with the dynamics of socio-economic development of territories.

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The Impact of Precarization on the Standard of Living and Employment Situation of Russian Youth

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Abstract. The study of precarization implications focuses on young people who are facing serious problems on the way to stable employment. The lack of clear competitive advantages in the labor market complicates employment in the formal sector of the economy, where workers have access to an extensive system of social guarantees. In this regard, young people often feel vulnerable and uncertain about their future. Despite the relevance of the problem and wide discussion, there are not many specific empirical studies in this area. The aim of the paper is to determine the impact of precarization on the standard of living and the employment situation of young people. The information base is represented by the data of the Russia Longitudinal Monitoring Survey conducted by the Higher School of Economics for 2021 (30th round). Based on the original toolkit, the scale of precarious work was estimated depending on the concentration of precarization indicators and taking into account individual parameters of respondents. The indicators were calculated using the method of multivariate frequency distribution of attributes. According to the results obtained, the overwhelming majority (almost 80%) of young people are involved in precarious work. To a much lesser extent, this applies to the part of youth that has a high level of education, ICT skills and is engaged in skilled labor. The depth of precarization penetration is also closely linked to per capita income. As its size increases up to two subsistence minimums, the share of those involved in precarious work decreases significantly; and in this regard it does not matter what part of income is

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used for consumption. In conclusion, we substantiate proposals to counter the threats of precarization for young people. Prospects for further research are connected, first of all, with the identification of educational and professional trajectories that have a negative impact on employment stability.

Key words: precarization, standard of living, employment, youth, precarious work, labor market, employment quality, youth policy.

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Introduction

Employment precarization as a global process of disruption of labor relations is actively penetrating in human life all around the world. Young people are no exception, as they face many barriers to entering the labor market, forcing them to turn more often than others not only to non-standard employment forms (Bessant et al., 2017), but also to the grey economy (Shehu, Nilsson, 2014). These kinds of practices allow gaining necessary work experience, financial independence, etc., but they invariably lead to vulnerability and social insecurity. Staying in such conditions for a long time has far-reaching consequences, up to falling into the "precarity trap" that prevents career growth and improvement of positions in society (Standing, 2011, pp. 48–49). In such a situation, instability becomes a lifestyle which determines all future behavior, regardless of educational and other achievements. At the same time, young people often do not see it as a problem and perceive what is happening as personal failures or temporary difficulties that should be simply endured (Mrozowicki, Trappmann, 2021).

Despite the relevance of the issues of youth's transit to stable employment, there are only a few empirical studies in this field that could shed light on the wide range of negative effects of precarization. In the scientific literature, it is possible to find statements about deterioration of success level and reduction of time devoted to studies (Sršen, Dizdarevič, 2014); emotional exhaustion and dissatisfaction with life (Umicevic et al., 2021); reluctance to have children due to the inability to provide them with proper care (Chan, Tweedie, 2015); difficulties in socialization (Miguel Carmo et al., 2014), etc. In this case, we are talking about consequences beyond the social and labor sphere. Equally important are threats directly related to the workplace. They typically involve working conditions and related aspects of employment, which can also be considered as precarization indicators. There is no consolidated view on this issue. However, the practice-oriented thesis of normalizing destabilizing practices deserves much more attention. In particular, when the degree of precarization increases, the problematization of precariousness of working conditions among young workers does not increase (Kuchenkova, 2022, p. 116), while a high level of education and qualifications is less and less often a protective factor against vulnerability in the labor market (Lodovici, Semenza, 2012). All these things only strengthen the interest in this topic.

The aim of our research is to determine the impact of precarization on the standard of living and the employment situation of young people. The distinctive feature of this work is the application of an original methodology for estimating the extent of precarious work by taking into account certain characteristics of individuals. One such characteristic is information and communication technology (ICT) skills, which play an increasing role in the modern labor market. In addition to finding the patterns stated in the paper, the proposed approach helps to better understand whether digital competencies contribute to employment stability.

Degree of elaboration of the problem

Studying the impact of precarization on the standard of living and the employment situation of young people is a serious challenge for science. There are many debatable provisions and gaps in this issue, primarily due to the novelty of the research area itself, despite the presence of certain developments in relation to some of its components. For instance, the evolution of views on social well-being has gone from purely quantitative assessments of the income indicator to the extensive consideration of various aspects of human development (Gasper, 2007). Similar is the case with questions of employment quality, which subsequently covered the entire working life of employees (Level and Quality..., 2022). In addition to education and qualifications, more and more parameters are taken into account that determine the prospects of personal position in the labor market[1].

[1] Skill shift: Automation and the future of the workforce. McKinsey&Company. Available at: https://www.mckinsey.com/~/media/mckinsey/industries/public%20and%20social%20sector/our%20insights/skill%20shift%20automation%20and%20the%20future%20of%20the%20workforce/mgi-skill-shift-automation-and-future-of-the-workforce-may-2018.pdf (accessed: October 2, 2023).

In turn, the phenomenon of employment precarization, widely discussed in scientific literature, is just completing the stage of initial conceptualization (Odegov, Babynina, 2018; Melges et al., 2022) and is often criticized (Choonara, 2020), which does not prevent scientists from making attempts to assess its multifaceted consequences. The accumulated experience in this area is fragmentary and poorly generalizable, which imposes limitations on the ability to conduct applied research, especially when it comes to the need to identify certain relationships.

Methodological tools for analyzing the process of precarization are highly variable and largely depend on the criteria underlying the assessment *(Tab. 1)*. In the course of the study, we tried to outline certain frameworks, related both to methodological problems (the discussion of precarity and precarious work (Popov, Soloveva, 2020) and to the issues of accessibility of the information base and justification of the list of used indicators. In particular, the limited availability of official statistics in terms of accounting for various manifestations of precarization leads to the fact that specialists increasingly turn to sociological methods of research. In this case, usually, a large number of indicators are used, which can be combined into separate blocks characterizing the level of remuneration, social protection, typical working conditions, etc. As a result, there is a shift of emphasis toward comprehensive and index-based approaches that allow covering a variety of aspects of precariousness.

Ultimately, despite the fact that the diversity of viewpoints makes it difficult to compare the results of numerous studies, it has a positive effect on the formation of a common understanding of the effects of the phenomenon under consideration. *At present, two approaches reveal them.* The first one is based

on the application of qualitative research methods, including in-depth interviews, expert surveys, focus groups, etc. They make it possible to form a holistic view of the impact of precarization process on the standard of living and the employment situation of the population by obtaining detailed information about the respondent's working life. Case studies of specific industries or professions are very illustrative (Bohle et al., 2004; Bone, 2019), but it is impossible to talk about scaling or quantification of the research results. In these conditions more advantageous are mass survey data, the processing of which is carried out with the help of conjugation tables or more advanced mathematical tools. At the same time, despite the apparent universality of the approach, it has limitations when studying certain categories of the population, which is due to the complexity of sample construction and subsequent data collection. It is not by chance that in the scientific literature there are only some publications devoted to the comparative analysis of the situation of workers of different ages in precarious labor relations (Jetha et al., 2020; Kuchenkova, 2022). Most often, attention is paid to a single group.

Table 1. Criteria bases and indicator base for identifying employment precarization

Approach / example	Indicator base	Advantage of approach	Disadvantage of approach
Criterion basis: embodiment of employment precarization			
Approach based on addressing the category of "precariat" (Precariat..., 2020)	Indicators characterizing limited opportunities for implementing labor, civil, political and other rights	Consider precarization as a process that has become an integral feature of modern society	Difficulty of drawing a clear parallel between employment precarization and the precariat. Disunity of the new class
Approach based on addressing the category of "precarious work" (Precarious Employment..., 2018)	Indicators characterizing employee's vulnerability and social insecurity	Conceptual relationship of the concepts of "employment precarization" and "precarious work"	Necessity to take into account the criterion of involuntariness to distinguish between "non-standard employment" and "precarious work"
Criteria basis: specifics of information base			
Approach based on the use of official statistics data (Cranford et al., 2003)	Indicators characterizing the coverage of the population with the least protected employment forms (part-time, temporary, casual, etc.), the scale of vulnerable employment and the informal economy, the size of wages, non-standard working conditions	Availability of information base and possibility of interregional comparisons	Limitations of the list of available indicators and difficulty of correlating them with precarization theory
Approach based on the use of initiative sociological surveys data (Shkaratan et al., 2015)	Indicators broadly characterizing specifics of working conditions: from wage rates and availability of social guarantees to the autonomy and voting rights of workers. Specific formulations depend on the research tools used	Availability independently determine assessment tools, indicator base, sampling, etc.	Labor intensity of information gathering and interregional comparisons
Criteria basis: assessment tools			
Approach based on the use of private indicators (Khusainov, Alzhanova, 2017)	Indicators characterizing the level of labor income, informal employment, job vulnerability	Simplicity of calculations	Limited range of precarization features affected
Integrated approach (Kuchenkova, Kolosova, 2018)	Indicators characterizing the specifics of working conditions in the broadest sense: from wage rates and availability of social guarantees to the autonomy and workers' voice	Accounting for multifaceted manifestations of precarization	Difficulty in selecting indicators and justifying their reconciliation procedure
Index approach (Cassells et al., 2018)			
Source: own compilation.			

Materials and methods

The logic of the paper is determined by the results of many years of research conducted by members of the scientific team of the RSF project 22-28-01043. Under precarious work we understand the labor relations forced on an employee, which are accompanied by partial or complete loss of labor and social guarantees based on an open-ended employment contract, work in the mode of standard working hours (full-time, normal working week) in employer's territory. To assess this condition, we use a set of objective indicators *(Fig. 1)*, formed taking into account previously conducted studies and provisions of the International Labour Organization[2].

In total, we identified two groups of nine indicators, which had been tested for multicollinearity and supported by the expert community (Bobkov et al., 2022a). *The first group contains key precarization indicators:* (1) employment for hire on the basis of verbal agreement without documentation, (2) level of income from primary employment that does not ensure the sustainability of households' financial situation[3], (3) forced unpaid leave at employer's initiative, (4) absence of paid leave, (5) reduction of wages or working hours by an employer. The presence of at least one of these serves as a criterion for classifying a person as precariously employed. *Non-key precarization indicators, characterizing the depth of this unsustainability, form the second group of indicators.* These are: (6) self-employment in the informal sector, (7) wage arrears, (8) unofficial (partially or fully) income from employment, (9) deviating from standard working hours (working week of more than 40 or less than 30 hours at the main workplace).

Figure 1. Employment precarization indicators

Key indicators of employment precarization

- Employment on the basis of verbal agreement without documentation.
- Level of income from primary employment that does not ensure the sustainability of households' financial situation.
- Forced unpaid leave at employer's initiative.
- Absence of paid leave.
- Reduction of wages or working hours by an employer.

Non-key indicators of employment precarization

- Self-employment in the informal sector.
- Wage arrears.
- Unofficial (partially or fully) income from employment.
- Deviating from standard working hours (working week of more than 40 or less than 30 hours at the main workplace).

Source: (Bobkov et al., 2023, p. 28).

[2] From precarious work to decent work: outcome document to the workers' symposium on policies and regulations to combat precarious employment. ILO. Available at: https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---actrav/documents/meetingdocument/wcms_179787.pdf (accessed: October 2, 2023).

[3] Less than 3.1 subsistence minimum (SM) of working-age population required to enter the middle strata, taking into account the minimum dependency burden.

Depending on the concentration of key and non-key precarization indicators, several categories of economically active population emerge:

• *sustainable employed* (there are no precarization indicators);

• *transition group* (there are non-key precarization indicators);

• *precariously employed* with moderate (1–2 key indicators), high (1–2 key indicators combined with any number of non-key indicators) and the highest concentration (3–5 key indicators) of precarization traits.

Special attention is paid to the unemployed as an extreme form of precarization. This is due to the fact that people with no permanent income or gainful occupation are most vulnerable. As a rule, in such circumstances, the planning horizon is considerably narrowed and domestic problems come to the fore. The social protection system plays an important role here, as it helps to maintain a minimum level of consumption, but cannot ensure the overall sustainability of a person in need.

The feature of the subsequent analysis is the focus on determining the impact of precarization on the employment situation of young people and their standard of living. In the first case, we took into account the parameters of education, qualifications and ICT skills that reflect the competitiveness of individuals in the labor market, and in the second case it was the parameters of household income using social standards for material affluence (Bobkov et al., 2022b). *Table 2* presents a detailed description of each of them. It is also important to emphasize that the proposed indicator of the standard of living has much in common with the indicator of earnings from primary activity used to identify the precariously employed. However, our methodology considers the wage threshold, and in the process of estimating the effects of precarization, we not only refer to a broader category that takes into account household size, but also distinguish several income groups. This perspective makes it possible to follow in detail the changes in the incidence of precarious work with increasing material wealth.

Table 2. Parameters determining the standard of living and the employment situation of young people

Parameter	Description
Employment situation	
Education	It is determined on the basis of the achieved level of education: 1) without vocational education; 2) with secondary vocational education; 3) with higher education and above.
Skill	It is determined on the basis of belonging to an occupation group according to the All-Russian Classifier of Occupations (OKZ): 1) engaged in unskilled labor (groups 9 "Unskilled workers" and 03 "Private military personnel"); 2) engaged in skilled labor (groups 4–8 "Employees engaged in preparation and execution of documents, accounting and servicing", "Employees of service and trade, protection of citizens and property", "Skilled workers of agriculture and forestry, fish farming and fishing", "Skilled workers of industry, construction, transport and workers of related occupations", "Operators of production plants and machines, assemblers and drivers"); 3) engaged in the most skilled labor (groups 1–3 "Managers", "Specialists of the highest qualification level", "Specialists of the middle qualification level" and 01–02 "Officers of active military service", "Non-officer military personnel")
ICT skills	It is determined on the basis of the relationship between the level of ICT skills and professional activity: 1) basic skills not related to professional activity (low level); 2) user skills related to professional activity (medium level); 3) specialized skills necessary for solving professional tasks in the ICT sphere (highest level).
Standard of living	
Cash income	It is determined on the basis of social standards of households: 1) least well-off (less than 1 SM); 2) low-income (1–2 SM); 3) below-average well-off (2.0–3.1 SM); 4) medium- and high-income (over 3.1 SM).

We tested this research toolkit on the data of the 30th round of the Russia Longitudinal Monitoring Survey conducted by the Higher School of Economics (RLMS-HSE)[4]. At first, we selected respondents aged 15 to 35 from among the employed and unemployed; we divided 1,895 observations into several groups in accordance with the specified conditions. After that, we calculated indicators of volatility for each of them (method of multivariate frequency distribution of attributes). Based on the results of the analysis, we substantiated the proposals for mitigating the threats of the impact of precarization on the quality of employment and the standard of living of young people.

Research results

Relationship between precarization and the employment situation of young people

As we have mentioned above, our study reveals the relationship between precarization and employment situation by taking into account the level of qualifications, education and ICT skills of generational groups of the economically active population. According to the calculations on the RLMS data for 2021, the majority of young people are in precarization regardless of the characteristics considered *(Tab. 3)*. The share of sustainably employed does not exceed 8%, which together with the transition group gives only 21%. In this regard, only the fact that the maximum concentration of

Table 3. Distribution of youth by presence and concentration of precarization indicators and the employment situation, 2021, %

Employment situation	Level of ICT skills	Sustainably employed	Transition group	Precariously employed		
				With moderate concentration of indicators	With high concentration of indicators	With the highest concentration of indicators
Employed in the most skilled labor	Highest level	6.8	3.3	5.3	3.8	0,6
	Medium level (both with and without vocational education)	44.5	26.2	37.1	24.4	13,3
	Low level (both with and without vocational education)	9.7	9.0	14.3	10.8	7,3
Employed in skilled labor	Medium level	2.7	4.9	5.9	4.8	1,8
	Low level	20.5	21.7	17.1	23.9	29,7
	Medium level (without vocational education)	1.4	1.2	1.5	2.6	3,0
	Low level (without vocational education)	14.4	27.5	14.2	22.9	32,1
Employed in unskilled labor	Low level	0.0	2.5	1.5	1.5	6,7
	Low level (without vocational education)	0.0	3.7	3.1	5.3	5,5
On average		**7.7**	**12.9**	**38.7**	**32.0**	**8.7**

Source: assessment based on RLMS data.

[4] "Russia Longitudinal Monitoring survey, RLMS-HSE", conducted by National Research University "Higher School of Economics" and OOO "Demoscope" together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology of the Federal Center of Theoretical and Applied Sociology of the Russian Academy of Sciences (RLMS-HSE web sites: https://rlms-hse.cpc.unc.edu, https://www.hse.ru/org/hse/rlms)

the key precarization indicators is observed only in every tenth (9%) gives optimism. Anyway, young people engaged in unskilled labor (codes 9 and 03 of the OKZ) are at particular risk. Among them there is not a single one who is distinguished by stability of labor relations. Even the transitional group is quite insignificant compared to the share of the precariously employed. However, this situation is observed almost everywhere. It is impossible to assess the role of ICT skills in this case, as there are no differences in the level of ICT skills. Only professional education makes a positive contribution, the presence of which reduces the threats of precarization, at least when we talk about the depth of its penetration into working life.

Skilled work (codes 4–8 according to OKZ) provides young people with greater employment stability, as evidenced by the increase in the share of respondents with zero concentration of precarization indicators. Despite the obvious conclusion, it is important to emphasize how big the differences are with the effects of unskilled labor. In the current realities, it can hardly ensure the sustainability of a young worker, which brings us back to the debate on the principles of decent work for all[5].

Among those employed in skilled work, there are not many young people with both vocational education and an average level of ICT skills (directly related to the performance of job duties), but it is here that the occupancy rate of the groups of the precariously employed decreases as the concentration of precarization indicators increases. The same is the case with those performing the most skilled work (codes 1–3 and 01–02 in OKZ). Moreover, with growing ICT skills, the gap in the representation of polar groups – stably employed and precariously employed with the highest concentration of precarization indicators – increases in favor of the former. Consequently, *the stability of young workers' position depends not only on the traditional characteristics of job seekers,* but also on the ability to apply digital competencies in labor activities, if such an opportunity is available, since not all professions involve the use of information and communication technologies.

The extreme form of precarization is unemployment, which we consider as a state of temporary unemployment characterized by the loss of regular earnings, professional and social status. In such conditions, the planning horizon narrows to a minimum, and the vulnerability of the labor market situation reaches its peak. As we have mentioned, young people experience serious problems in finding employment. First of all, this situation concerns young people, who often have neither specialty nor work experience. Although youth unemployment is higher than among adults[6], the situation normalizes after the age of 25[7], as many of them successfully find jobs.

The data of our calculations show that in the structure of unemployed youth surveyed in the framework of RLMS in 2021, almost half of them have secondary vocational and above education and ICT skills *(Tab. 4)*. They are rather qualified specialists with digital competencies in demand in the modern labor market. We can assume that the employment process for them will not last long and employment problems will soon be solved. Against

[5] Decent work and the 2030 Agenda for sustainable development. ILO. Available at: https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---sro-moscow/documents/publication/wcms_554824.pdf (accessed: October 2, 2023).

[6] Global Employment Trends for Youth 2020: Technology and the future of jobs. ILO. Available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_737648.pdf (accessed: October 2, 2023).

[7] Labor force, employment and unemployment in Russia (based on the results of sample labor force surveys). 2022. Rosstat. Available at: https://rosstat.gov.ru/storage/mediabank/Rab_sila_2022.pdf (accessed: October 2, 2023).

Table 4. Distribution of unemployed youth by employment situation, 2021

Employment situation	Characteristics of groups		Share of unemployed youth, %
	Level of ICT skills	Level of education	
Unemployed with secondary vocational and above education and level of ICT skills	Highest level	Secondary vocational and above	7.8
	Medium level	Secondary vocational and above	39.8
Unemployed with secondary vocational and above education and low level of ICT skills	Low level	Higher education and above	-*
	Low level	Secondary vocational	16.4
Unemployed without vocational education and with low to medium level of ICT skills	Medium level	No vocational education	6.3
	Low level	No vocational education	29.7

* Insufficient observations to make an assessment.
Source: assessment based on RLMS data.

this background, about one third of young people looking for a job do not have a profession, and most of them cannot boast a high level of ICT skills. In this case, the chances of success are significantly reduced due to the lack of clear advantages of job seekers compared to more experienced competitors. The last group, comprising 16% of respondents, consists of unemployed people with secondary vocational education and low ICT skills.

The results obtained for employed and unemployed confirm the thesis about youth's vulnerability in the labor market. Precarization indicators are clearly visible in all groups under consideration. *A higher level of education and ICT skills, as well as employment in skilled labor, if not completely avoid precariousness, then significantly reduce the depth of its penetration into working life*, which in the worst conditions affects everyday practices. At the same time, the developed qualities of young people hardly serve as a guarantee of protection against unemployment as an extreme form of precarization, according to the recent data, but in this case, the probability of a relatively quick transit from study to stable work is sharply increased. For example, in Germany it averages one year, although depending on the situation it can increase up to 8 years (in particular, for young men who chose the early employment trajectory) (Stuth, Jahn, 2020). Russia's experience shows that such a transition can take up to about 4 years when it did not work out the first time (Russian Youth..., 2016, pp. 63–64). In this regard, young people's entry into the labor market should be meaningful in terms of ensuring a balance between gaining in-demand competencies, including digital competencies, and acquiring the necessary work experience.

The impact of employment precarization on the standard of living of young people

The study focused on the effects of precarization on the standard living of economically active population, *since material prosperity remains one of the most important criteria of social well-being*. We considered the sustainability of workers' situation through the prism of income levels. The calculation on RLMS data for 2021 showed that the share of poor young people increases with growing concentration of precarization indicators *(Tab. 5)*. Moreover, the differences between people with per capita incomes of less than one subsistence minimum (SM) and those who spend less than one consumption basket of subsistence minimum (CBSM) are insignificant. In both cases, the share of the sustainably employed is inferior to the occupancy of each of the precariously groups, the latter of which is characterized by the largest representation.

Table 5. Distribution of youth by presence and concentration of precarization indicators and the standard of living, 2021, %

Group according to living standard type	Group by presence and concentration of precarization indicators				
	Sustainably employed	Transition group	Precariously employed		
			With moderate concentration of indicators	With high concentration of indicators	With the highest concentration of indicators
The least well-off (poor)					
With per capita income less than 1 SM	7.7	5.9	9.2	10.3	15.3
With income used for consumption of less than 1 CBSM	21.4	24.7	29.4	30.4	36.5
Low-income					
With per capita income of 1–2 SM	32.3	46.8	52.0	53.3	53.5
With income used for consumption of 1–2 CBSM	57.2	57.2	55.5	57.0	52.7
Wealthy below average					
With per capita income of 2.0–3.1 SM	32.3	30.0	29.8	26.8	24.1
With income used for consumption of 2.0–3.1 CBSM	12.4	13.6	13.7	9.8	10.8
Middle- and high-income					
With per capita income of 3.1 SM and more	27.7	17.3	9.0	9.6	7.1
With income used for consumption of 3.1 CBSM and more	9.0	4.5	1.4	2.8	0.0

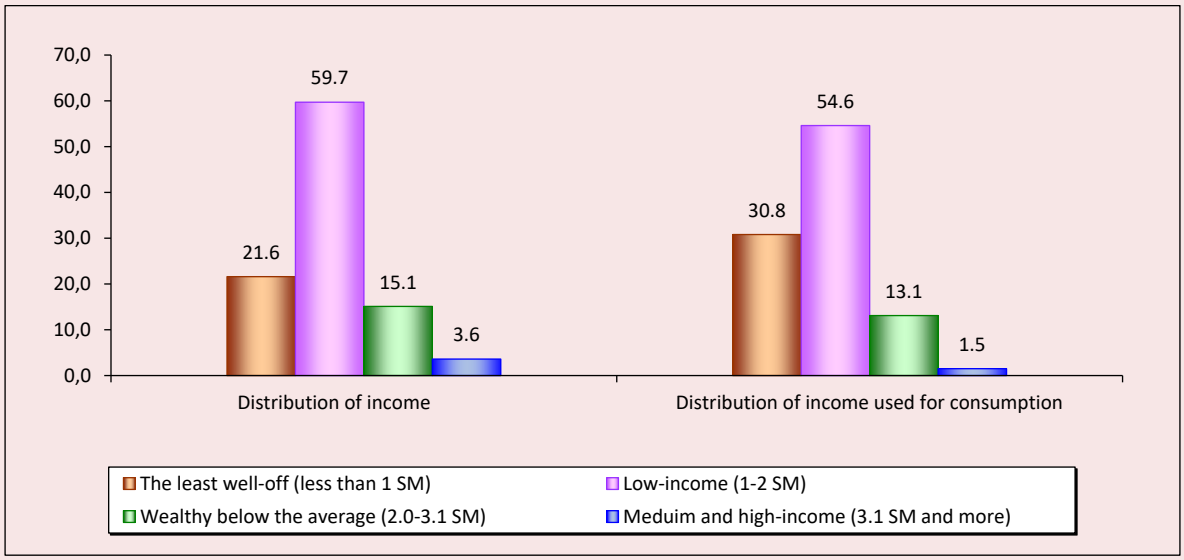
Note: SM – subsistence minimum; CBSM – consumption basket of subsistence minimum. In the calculation, we used different values of indicators depending on the region.
Source: assessment based on RLMS data.

The category of low-income young people with per capita incomes at the level of 1–2 SM acquires a relatively positive coloring only if we are talking about 1–2 CBSR. In such a situation, the equality between the polar groups is achieved, facilitated by a marked increase in the share of the sustainably employed. Otherwise, the overall situation remains rather tense, which is especially evident in the case of those whose income is limited to two SMs. While the occupancy rate of the unstable groups is practically unaffected, in the others it tends to decrease. *On this basis, it follows how sensitive the line is between similar income and consumption levels among the low-income strata*. Nothing similar is observed in wealthier strata.

Young people with per capita incomes above two SM are less and less likely to exhibit high levels of precarization, regardless of how much of their money is used for consumption. The aggregate share of precariously employed remains impressive, but it is safe to say that there has been a significant change in the quality of jobs, which, in addition to high earnings, represent a fundamentally new level of social security. This statement is especially true for high-income groups, although even here young people face vulnerability, which demonstrates the difficulty of ensuring employment stability in modern conditions.

Unemployment as an extreme form of precarization does not have a pronounced specificity in the context of income groups *(Fig. 2)*. For instance, better-off young people are less likely to be in the process of job search. This pattern can be traced for all the categories, except for those with incomes/consumption less than one subsistence minimum, where differences in wealth are insignificant.

Figure 2. Distribution of unemployed youth by the standard of living, 2021, %



Note: SM – subsistence minimum. In the calculation, we used different values of the indicator depending on the region.
Source: assessment based on RLMS data.

At the same time, we should remember that young people may be part of a parental household and feel less discomfort in the absence of a permanent source of income than adults.

We should emphasize that the phenomenon of precarization has a mixed impact on young people. Taking into account the negative effects, about which the scientific literature says much, primarily in relation to everyday life, the very opportunity to gain work experience and consolidate professional skills in practice has many more positive aspects in comparison with unemployment. In this regard, the duration of transit to stable employment comes to the fore. One of the reasons is the low standard of living of youth who have to put up with the precariousness of their situation. *Our results show that the depth of precarization penetration is closely related to the size of per capita income.* For young people, this means not only serious problems with consumption, but also feeling all the burdens of social insecurity. Such a long-range development can lead to falling into "precarity trap" from which it can be difficult to escape.

Proposals to mitigate the threats of precarization to the quality of employment and the standard of living of young people

The study shows how destructive the effects of precarization can be for economically active young people. The lack of social guarantees and career opportunities, low wages and irregularity of their payments go far beyond the employment sphere and affect everyday activity. Due to the large number of barriers to successful employment, many are willing to accept this state of affairs. The opportunity to gain work experience and financial independence usually compensates for all the disadvantages. In this regard, the problems of transit from study to stable employment, which is often seen as a search for any paid job, come to the fore. In modern times, this approach requires a radical revision, which entails the need to improve the existing institutional environment.

Without revealing details about the state of the vocational education system in Russia, *let us emphasize the importance of continuing efforts to bring the level of training closer to the real needs of the*

economy through closer cooperation with employers. We are talking both about well-known areas such as the organization of industrial practice and project work, the development of professional standards, the introduction of the social order mechanism, etc., and about actual measures, for example, related to the implementation of graduate employment programs. The list of joint actions can be rather wide, but all of them should be consonant with the idea of forming a demanded specialist who realizes their professional trajectories and prospects. Digital competencies play an important role here, as their level of proficiency should enable young people to use them in their working life to solve specific applied tasks. A good support was the Digital Professions project, through which, with the support of the state, everyone could learn an IT profession. In 2022, the initiative was frozen indefinitely, which is alarming given the lack of emphasis on ICT skills in the Long-Term Program to Promote Youth Employment for the period up to 2030[8].

The ecosystem of professional support for young people cannot fully exist without the active participation of the state employment service[9]. Usually, unemployed youth are less likely to use its services, which is explained, among other things, by the low quality of vacancies offered, as a result of which independent job search allows them to apply for higher positions (Giltman et al., 2022, p. 210). All these situations bring us back to the issues of increasing the attractiveness and efficiency of employment offices, which are being modernized within the framework of the national project "Demography"[10]. To date, it is rather difficult to judge the results of such transformations, both in terms of popularization of formal employment channels and the establishment of interaction with the subjects of the labor market as a whole. At the same time, the need for fundamental changes has been long overdue, especially in the regional periphery, where, against the background of limited opportunities, it is more complicated to obtain quality vocational education and employment problems are much more pronounced (Popov, Soloveva, 2023). This contributes to the migration outflow of young people, which only exacerbates the disproportions of spatial development and, as a consequence, the situation of those who decided to stay. Despite the complexity of the functioning of employment offices (from the modest staff and low salaries to the instability of the Unified Digital Employment Platform "Work in Russia"), it is they that should become a reliable support for young people in the social and labor sphere.

If we do not mention the objective and subjective barriers to the labor market, then *young people's exposure to precarization is itself due to their greater involvement in non-standard employment forms* (for example, to combine study and work), *which often translate into decent work deficits*. This type of discussion is important in understanding perspectives on the sustainability of employment situation. There is no consensus, but the International Labour Organization recommends regular work to address legislative gaps (even to the point of restricting the use of certain employment forms), strengthen collective bargaining systems, improve

[8] On approval of the Long-term program to promote youth employment for the period up to 2030: RF Government Resolution 3581-r, dated December 14, 2021. Website of the Russian Government. Available at: http://static.government.ru/media/files/rPqTKcZXAGKm9YF3xVcoANoHZSUnnpE6.pdf (accessed: October 2, 2023).

[9] Solntsev S.A., Roshchin S.Yu. (Eds.) (2021). *Peculiarities of Unemployment in the Russian Labor Market: Information Bulletin*. Moscow: Izd. dom Vysshei shkoly ekonomiki. P. 47.

[10] Working for results: How employment centers in the Russian Federation are being modernized. Portal "Национальныепроекты.рф". Available at: https://xn--80aapampemcchfmo7a3c9ehj.xn--p1ai/news/rabota-na-rezultat-kak-moderniziruyut-tsentry-zanyatosti-v-rf (accessed: October 2, 2023).

social protection, and implement socio-economic policies to manage social risks and facilitate the transition to standard employment[11]. For instance, the current mechanisms of social partnership and regulation of remote labor, "expansion" of civil law in labor relations (Kurennoy, 2022), etc. are criticized in Russian practice. In connection with the above, the issues of improving labor legislation should be subjected to a broad public discussion to take into account the interests of all subjects of the labor market. In turn, the dynamism and uncertainty of modern processes can be taken into account through the realization of a number of legal and social experiments before implementing new norms. In addition, this measure will avoid serious consequences caused by the complementarity of labor market institutions, when single changes lead to unexpected results.

Conclusion

The research results confirm the thesis about the wide prevalence of precarization indicators among Russian youth. *The share of the sustainably employed young people is only 8%, which together with the transition group gives about 21%.* All the rest are involved in precarious labor relations to a greater or lesser extent. At the same time, a high level of education and ICT skills, as well as engagement in skilled labor, will help to reduce the concentration of precarization indicators. This is particularly evident in the case of digital competencies, the presence of which within the same educational or qualification group leads to an increase in the share of sustainably employed. On this basis, it follows that the stability of young workers' position depends both on the traditional characteristics of job seekers and on the ability to use modern technologies in the performance of job duties. *At the same time, developed qualities do not guarantee protection from unemployment as an extreme form of precarization, but in this case the chances of successful employment are significantly increased.*

In the analysis, we emphasize the importance of rapid transition to stable employment, as the depth of precarization penetration negatively affects the standard of living. *For instance, young people from the least and low-income strata are characterized by the greatest number of signs of instability, the concentration of which begins decreasing only when household expenditures increase to 1–2 sizes of the consumer basket of subsistence minimum.* This statement allows concluding that the boundary between income and consumption is sensitive for low-income young people, although this pattern is not observed among the least well-off ones because of insignificant differences in wealth. The situation is similar in wealthier groups, primarily those with per capita incomes above 3.1 subsistence minimum, where, in addition to high earnings, jobs offer a fundamentally new level of social security. However, even here young workers with precarious labor relations are not rare. In turn, unemployment, as an extreme form of precarization, has no pronounced specifics in terms of income groups. Affluent strata are naturally less likely to be in the process of job search.

Based on the above, we can conclude that *with increasing concentration of precarization indicators there is a marked deterioration in the standard of living.* In this respect, we should point out that there are young people with a high level of education and ICT skills who are engaged in skilled labor. Of course, in some cases it is possible to remain part of the parental household for a while or to receive financial assistance from relatives, but a certain standard of consumption is usually achieved through a combination of these characteristics. Ultimately, the developed professional and digital competencies of young people become a prerequisite for rapid transit from school to stable employment.

[11] Non-standard employment around the world: Understanding challenges, sharing prospects. Overview. ILO. Available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_554952.pdf (accessed: October 2, 2023).

Along with the substantiation of proposals to mitigate the threats of precarization to the quality of employment and the standard of living of young people, the empirical results have a specific theoretical and practical value, since they can be useful, on the one hand, for developing ideas about the phenomenon of instability in the sphere of social and labor relations, on the other hand, for improving federal and regional policies to ensure a rapid transition of graduates of professional educational organizations from study to stable employment. Focusing on young workers in this respect will help to avoid the cumulative effects of precarization, which are much more harmful with age. Prospects for further research include studying educational and professional trajectories that lead to a deterioration in the quality of working life.

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Impact of the Digitalization of Employment on the Work–Family Balance: Russians' Subjective Assessments

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Abstract. The development of digital technology causes rapid transformation in the sphere of work and the emergence of new forms and formats of employment. The ongoing changes bring to the fore the issue of work–family balance, because it is necessary to promote the well-being of employees with children. The aim of our research is to study the impact of the digitalization of employment on the work–children balance. The empirical base includes findings of a survey of working age women and men, with work experience, living in the territory of the Russian Federation, and raising children under the age of 14 (N = 954); the survey was conducted in May – June 2023. Based on the data obtained, we reveal differences in satisfaction ratings among respondents who intensively use information and communication technologies and do not intensively use/do not use them in their work; the latter have a higher average satisfaction rate concerning the time spent on parental responsibilities. This indicates the ambiguous impact of information and communication technologies on the satisfaction rate regarding the time spent on parenthood. Second, there is no direct relationship between the amount of time parents spend with their children and subjective satisfaction with the time spent on parenthood; this is in line with the results of other studies. Third, we reveal a contradiction between a high assessment of the expected positive effect of a hybrid work format on the time spent on children and low satisfaction regarding the time spent on children in women that work under a hybrid employment scheme. The revealed contradiction indicates difficulties in the practical implementation of this work format, which significantly reduce women's satisfaction regarding the time spent on parenthood. The determinants of this effect require further verification with the use of qualitative techniques.

Key words: parenthood, time spent on children, family–work balance, employment, satisfaction, parental well-being.

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Introduction

Satisfaction concerning the time spent on parenthood is one of the determinants of parental well-being and reproductive behavior. The Concept of State Family Policy for the period up to 2025[1] reflects the idea that it is necessary and appropriate to create real conditions for combining family responsibilities with professional activities, including through the development of employment forms that promote a harmonious balance of parental and labor obligations.

The implementation of family policy to harmonize the family-work balance can contribute to the growth of fertility rates and positively affect the economic efficiency of labor relations. Satisfaction regarding the work-family balance increases labor satisfaction (Nilawati et al., 2019) and removes barriers to productivity growth (Belekhova, Ivanovskaya, 2022).

Digitalization has become a catalyst for spreading flexible employment formats (remote, hybrid, platform, self-employment), which, according to some estimates, makes it possible to combine employment with family responsibilities more successfully (Abramov, Bykov, 2021).

However, experts' opinions on the digitalization impact on employment are ambiguous. On the one hand, the large-scale introduction of technologies

[1] On Approval of the Concept of State Family Policy in the Russian Federation for the period up to 2025: RF Government Resolution 1618-r, dated August 25, 2014.

opens up limitless opportunities for professional self-actualization, career and personal growth, improving well-being and quality of life (Ganju et al., 2016; Zelenkov, Lashkevich, 2020), job creation, etc.[2]. Digital technologies contribute to changing the working time structure (Pobiyanskaya et al., 2022), it becomes flexible and can be transformed depending on the desire of an employer and employee[3]. In the digital economy, there are opportunities to both reduce the duration of working time and extend it beyond the standard norm of working hours (Demina, Zayakina, 2020), conditions are created for poly-employment, which often allows not only obtaining additional financial income and stability, but also it helps to unlock employee's professional potential, increases their stability and confidence in the future (Kuchenkova, 2019).

On the other hand, researchers agree that digitalization contributes to growing work intensity and working hours. According to the Russian Longitudinal Monitoring Survey of the National Research University Higher School of Economics, about a third of the country's population (35%) have a working day longer than 9 hours[4]. The increase in the working day length is due to a number of reasons, including underemployment at the main workplace, low wages, rising inflation and declining real incomes, and labor market instability, which encourages workers to seek additional employment opportunities in their free time from the main job (Demina, Zayakina, 2020; Kuchenkova, 2019). We are witnessing such a phenomenon as over-employment (working week is over the standard 40 hours), which carries negative risks and consequences for the work-family balance.

The problem of the work-life balance for working parents with preschool and school-age children is particularly relevant. There is a need for a deeper study of the benefits and risks of modern trends in employment for working parents in terms of planning the birth of children, the quantity and quality of time for their upbringing, and satisfaction with time spent on children. According to the researchers' estimates (Kalabikhina, 2019), digitalization has a positive impact on demographic trends, at the same time, there are concerns that the reproductive attitudes of citizens may conflict with the lifestyle and consumer opportunities within the digital economy. In this regard, special attention is paid to creating the necessary conditions in society for giving birth and raising children, popularizing the values of parenthood and childhood, and harmonizing working hours to improve the work-family balance (Shabunova, Leonidova, 2023).

At this stage, there is no deep understanding of how transformations in employment, in particular digital, flexible and hybrid forms of modern work organization, affect the work-family balance. In the Russian scientific literature, studies, aimed at examining the specifics of satisfaction with the time costs of parenthood among people of different types and modes of employment, are fragmentary. We aspire to fill the existing lacunas in this direction. Our hypothesis is based on the assumption that there is a relationship between the penetration of information and communication technologies (ICT) in employment and satisfaction with time spent on parenthood. The employment digitalization is reflected not only in an increase in the intensity of ICT use in work, but also in changes in work mode (flexible/hard), job format (remote/hybrid/stationary), and sectoral conditions of employment.

The object of the research is working-age women and men, with work experience, living in the Russian Federation and raising children under the age of 14.

[2] Value of connectivity: Economic and social benefits of expanding Internet access. Deloitte, 2014. Available at: https://www2.deloitte.com/content/dam/Deloitte/ie/Documents/TechnologyMediaCommunications/2014_uk_tmt_value_of_connectivity_deloitte_ireland.pdf

[3] Kobzar' E.N. *Economic Analysis of the Causes of Over-Employment in Contemporary Russia*. Available at: https://lirt.hse.ru/data/2011/05/29/1212611019/20110524-Kobzar.pdf

[4] Russia Longitudinal Monitoring Survey of HSE. Available at: http://www.cpc.unc.edu/projects/rlms

The aim of the study is to examine the impact of employment digitalization on the work-child balance.

The key task is to assess the degree of satisfaction with time spent on parenthood depending on the following employment parameters: intensity of the ICT use in work; flexibility of work mode; workplace format (remote, hybrid, stationary); industry. In addition, we study the relationship of satisfaction concerning the time spent on parenthood with actual time spent on children and the age of children.

Subjective assessments of satisfaction regarding the time spent on parenting will reveal how successful working parents are at balancing work and time with children.

Literature review

Time spent on childcare and child rearing are important components of working parents' life (Razumova, Serpukhova, 2020). The assessment of psychological (satisfaction concerning involvement) and time expenditures (satisfaction regarding time allocation) on different life domains acts as one of the many approaches to measuring the work-family balance (Greenhaus et al., 2003). Satisfaction concerning the parenting time has a significant impact on the subjective well-being of fathers and mothers in the process of building a harmonious balance between parental and professional responsibilities.

The study of parents' time expenditure on child rearing is carried out by foreign (Nomaguchi et al., 2005; Gutiérrez-Domènech, 2010; Neilson, Stanfors, 2014; Zannella et al., 2020) and Russian (Bagirova, Shubat, 2011; Korolenko, Kalachikova, 2019; Korolenko, 2021) researchers. The work of Western scholars in recent decades has significantly expanded the understanding of the demographic and socio-economic determinants of parental satisfaction with time spent with children, which has contributed to a better understanding of this complex phenomenon (Nomaguchi et al., 2005; Monna, Gauthier, 2008; Gutiérrez-Domènech, 2010; Zannella et al., 2010; Kutrovátz, 2017).

The digital transformation of employment focuses on how changing working conditions affect parents' time with their children. Of particular interest is the study of the impact of different parameters and characteristics of employment (length of the working day, full-time and part-time employment, working hours per day/week, standard/non-standard work schedule) on the time of working parents with children (Hallberg, Klevmarken, 2003; Rapoport, Le Bourdais, 2008; Gutiérrez-Domènech, 2010; Bagirova, Blednova, 2021; Tonkikh, Chernykh, 2022). Evidence from empirical studies strongly suggests that working hours in the evening after 6 p.m. significantly reduces leisure time and socialization with children (Noonan et al., 2007; Rapoport, Bourdais, 2008). The possible negative impact of irregular work schedules on parental well-being has also been documented (Pollmann-Schult, Li, 2020).

A number of empirical studies have found positive effects of remote employment and flexible working hours on the harmonious reconciliation of parental and professional responsibilities (Bagirova, Blednova, 2019; Tonkikh, Chernykh, 2022). It is too early to draw conclusions about how the employment digitalization affects the well-being of working parents, including the expenditure of parental time on children. Empirical evidence (Yang et al., 2023) suggests a divergent effect of remote employment on the well-being of mothers and fathers. The sustained positive effect of remote employment on parental well-being is due to a number of factors, including the availability of necessary conditions for working from home.

Research is underway to examine gender differences in the impact of time spent with children (time-to-children) and experienced lack of time with children on parental well-being in families where both adults work. Findings (Milkie et al., 2004; Zannella et al., 2020) indicate that most fathers desire to spend more time with their children, while a greater proportion of mothers show satisfaction concerning the time spent with their children. The studies also note that only for

mothers, lack of time with children and spouse is associated with lower well-being (Nomaguchi et al., 2005). It is also important to say that changes in mothers' work hours have a smaller effect on the time parents spend with their children than changes in fathers' work hours (Hallberg, Klevmarken, 2003).

In the context of our study, the works of Western scholars on the impact of the family-work balance and family-work conflict on parental well-being are of particular interest (Baxter et al., 2007; Cooklin et al., 2015; Gatrell et al., 2014). According to (Meier et al., 2016) there is no negative relationship between employment and mothers' subjective perceptions of time spent with their children. Male parental well-being, on the contrary, is significantly related to the type of job and working conditions (Cooklin et al., 2015). Certain job features are directly associated with increased work-family conflict (long working hours, inflexible work schedules, night shifts, job insecurity, lack of autonomy) and they consequently lead to a decrease in fathers' well-being (Cooklin et al., 2015).

The researchers have found that existing family-friendly workplace strategies are mainly aimed at mothers. Traditional gender role views of organizational leaders often prevent fathers from optimally combining work and childcare (Gatrell et al., 2014), which has a negative impact on time spent on children and parental well-being in general.

The review of studies by Russian and foreign authors demonstrates the diversity of approaches to the determinants that define the subjective perception of working parents' satisfaction regarding the time with their children. The digitalization penetration into the sphere of labor actualizes the research of ICT influence on work-children balance.

Materials and methods

We used methods of sociological research (online survey), methods of statistical and mathematical processing of information, comparative and contrasting analysis. At the stage of research design formation, we studied the works of Russian and foreign authors concerning the problem of combining work with fulfillment of family-parental responsibilities.

Foreign scientists consider the work-family-children balance in the context of the negative impact of non-standard employment parameters on the health of parents and children, on well-being and relationship satisfaction, using such measurement/evaluation indicators as non-standard work schedule, duration of working hours, length of commute (Pollmann-Schult, Li, 2020); parents' demographic characteristics (gender, age, marital status); parental socio-economic characteristics (employment status, financial income, profession, etc.); parents' social and economic characteristics (employment status, financial income, occupational status, etc.). Some authors use an indicator of time spent with children to assess working parents' well-being (Milkie et al., 2004; Zannella et al., 2020).

"Time" as an evaluative metric of the optimality of the family-work balance and the success of combining work and parenthood is central to both foreign and Russian research projects. In the system of indicators of the family-work balance, the works of T.O. Razumova and M.A. Serpukhova (Razumova, Serpukhova, 2020) use the indicator of satisfaction regarding the distribution of time, which provides individual fulfillment of both work and family functions. The work (Bagirova, Blednova, 2021) studies the influence of employment parameters on the combination of parental and professional responsibilities using an index method of assessing barriers, including depending on the length of the working day and work schedule.

The analysis did not reveal any studies devoted to the problem of the impact of digitalization of labor content on the work-family balance. Our research design and tools were developed based on the approaches of the authors (Milkie et al., 2004), who used grouping of respondents in terms of employment profiles (underemployment; full-time work; overemployment) and presence/age of children. We chose the indicator "satisfaction

regarding the ability to devote sufficient time to children" as an evaluation metric of the optimality of the work-child balance. We refined the respondents' employment profiles to fit the research aims and objectives. The questionnaire contained a key question on satisfaction with time for children, a standard socio-demographic block, a block on children's age and questions on employment parameters. We used closed-ended wording; the total number of questions was 25.

To address the key objective of the study – to assess the degree of satisfaction with time spent on parenthood depending on the digitalization penetration in the sphere of work, the "Employment" block included questions to identify and group respondents according to such employment parameters as:

– ICT use (intensive use of ICT in work /non-intensive use of ICT or no use of them in work);

– work mode (flexible/rigid);

– workplace format (remote/hybrid/stationary);

– industry affiliation with the IT sector being singled out.

To address an additional research objective, the questionnaire includes questions on the actual time spent on child/children care and education in a typical working day; the number of children and their ages.

The empirical basis of the study was the results of a sociological survey we conducted from May 25 to June 4, 2023. When distributing the link to the questionnaire, we used the "snowball" method, the questionnaire was distributed using online technologies through digital communication platforms: placement on the HH.ru platform, personal offices of HH.ru job seekers, online mailings among job seekers and partners of the HH.ru online platform. The survey was conducted with the help of the digital tool "Survey Designer", the obtained data were uploaded into Excel program for further calculations and comparative analysis of descriptive statistics.

We received 1,449 responses. To solve the research task of identifying the relationship between satisfaction with the opportunity to devote time to children and employment parameters, the total number of respondents (N = 1,449) was excluded from the total number of respondents with no children, as well as those with children under 15 years old. Thus, the final sample consisted of **954** respondents.

At the first stage, we conducted a comparative analysis of descriptive statistics of satisfaction with time spent on children. In accordance with the logic of the study, respondents were grouped by key employment parameters (intensity of ICT use in work; flexibility of work mode; workplace format; industry) and additional parameters (actual time spent on children; age of children). In each selected group, an average time satisfaction score was calculated based on the results of answers to the question "Will you rate how you are satisfied with your ability to devote sufficient time to your children?". The assessment was made on a scale from 1 to 10, where "1" means that the respondent is absolutely not satisfied, "5" – it is difficult to assess, "10" – the respondent is fully satisfied.

The second stage assessed statistically significant differences in the parameters of employment, average number of children and having children under 6 years old in the groups of respondents with extreme average satisfaction ratings regarding the time for children – highly satisfied and extremely dissatisfied:

1) the most satisfied respondents were those who gave 9–10 points when answering the question "How satisfied are you with the opportunity to devote enough time to your children?";

2) parents with 1–3 points are classified as dissatisfied.

We used the statistical criterion χ^2 to test the hypothesis of equality between the shares of a feature in the general populations on the basis of two independent samples. To compare the shares of indicators in two independent groups of

interviewees satisfied and dissatisfied with time spent on childcare, a contiguity table was filled in. We note that the expected frequency values for each cell of the contiguity table have values of at least 5, which is an important condition for the application of the χ^2 criterion.

The null hypothesis of the criterion χ^2 states that there are no statistically significant differences between the compared groups. In the study, differences in fractions were considered statistically significant at the $p < 0.05$ level. Values of $p > 0.05$ allow rejecting the null hypothesis in favor of the alternative hypothesis that there are statistically significant differences between the fractions of the trait in the compared groups.

We should note that the conducted sociological survey has limitations in terms of the quality of the sample population. Since the sociological survey was conducted on the HH.ru platform, the number of respondents included certain categories of citizens, namely parents with children under 14 years old, who are users of the HH.ru platform, who at the time of the survey either had a job but were thinking about changing it or looking for additional work / part-time work, or those who at the time of the survey did not have a job and were looking for one. It means that the sample is skewed toward those who are "discontented"/"dissatisfied" with their jobs and looking for them. The sample did not include parents with stable employment that suits them.

Table 1 presents characteristics of the respondents' composition.

Table 1. Characteristics and composition of respondents, %

Indicator	Value
Total number of respondents, people	1,449
Including	
Female	56.5
Male	43.8
Employment structure of respondents	
has only a full-time job	41.9
is not working, looking for a job, but not registered with the employment service	32.0
has a permanent job and additional part-time work	12.8
has only a temporary job	5.9
is not working, registered as unemployed in the employment service	3.7
is on maternity leave	2.3
is not working or looking for work	1.4
Marital status structure of respondents	
married (registered marriage, civilian registry office)	52.9
single (is not dating anyone)	25.3
living with a partner (civil marriage), consider ourselves husband and wife	9.1
Has a partner, we are dating, but not living together (not married)	6.0
living with a partner, but do not consider ourselves husband and wife	3.4
officially registered, but we live apart	0.9
other	2.4
Structure of respondents by presence of children	
do not have children	31.8
have children	68.2
Total number of respondents with children under 14 years old, people	954
Structure of respondents raising children under 14 years of age	
women	60.3
men	39.7
Source: own compilation based on sociological research data.	

The age group from 25 to 34 years prevails – 35.9% of the total number of respondents. The geography of respondents includes all eight federal districts.

The respondents are dominated by "line specialists" (40.8%), "managers" (25.8%), "employees" (8.3%), with the majority of respondents being salaried employees (86.2%), the share of self-employed amounted to 6.7%, individual entrepreneurs – 2.3%, freelancers – 2.2%.

Among respondents raising children under 14 years old, the percentage of parents with children under 3 years old was 20.3%, 4–6 years old – 24.8%; 7–10 years old – 29.8%; 11–14 years old – 25.1%.

Results and discussion

Analysis of the distribution structure of answers to the question "Will you estimate how are you satisfied with the possibility to devote enough time to children?" has shown that the highest share of women satisfied with the time spent on parenting amounted to 19.4%, the share of fully satisfied male respondents – 17.3%. The share of women least satisfied with the actual time spent on children is equal to 5.3%, the share of men is 1.8 p.p. higher (*Tab. 2*).

The obtained data allow tracing the correlation between the average satisfaction rating with parenting time and the intensity of ICT use/non-use in work *(Tab. 3)*. It is noteworthy that in the group of "intensive use of ICT in work", the average satisfaction rating concerning the parenting time is lower, with the lowest rating among male respondents (5.9). The statistically higher mean score of satisfaction concerning the parenting time is demonstrated by the group of "do not intensively use ICT or do not use them in work" (6.5).

Table 4 presents the average satisfaction rating regarding the ability to devote sufficient time to children by gender, depending on the intensity of the ICT use and the presence of children of different ages up to 14 years old.

Table 2. Satisfaction rating concerning the time for parenthood among all respondents and by gender, %

Satisfaction rating	Total	Male	Female
1	6.2	7.1	5.3
2	2.6	2.6	2.7
3	9.1	8.9	9.3
4	8.3	8.1	8.2
5	14.7	14.1	14.9
6	9.4	9.9	9.5
7	15.5	17.0	14.8
8	10.6	10.7	10.5
9	4.9	4.2	5.3
10	18.7	17.3	19.4
Average rating, units	6.3	6.2	6.3
Source: own compilation based on sociological research data.			

Table 3. Average satisfaction rating concerning parenting time depending on the ICT use in work

Category of employed	Total		Male		Female	
	Share of employed, %	Mean score, units	Share of employed, %	Mean score, units	Share of employed, %	Mean score, units
Intensive use of ICT in work	45.2	6.1	46.1	5.9	46.0	6.1
Little or no use of ICTs in their work	54.8	6.5	53.9	6.4	54.0	6.5
TOTAL	100.0	–	100.0	–	100.0	–
Source: own compilation based on sociological research data.						

Table 4. Average satisfaction rating concerning parenting time by gender, depending on the ICT use in work and the presence of children under 14 years old, units

Children age, years	Male		Female	
	Intensive use of ICT in work	Non-intensive use of ICT or no use of ICT in work	Intensive use of ICT in work	Non-intensive use of ICT or no use of ICT in work
From 0 to 3	5.9	6.1	6.1	7.3
From 4 to 6	5.6	6.1	5.3	6.1
From 7 to 10	5.6	5.6	5.6	6.2
From 11 to 14	5.9	6.6	6.2	6.1
Source: own compilation based on sociological research data.				

We can see differences in satisfaction concerning parenting time between the groups "intensive use of ICT in work" and "non-intensive use of ICT or no use of ICT in work". Among women, the highest mean scores for satisfaction with parenting time are found in the category of employed people who raise children under three years of age and "non-intensive use or no use of ICT in work". In a similar employment category, men with children 11–14 years old have the highest mean score of satisfaction with parenting time.

We can assume that gender differences in satisfaction with time for raising younger and adolescent children are related to the fact that men are more interested in joint activities with older children (checking homework, visiting hobby clubs, doing sports together, hiking, etc.), which has a positive effect on satisfaction with time for fatherhood.

Table 5 presents the structure of time spent on child/children care (feeding, washing, supervision, checking homework, etc.) in a typical working day. In the group of respondents whose time spent on parenting exceeds 7 hours in a typical working day, 73.7% are women, 26.3% are men. High time spent on parenting is conditioned by the number and age of children. For instance, 60.7% of respondent mothers bring up one child, 32.1% – two children, while 32.2% of the interviewed women have children under three years of age, 27.9% – under 6 years old; 70.0% of respondent fathers bring up one child, 20.0% – two children, while 22.2% of fathers have children under three years old, 22.2% – under 6 years old. In this group of respondents the structure by employment status is as follows: 39.3% of female respondents are searching for a job, 25.0% are on maternity leave, the rest of respondents (35.7%) are working, of which: on permanent work – 17.9%, on temporary work – 3.6%, on permanent and temporary work – 14.3%, at that 70.0% of working moms are employed on flexible work schedule, and working time does not exceed 40 hours per week.

Table 5. Time spent on parenthood among all respondents and by gender, %

Time spent on parenthood, children upbringing	Total	Male	Female
Up to 1 hour	6.4	9.7	4.3
1–2 hour(s)	24.6	28.0	22.7
3–4 hours	26.6	24.6	28.5
5–6 hours	9.8	4.5	13.1
7–10 hours	2.0	1.8	2.2
11 hours and more	2.1	0.8	2.6
It depends	18.3	15.4	20.3
I do not take care of a baby	10.1	15.2	6.4
Total	100.0	100.0	100.0
Source: own compilation based on sociological research data.			

Among male respondents, 60.0% are searching for a job, 40.0% are employed: of which, 20.0% are employed in permanent jobs, 10.0% in temporary jobs, 10.0% in permanent and temporary jobs, with all respondents employed under flexible working conditions and working hours not exceeding 40 hours per week.

About half of the respondents (51.2%) spend from one to four hours per working day on child/children care. Gender differences in time spent on children can also be traced. About a third of women devote 3–4 hours daily (28.5%) to a child, while about the same proportion of male respondents most often spend 1–2 hours (28.0%). Twice as many men as women are not engaged in child/childcare (15.2 and 6.4% respectively).

The obtained data reveal gender differences in satisfaction with parenting time depending on the actual time spent on raising children and depending on the format of employment – with intensive use of ICT in work, or non-intensive use or no use of ICT *(Tab. 6)*. There is a common trend for men and women: higher mean scores of satisfaction concerning parenting time are recorded in the category of employment with non-intensive use or no use of ICT in work.

The analysis shows that the predominant majority of respondents have a rigid work regime, the hours of work start and end, breaks are set by an employer and do not change. In this group of respondents, the lowest average satisfaction rating regarding time for parenthood (5.6) is observed, including gender differences. Gender differences are not statistically significant, the average satisfaction ratings of men and women in this group of respondents are 5.5 and 5.6 respectively *(Tab. 7)*.

Table 6. Average satisfaction rating concerning parenting time by gender, depending on the use of ICT in work and actual time spent on parenting, units

Group by time spent on raising children	Male		Female	
	Intensive use of ICT in work	Non-intensive use or no use of ICT in work	Intensive use of ICT in work	Non-intensive use or no use of ICT in work
Up to 1 hour	5.9	6.8	6.1	8.3
1–2 hour(s)	5.9	6.3	5.6	5.8
3–4 hours	6.0	6.1	5.9	6.1
5–6 hours	5.4	6.8	5.7	6.3
7–10 hours	6.2	6.0	6.3	7.2
11 hours and more	7.0	7.0	7.0	6.9
It depends	5.5	6.8	6.7	6.6
I do not take care of a baby	6.7	6.1	8.8	8.4
Source: own compilation based on sociological research data.				

Table 7. Average satisfaction rating concerning parenting time among all respondents and by gender by mode of operation

Working time pattern	Total		Male		Female	
	% of employed	Mean score, units	% of employed	Mean score, units	% of employed	Mean score, units
Flexible working hours on my own initiative (I independently regulate start, break and end times)	25.6	6.4	27.1	6.5	24.3	6.4
Flexible working hours set by the employer (start, break and end times)	22.8	6.6	24.5	6.5	21.7	6.7
Rigid regime, working hours are set by an employer and do not change	51.6	5.6	48.4	5.5	54.0	5.6
TOTAL	100.0	–	100.0	–	100.0	–
Source: own compilation based on sociological research data.						

Respondents from the groups with flexible working hours on average estimated their satisfaction with time spent on children higher, with the highest average rating in the group "flexible working hours set by an employer" (6.6). Female respondents from this group on average rated their satisfaction with time spent on parenting higher (6.7) than male respondents and women from other groups. In the female group who use ICT intensively in their work, those who do not take care of children (24.4%), those who devote 3–4 hours to child-rearing (22.0%), and those who devote different amounts of time to child-rearing ("whenever"; 22.0%) are most satisfied with their parenting time, with 77.8% of women in this group raising one child and 22.2% raising two children. In the female group who do not intensively use or do not use ICT in their work, the most satisfied with parenting time are those who devote varying amounts of time to raising children (25.7%), those who devote 1–2 hours (20.0%), and those who do not take care of children (20.0%), with 57.1% of women in this category raising one child and 42.9% raising two children.

In the group of male respondents who intensively use ICT in work, those who do not spend time on childcare (37.5%) and those who spend 1–2 hours on parenting (20.8%) are the most satisfied with parenting time, with 60.0% of fathers in this group raising one child and 20.0% of fathers raising two children. In the group of male respondents who do not intensively use or do not use ICT in their work, those who devote varying amounts of time to parenting (25.7%) and those who devote 1–2 hours to parenting (20.0%) are the most satisfied with parenting time, with 48.6% of fathers raising one child and 31.4% raising two children in this category of respondents.

We obtained interesting results regarding the dependence of the average satisfaction rating regarding time for parenting on working conditions *(Tab. 8)*. Among women, respondents in the category "working remotely temporarily" are most satisfied with time for child-rearing (average score 8.0). Among men, the highest average satisfaction rating (6.5) is observed in the category of those employed remotely on a permanent basis. The lowest satisfaction with parenting time is demonstrated by male respondents working remotely temporarily and women working in a hybrid format (5.5% in each category, respectively). Satisfaction concerning time spent on children was almost identical for men and women working in a permanent stationary workplace (mean scores of 6.0 and 5.9, respectively). This result may be due to the fact that the transition to a remote format of work blurs the boundaries between work and personal

Table 8. Average satisfaction rating concerning parenting time among all respondents and by gender, depending on working conditions

Working conditions	Total		Male		Female	
	% of employed	Mean score, units	% of employed	Mean score, units	% of employed	Mean score, units
I work at a permanent stationary workplace at employer's place (workplace determined by the employer)	71.6	5.9	71.5	6.0	71.7	5.9
I work remotely constantly from home / other place with the use of the Internet (computer, tablet, cell phone, laptop, etc.).	16.1	6.3	14.1	6.5	7.6	6.3
Hybrid work format (alternating between remote format and standard employment at employer's place)	10.8	5.8	12.9	6.2	9.1	5.5
I work remotely temporarily (industrial necessity, pandemic) from home / from another place using the Internet (computer, tablet, cell phone, laptop, etc.).	1.6	7.0	1.6	5.5	1.6	8.0
Source: own compilation based on sociological research data.						

time, thereby increasing the workload and leaving less time for raising children, as a consequence, reducing satisfaction with time for parenthood.

Table 9 presents average satisfaction rating regarding time to parenting by industry.

Women and men employed in the sphere of "sales, customer service" are the most satisfied with time for parenthood: the average satisfaction index is 7.3 and 6.5 points, respectively. We can assume that this is due to the specifics of professional activity, and overtime work.

The lowest average satisfaction rate among women is observed in the professional category "marketing, advertising, PR" (5.5), among men it is "science, education" (5.0). As for those employed in the IT-industry, they have average indicators of satisfaction with time for parenthood.

Figures 1 and 2 present the employment parameters of fathers and mothers at the extremes in terms of satisfaction regarding the time for children.

We have found that men who are dissatisfied with the opportunity to devote time to children are statistically significantly more likely to work with intensive ICT use (39.0% of the total dissatisfied group). Among those satisfied with time for parenthood, 23.0% work with intensive ICT use. In other words, working conditions in jobs with high digitalization penetration have a negative impact on the work-child balance for men. No significant differences were found for the other employment parameters. We should note that the differences in the parameter "flexibility of work mode" are "borderline" in terms of statistical significance, but rather in a positive direction. In the group of fathers, satisfied with the opportunity to deal with their children, flexible working hours are slightly more common (by 11 p.p.). The average number of children in both groups is the same (1.48).

The results show that women, satisfied with the amount of time for their children, are statistically significantly more likely to work flexible hours than those who believe that they do not devote enough time to their children. Among women, satisfied with the amount of time for children, the share of mothers raising young children is statistically significant.

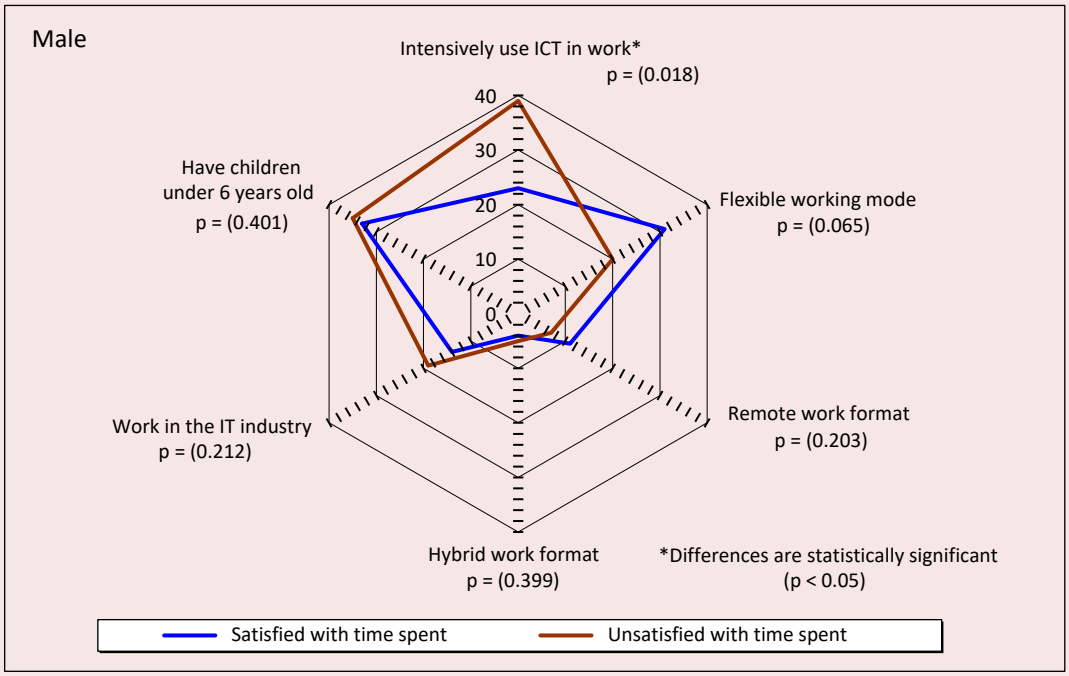
We obtained interesting data when answering the question "What do you need to change in your work environment to become a better parent?" (*Tab. 10*).

About a third of the women surveyed (28.7%) believe that switching to a hybrid employment scheme can increase parental well-being; almost a quarter of women (23.0%) expressed that a change in working conditions to a permanent remote

Table 9. Average satisfaction rating concerning time for parenthood among all respondents and by gender, depending on belonging to a professional category by industry, units

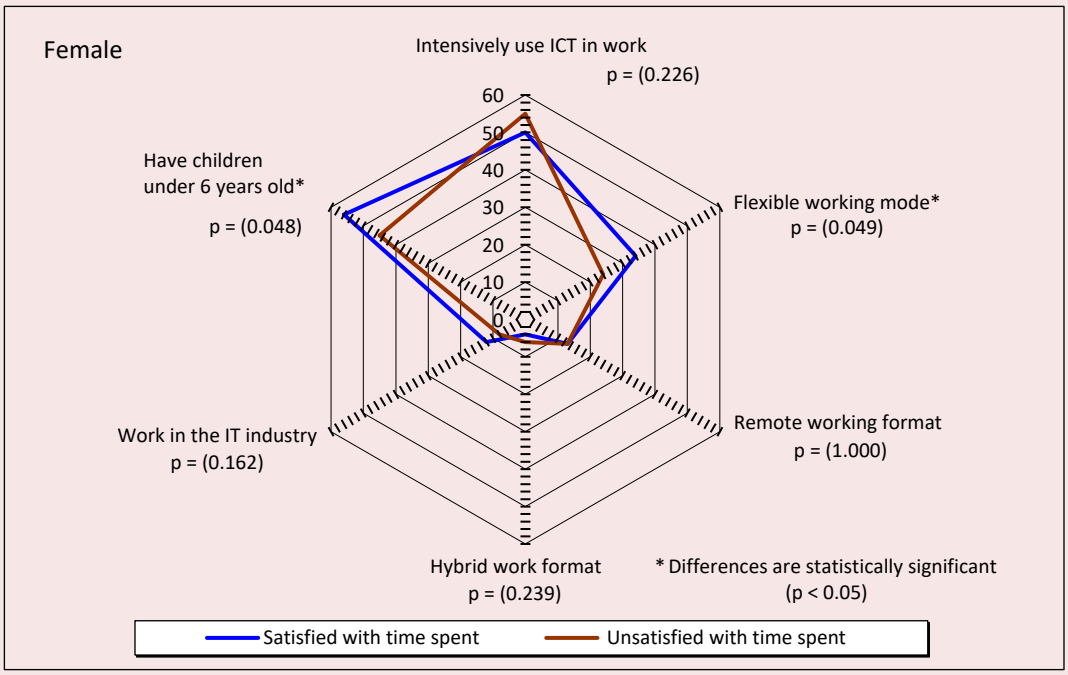
Professional category	Total	Male	Female
Sales, customer service	7.1	6.5	7.3
Administrative staff	6.7	6.1	6.7
Transport, logistics, shipping	6.4	6.3	6.4
Information technology	6.3	6.2	6.4
Senior and middle management	6.2	6.2	6.1
Science, education	6.2	5.0	6.2
Building, real estate	6.1	6.3	5.8
Personnel management, trainings	6.1	5.5	6.1
Production, service	6.0	5.8	6.6
Finance, accounting	5.8	6.2	5.8
Marketing, advertising, PR	5.7	6.2	5.5
Source: own compilation based on sociological research data.			

Figure 1. Fathers' profile in groups with extreme satisfaction ratings concerning time with children, %*



* We present the share of employment by selected parameters and the share of fathers with children under 6 years old. The frequencies are calculated respectively in groups: respondents who highly rated their satisfaction with time for children, 9–10 points (satisfied with time) and respondents with extremely low level of satisfaction, 1–3 points (dissatisfied with time).

Figure 2. Mothers' profile in groups with extreme satisfaction rating concerning time with children, %*



* We present the share of employment by selected parameters and the share of fathers with children under 6 years old. The frequencies are calculated respectively in groups: respondents who highly rated their satisfaction with time for children, 9–10 points (satisfied with time) and respondents with extremely low level of satisfaction, 1–3 points (dissatisfied with time).

Table 10. Performance improvements/changes needed to become a better parent, %

Indicator	Total	Male	Female
Switch to a hybrid employment scheme (alternating between telecommuting and standard on-site employment)	25.6	21.5	28.7
Switch to remote working mode (working from home/away from home all the time using the Internet)	20.5	16.2	23.0
Work in office (organization, enterprise) on a flexible schedule: independently regulate the time of start, breaks and end of work	17.5	11.8	21.5
Reduce overtime work	17.1	18.3	16.7
Reduce working hours	16.9	16.2	17.4
Reduce number of working days per week	14.6	13.6	15.5
Change career	13.1	13.4	12.4
Reduce workload, responsibility	12.8	11.5	13.9
Become self-employed, freelancer, blogger	7.9	7.3	8.2
Change to a standard five-day week with two days off	7.5	6.7	7.7
Become an individual entrepreneur	5.2	8.1	3.3
Nothing needs to be changed	22.4	27.7	18.6
Source: own compilation based on sociological research data.			

working mode can have a positive effect, about one-fifth of the women surveyed (21.5%) believe that parental well-being improves when switching to a flexible work schedule.

Among male respondents, the main changes in working conditions to improve parental well-being are switching to a hybrid employment scheme (21.5%), reducing overtime work (18.3%), reducing working hours and switching to a remote working format (16.2% each, respectively). A statistically significant proportion of women indicated positive effects in reducing overtime (16.7%) and working hours (17.4%), and reducing the number of working days per week (15.5%). The desired changes in working conditions noted by respondents indicate the need to reduce the workload, overtime work; change the schedule and mode of work to hybrid and flexible.

Conclusions

The research results allow drawing the following conclusions.

First, we have revealed the existence of a relationship between the processes of digitalization of employment and subjective perception of working parents' satisfaction with time for children, which generally confirms our hypothesis. The relationship is of a contradictory nature. A comparative analysis of satisfaction concerning time for parenting in groups with intensive and non-intensive use of ICT in work demonstrated a negative correlation. In the group of respondents who intensively use ICT in work, the average satisfaction rating regarding parenting time is lower than in other groups, both in the relationship with the actual time spent on parenting and in the relationship with the presence of children of different ages (up to 14 years old). We should recognize that the revealed differences are alarming. At the same time, the average values in the sectoral breakdown of employment showed that those working in IT-industry have average indicators of satisfaction concerning time for children. Thus, we have identified a problem field related to the ambiguous, and possibly unfavorable, impact of ICT on time satisfaction with parenthood. The obtained data require further verification, it is necessary to conduct additional research to create an objective and complete picture of the possible effects of ICT on the work-child balance and parental well-being.

Second, the detailed assessment of parental satisfaction with time spent on children depending on the actual time spent on child care and upbringing shows that there is no direct correlation

between the amount of time parents spend with their children and subjective satisfaction with time spent on parenting. Women who spend up to 1 hour a day on childcare (mean score is 8.3) and men whose actual time spent on childcare is up to 1 hour a day or 5–6 hours (mean score is 6.8) rated their satisfaction with parenting time the highest. We also have found differences in satisfaction with parenting time depending on children's age. Women raising children up to three years old and men with children aged 11–14 assess their satisfaction with parenting time higher than respondents in other groups (mean score – 7.3 and 6.6 respectively). The results are broadly consistent with findings from other studies (Monna, Gauthier, 2008). This once again confirms that in addition to the actual costs of parenthood, the subjective assessment of satisfaction with time for children is conditioned by many other factors.

Third, the detailing of satisfaction with time spent on parenting depending on the mode of work demonstrates that respondents working in rigid mode assessed their satisfaction concerning time spent on parenting lower than in the categories with flexible work modes. Given that almost half of the respondents surveyed are employed under rigid working conditions, we can conclude that half of the respondents are not satisfied with their ability to spend time on parenting. The obtained results are quite expected and generally correspond with the data of other studies (Bagirova, Blednova, 2021; Ichino, De Galdeano, 2004), which record the positive impact of flexible forms of work organization on the subjective perception of satisfaction regarding time for parenting. We believe it is quite reasonable that women are more satisfied when there is a possibility of "stress-free" shifting of the time of the beginning and end of the working day/breaks and there is an employer who takes care of organizational issues and bears full responsibility for the creation and monitoring of a flexible workplace. Consequently, it is necessary to strengthen measures to introduce "family-oriented workplace" practices, especially in terms of giving parents raising children under 14 the right to choose a flexible schedule. We consider it appropriate to introduce measures to ensure flexible working hours for parents of children of different age groups, in particular, in families with two working parents raising children of preschool and primary school age, both parents should be able to choose flexible working hours, since the care and education of children of this age requires more time and involvement of both parents. For a more harmonious combination of professional and parental responsibilities, it is advisable to enshrine in the regulatory framework in terms of regulating the labor activity of persons raising children under 14 years of age, the possibility of employment on flexible schedules, part-time work, remote employment (work at home). We are confident that these measures will create the necessary conditions to increase parents' time spent on child care and education, which will have a positive impact on parental well-being and reproductive attitudes.

Finally, the results obtained in the group of respondents employed in a hybrid work format revealed a contradiction in satisfaction with time spent on children. Women working in the hybrid format rated their satisfaction significantly lower than women in the groups with other working conditions. However, almost a third of women (29%) felt that switching to the hybrid format was a major change in working conditions in terms of positive impact on perceptions of parental well-being. Thus, despite the fact that about a quarter of the total number of respondents rated the hybrid employment scheme as optimal for combining parenthood and work, in its practical implementation, women face difficulties that significantly reduce their satisfaction with parenting time. We believe that this effect requires further research using qualitative methods. Perhaps there are problems in the sphere of work organization, self-discipline, blurring of boundaries and actual

overtime, which is not recorded in the timesheet. Employers when setting tasks do not adequately estimate the time for their implementation, so there are difficulties with time management and self-organization of the working day at home.

As a future research task, we see the implementation of a broader study on a representative sample, which will make it possible to detail the nature of the relationship between the digitalization of employment and the "work-child" balance, and to conduct correlation and cluster analysis of the data obtained. Such a comprehensive assessment will help to specify the factors of positive and negative impact of different profiles of digital employment on fertility and parental well-being, and will form the basis for improving family and demographic policy to increase parental well-being and fertility in Russian families.

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Approaches to Assessing the Effectiveness of the Export of Educational Services by Universities in the Cities – University Centers of Russia

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Abstract. The export of education in Russia was officially proclaimed as a priority area of governmental policy in 2017. The subsequently adopted documents such as the project "Development of the export potential of the Russian education system", the program "Priority 2030", and the national project "Science and universities" confirm that the export of education remains an important governmental strategy, despite the changed geopolitical context. The export of education is considered in the works of scientists from Russia and other countries: they study in detail the economics of education export in various countries, adaptation of foreign students, methodological approaches, legal and visa systems of educational migration, etc. The aim of our work is to develop a methodology for evaluating the effectiveness of the export of education by universities in the cities – university centers of Russia and test it on the materials of the Siberian Federal District. Despite a wide range of relevant publications that we arranged in six main groups, these aspects have not been the subject of scientific analysis. We have developed our own system of indicators and indices (a comprehensive indicator of the effectiveness of the export activities of universities in the cities – university centers, calculated on the basis of indices of the educational and research potential of universities' export activity). The methodology has been tested on the indicators for 115 universities and 30 cities – university centers of the Siberian Federal District. We have revealed that the data are scattered: out of 29 cities where foreign students study, only Tomsk is in the group of cities with high potential for educational and research export activities. The majority of the cities – university centers (22) belong to group 3 – with low potential for educational and research export activities. Our research makes it possible to comprehensively assess the effectiveness of the export of educational services by universities and cities – university centers in each group and set out the priorities for the development of universities; and also identify cities that best meet the needs of the country to implement the export of education.

Key words: internationalization of education, cities – university centers, export of education, complex indices, assessment methodology.

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Introduction

The international education market is an important and dynamically growing service industry. According to the report "Global Education Market 2023", the growth rate of the world market of higher education by 2027 will be 7%, and its volume – 4.47 trillion U.S. dollars, including about 200 billion U.S. dollars (3%) will account for the market of online education[1]. According to the definition of the Organization for Economic Cooperation and Development, the export of educational services is the provision of educational services to foreign students in person or through modern communication technologies (online learning), in some countries the export of education includes income from scientific grants, contracts and cooperation; licensing of intellectual property abroad, etc.[2]

[1] Educational Services Market Analysis, Size and Trends Global Forecast to 2022–2030. Available at: https://www.thebusinessresearchcompany.com/report/educational-services-global-market-report.

[2] Education at a Glance 2022. DOI: https://doi.org/10.1787/3197152b-en

Many countries have adopted national strategies to encourage international student mobility (Erasmus program in the European Union; government programs in China, Brazil, Saudi Arabia and other countries aimed at training highly skilled specialists for the needs of the country in foreign universities).

Due to the special significance of the export of education as a tool of "soft power" and a highly multiplicative source of additional revenues of higher education institutions, scientists of various fields and specialties – from economics and sociology to pedagogy and psychology study it. At present, several theoretical and practical directions have been formed, within the framework of which various aspects of higher education export are studied. The first group is the works studying general issues of internationalization of education[3] (De Wit, 2018; Bykovskaya, Rybina, 2023; Nikitenko, 2023). Researchers pay much attention to the impact of the knowledge economy and the exports of education on the structural transformation of the world's economies. For instance, V.M. Kuzmina (Kuzmina, 2021), A.R. Manukyan (Manukyan, 2023) rightly emphasize that knowledge is becoming an important of economic growth factor, and investments in human capital allow not only increasing the GDP growth rate, forming a post-industrial structure of the knowledge-based economy, but also attracting talents from abroad. The Chinese researcher Wu (Wu, 2022), who points out the differences in approaches to its analysis by "Western" countries and new players in the market, conduct a detailed analysis of the role of the exports of education in the process of formation of the global market of educational services.

The second group of works are more in-depth studies of the influence of individual factors on the possibilities of realizing the export potential of education (for example, the impact of geopolitical and global – pandemic COVID-19 – changes) (Zolochevskaya, Sivakova, 2022; Lebedev, Ridiger, 2022, etc.). Another direction of research has been the study of national features of educational services export development, for example, a system analysis of the factors promoting internationalization of Russian education (Krasnova, 2021; Rybakova, 2023).

In a separate (third) block we can single out numerous works devoted to the ways of effective realization of Russian education exports (Rybakova, 2023), the development of specific mechanisms for attracting foreign students (Rostovskaya, Skorobogatova, 2019), including the results of sociological research (Bondarenko et al., 2022), and methodological aspects of working with foreign students (Marinenko, 2019; Selivanova et al., 2020).

Analytical reports of international organizations – UNESCO[4] and OECD[5], in Russia – reports of the Research Institute for Education Development of the Plekhanov Russian University of Economics[6] (the fourth group of works) are devoted to the study of the functioning of the world market of educational services.

[3] Aidrus I.A., Filippov V.M. (2008). *World Market of Educational Services: Study Aid*. Moscow: RUDN.

[4] Global flow of tertiary-level students. Available at: http://uis.unesco.org/en/uis-student-flow

[5] Education at a Glance 2022: OECD Indicators. DOI: https://doi.org/10.1787/3197152b-en

[6] Trends in the development of higher education in the world and in Russia: Analytical digest report. Moscow: FGBOU VO "REU im. G.V. Plekhanova", 2021. Available at: https://www.rea.ru/ru/org/managements/Nauchno-issledovatelskijj-institut-razvitija-obrazovanija/Pages/analiticheskie_materialy.aspx (accessed: July 11, 2023); Economics of higher education: development trends in the world and Russia: analytical digest report. Moscow: FGBOU VO "REU im. G.V. Plekhanova", 2021. Available at: https://www.rea.ru/ru/org/managements/Nauchno-issledovatelskijj-institut-razvitija-obrazovanija/Pages/analiticheskie_materialy.aspx (accessed: July 11, 2023).

A separate (fifth) group includes works, which study the experience of countries in the formation of strategies of the export of education. Taking into account the world experience in the formation of the export of education strategy in Russia is extremely important. Statistics show that in economically developed countries the share of mobile students in bachelor's degree programs is 5%, master's degree programs – 14%, postgraduate and doctoral studies – 35%[7]. The Russian system of higher education should follow this trend. It is necessary to promote those programs that allow getting a greater return.

Of particular interest for Russian practice is the study of strategies for realizing the export potential of education in countries which traditionally supplied students to the international market of educational services (importers of education). The works (Kuznetsova, Mashkina, 2020; Zakharov et al., 2023; Lou, Li, 2022) analyze the growth of China's influence in the global education market. Until recently, the country was the leader only in terms of the number of students sent to study abroad, but in recent years China has become a prominent player in education exports by providing government scholarships to students from developing regions. According to S. Bouchaib (Bouchaib, 2023), African countries (the region of traditional interests of exports of the Russian education) occupy a special place in promoting the export of the Chinese education. The work of H. Lee and B. Edwards (Lee, Edwards, 2023) is devoted to analyzing the effectiveness of the implementation of Singapore's strategy of the export of education.

The study of the potential of national education in the global market in countries which traditionally supplied international students to Russia and economically developed countries of Europe and North America is becoming very relevant: the export potential of universities in Vietnam (Pham et al., 2022), Malaysia (Khodakarami et al., 2022), Uzbekistan (Troitskiy, Yun, 2021), Belarus (Lijun et al., 2020), etc. is considered. Projects to promote Finnish education in developing regions of the world through university-specific interactions are the focus of a group of researchers from Finland and Indonesia (Delahunty et al., 2018). The analysis of these studies shows how important the export of education is in the strategies of states of different socio-economic types.

The sixth group of scientific research is the works devoted to the impact of education export on the university and the region as a whole (Kazantseva, 2022; Yang et al., 2020). V.K. Nikolaev points out that the export of higher education becomes an additional source of income for both universities and regions, the inflow of students is followed by investments in the regional system of higher education, consumption grows, which gives an additional incentive for the development of territories (Nikolaev, 2022). But most often such works concern the analysis of export strategies of specific universities and their impact on the socio-economic development of separate regions.

The review of publications on the subject of the export of education has shown that no specific studies on the methodology for assessing the export potential of cities, where higher education institutions are compactly located, and assessing the effectiveness of its realization have been conducted so far.

Russia in the global market of educational services

The global higher education market is characterized by constant growth (regardless of extreme circumstances, such as the COVID-19 pandemic and geopolitical instability) and high "country"

[7] Home. Available at: https://www.oecd-ilibrary.org/sites/573e058e-en/index.html?itemId=/content/component/573e058e-en

concentration. According to A.B. Ruchkin, the countries' positions in the global market of educational services reflect the competition of national education systems (Ruchkin, 2019).

Since the beginning of the 21st century, the number of students has increased 2.4 times and amounted to 236 million people by 2020 (40% of young people in the group aged 20–24), by 2040 their number is expected to grow to 400 million people. At the same time, the number of mobile students amounted to 6.4 million, about 3% of the total number of students in the world, increasing by 1/3 since 2015[8]. In 2020, almost 40% of all international students (i.e. international students abroad) were from four countries: the United States (960,000), the United Kingdom (550,000), Australia and Canada[9].

The highest growth rates in the number of foreign students over the previous five years have been noted in countries which implement well-thought-out strategies of education development and position themselves as regional leaders – UAE (almost 2 times), Turkey (1.5 times).

Asian countries remain the main "suppliers" of students to the world market: China (1.1 million people), India (460 thousand), Vietnam (132 thousand), and it is for these students that the main competition in the world market is unfolding.

Thus, the global market of higher education is an extremely competitive market, where the countries that have a strategy for the development of this industry, offering students state scholarships, innovative educational products, comfortable accommodation, leisure and security of living win. Besides country competition, researchers consider the development of distance education – mass open online courses, active use of mobile devices as additional factors (Rodygina et al., 2022). Marketing research predicts the development of distance education and growing income from it[10].

The number of foreign students in Russia in 2020 amounted to 315 thousand people (2022 – 395 thousand), with expected growth to 435 thousand people by 2030. The Russian Federation ranks 5th–6th in the rating of leading countries; there is a stable growth in the number of foreign students, but the country's share in the global market is declining. Citizens of Central Asian states (Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan, Kyrgyzstan) account for almost half of foreign students in the RF, important partners are non-CIS countries – China (about 30 thousand), India (17 thousand), Egypt (12 thousand), as well as Belarus (10.2 thousand students). Despite the fact that the number of state scholarships has doubled over the previous three years (from 15 to 30 thousand), the main part of students – more than 90% – studies for a fee[11].

Almost all the countries in the top ten leaders in the exports of education have adopted ambitious programs which aim to increase the number of foreign students and education revenues (Nagornova, 2020). Similar programs were adopted in the Russian Federation: in 2017 – the priority project "Development of the export

[8] UIS Statistics. Available at: http://data.uis.unesco.org/ (accessed: July 20, 2023).

[9] International student mobility – Key numbers. Available at: https://timeassociation.org/2022/11/28/international-student-mobility-key-numbers-2022/ (accessed: July 20, 2023).

[10] E-Learning Market size surpassed USD 250 billion in 2020 and is anticipated to grow at an exponential CAGR of over 21% between 2021 and 2027. Available at: https://www.gminsights.com/industry-analysis/elearning-marketsize (accessed: November 15, 2021).

[11] According to the forecast of the Russian Ministry of Education and Science, the number of foreign students in Russian universities will grow to 435 thousand people by 2030. Available at: https://rsr-online.ru/news/2023/6/8/po-prognozu-minobrnauki-chislo-inostrannyh-studentov-v-vuzah-rf-vyrastet-do-435-tys-k-2030-godu/ (accessed: July 20, 2023).

potential of the Russian education system"[12], in 2018 – the federal project "Export of Education" of the national project "Education"[13]. The main indicator of the effectiveness of the latter project was supposed to be an increase in the number of foreign citizens studying in Russian organizations engaged in educational activities under higher education programs by 2025 by almost 1.8 times due to the development of infrastructure, implementation of state support for the development of export of Russian education, increasing the demand for and competitiveness of Russian education. But in 2020 the program "Export of Education" was excluded from the National Project "Education" of the Ministry of Education of the Russian Federation, as the results of its implementation fall under the competence of the Ministry of Education. A new national project "Science and Universities" was created, within the framework of which it is already planned to achieve qualitative indicators: for example, the creation of 25 campuses of international level integrated into the urban environment in the cities – key university centers by 2030[14]. Thus, in strategic planning documents there is a gradual transition from quantitative assessment of universities' activities to an attempt to include more significant qualitative indicators in the efficiency analysis. But, unfortunately, two problems arise in the already existing approaches. On the one hand, the approach of quantitative assessment of educational institutions' activity, which continues dominating, is rather superficial (for example, export activity of universities is assessed at the official level only by comparing the specific weight of the number of foreign students studying under bachelor's, specialist's and master's degree programs in the total number of students). Qualitative assessment does not yet have a well-developed methodology, and in terms of the set of indicators assessing the performance of educational institutions, the analysis of urban areas where universities operate (including features of geographical location, logistical accessibility, etc.) is ignored. The inclusion of "university cities" in the economy of the country is related both to the characteristics of the territory where the university functions and to the processes of interaction between complex, hierarchically organized spatial systems of urban settlement and higher education in the socio-economic space of a modern city[15].

The problems of assessing the role of universities in urban development are particularly relevant at the stage of urban transformation. But the analysis of qualitative indicators should be based on a comprehensive assessment of quantitative indicators. In this regard, the aim of our study is to develop a methodology for the integrated assessment of the exports of education by universities in cities – university centers, taking into account all types of activities of modern universities of different models on the basis of indicators of the Monitoring of the

[12] Passport of the priority project "Development of export potential of the Russian education system" was approved by the Presidium of the Presidential Council for Strategic Development and Priority Projects (Minutes 6, dated May 30, 2017). Available at: http://static.government.ru/media/files/DkOXerfvAnLv0vFKJ59ZeqTC7ycla5HV.pdf (accessed: July 20, 2023).

[13] Passport of the national project "Education". Government of Russia. Available at: http://static.government.ru/media/files/UuG1ErcOWtjfOFCsqdLsLx C8oPFDkmBB.pdf (accessed: May 14, 2023).

[14] National project of the RF. Science and Universities. Available at: https://xn--80aapampemcchfmo7a3c9ehj.xn--p1ai/projects/nauka-i-universitety (accessed: July 20, 2023); Acceptance of applications for world-class campuses extended until August. Available at: https://minobrnauki.gov.ru/press-center/news/novosti-ministerstva/48447/ (accessed: July 20, 2023).

[15] Turgel I.D., Bugrov K.D., Oykher A.D. Russian universities cities: Expectations vs. reality. *Higher Education in Russia*, 5. Available at: https://cyberleninka.ru/article/n/universitetskie-goroda-rossii-ozhidaniya-vs-realnost (accessed: November 27, 2023).

effectiveness of higher education institutions 2022[16]. In the course of the research, we solved the following tasks: we substantiated, developed and tested the methodology for assessing the effectiveness of the exports of higher education at the level of cities – university centers through the assessment of export activities of higher education institutions; we identified four types of cities – university centers by the potential of educational and research export activities by comparing the values of the proposed indices; we proposed further research directions.

Methodological and methodical foundations of the research, sources of statistical data

The methodological basis of the research is the index approach, which allows comparing indicators with different units of measurement and directions of impact on the analyzed process. The calculation of the complex index facilitates the assessment of the final result, allows for interregional comparisons and systematizes the features of the organization and provision of export services in the cities where higher education institutions are located.

The term "university city" is most often used in the research literature to refer to an urban locality specialized in the provision of higher education, where the educational system has a disproportionate weight in the economic, social and cultural landscape.

At the same time, there is no practice of assessing such a contribution. For example, some classifications of the most effective American university cities include the indicator "number of students at least 10% of the city's population", but it has not yet been generally recognized. It is impossible to compare the role of universities implementing different types of models (University 1.0, where the emphasis is placed only on educational programs, University 2.0 model, in which the most important element of development along with educational activities is scientific research; University 3.0, when there is a deep integration of the interests of science, business and education) in the socio-economic development of the city. In this case, one university can take on a city-forming function.

The essential attributes of university centers are the nature and depth of the relationship between higher education institutions and the urban environment, not always defined by quantitative parameters, so in relation to university centers we can consider the stages of development, the highest of which is the "university city" ("college town").

In view of the above, we proposed to analyze the effectiveness of the implementation of export of educational services by universities in all cities where universities operate.

To date, there is no developed methodology for assessing the effectiveness of export of educational services at the level of higher education institutions, much less cities as centers of higher education. In the Decree of the Ministry of Science and Higher Education of the Russian Federation 92, dated February 1, 2022 "On approval of performance indicators of federal budgetary and autonomous educational institutions of higher education, subordinate to the Ministry of Science and Higher Education of the Russian Federation, and the work of their managers, based on the results of achievement of which are established incentive payments to the heads of such institutions" as the only indicator of export of educational services for the university is pointed out "share of foreign students studying under bachelor's, specialist's and master's degree programs in the total number of students (reduced contingent)". The Ministry

[16] Information and analytical materials on the results of monitoring the activities of educational organizations of higher education. Official site of the Main Information and Computing Center of the Federal Agency for Education of the Russian Federation (GIVC Rosobrazovanie) on the basis of the Moscow State University of Instrument Engineering and Informatics. Available at: https://miccedu.ru/

of Science and Higher Education has defined the threshold value of efficiency assessment for this indicator as 3% (below this value the university is assigned 0 points, at 9% and more – 10 points).

But a modern university is not just an educational organization that forms professional competencies in certain areas of training, but also a center of research and, in some cases, entrepreneurial activity (universities 3.0). These qualities of universities should also be assessed through the system of indicators, as they have a direct impact on the efficiency of the export of education and the formation of competitive university centers.

Currently, there is actually no methodology for assessing the effectiveness of the exports of higher education at the level of cities – university centers. Taking into account the need to take into account in the results of export activity not only the educational process in the university, but also research and entrepreneurial activity, we have developed and tested a comprehensive indicator of the efficiency of export activity of higher education institutions of university centers as the arithmetic mean of indices of individual potentials of export activity of universities (educational, research and entrepreneurial).

$$EA = \frac{IEdPEA + IRDPEA + IEPEA}{3},$$

where EA – complex indicator of the effectiveness of export activities of universities in cities – university centers;

IEdPEA – index of educational potential of export activity of higher education institutions of cities – university centers;

IRDPEA – index of research and development potential of export activities of universities of cities – university centers;

IEPEA – index of entrepreneurial potential of export activity of higher education institutions in the cities – university centers.

Each index represents the arithmetic mean of the values of normalized indicators characterizing each of the three types of activity potential of a modern university:

$$IPEA = \frac{1}{n} \times \sum_{i=1}^{n} In,$$

where IPEA – comprehensive indicator of individual types of export potential of higher education institutions of cities – university centers;

In – normalized indicators included in the index;

n – number of indices included in the indicator;

i – index number.

We used the following indicators to calculate the index of educational potential of export activities:

– share of foreign students in the total number of university students;

– university's income from educational activities from foreign sources per one foreign student;

– share of students from non-CIS countries in the total number of university students.

Inclusion in the calculation index of both the share of foreign students and the share of students from non-CIS countries is due to the need to take into account the real contribution of foreign students to the city's economy (significant share of students – citizens of non-CIS countries choose part-time or distance learning, so their inclusion in the urban environment will be minimal).

The index of R&D potential of export activities includes the following indicators:

– number of articles prepared jointly with foreign organizations per one university faculty member;

– share of funds received by the educational organization from foreign citizens and foreign legal entities at the expense of research and development (R&D) from the total amount of funds received from R&D.

Due to the fact that it is impossible to collect indicators of the efficiency of entrepreneurial potential of export activities of universities in the cities – university centers (due to both the closedness of information and extremely low values of indicators characterizing the efficiency of entrepreneurial activities of universities), at the final stage of the methodology development it was decided not to take into account in the calculations the index of entrepreneurial potential of export activities of universities (due to its insignificant contribution to the efficiency of export activities of universities).

Thus, we calculated the complex indicator of the effectiveness of export activity implementation by universities of cities – university centers as the arithmetic mean of indices of only educational and research potential of export activity of universities.

$$EA = \frac{IEdPEA + IRDPEA}{2}.$$

We propose to consider the contribution of each index in the study as equivalent due to the equivalence of educational and research activities in the implementation of the University 2.0 and University 3.0 models by higher education institutions.

The assessment of the efficiency of educational services export implementation in the cities – Russia's university centers is based on the analysis of statistical indicators of the Monitoring of the effectiveness of higher education institutions in 2022 (data for 2021 for 1208 universities located in 306 cities of 84 Russia's constituent entities, hereinafter – Monitoring).

We carried out approbation of the proposed methodology on the example of cities in the Siberian Federal District (SFD). Cities – university centers of the SFD in the analysis of the comprehensive index of educational potential of university centers are represented in all types of cities (Kreidenko et al., 2023). The sample can be considered representative, as international students are at universities in 29 (out of 30, i.e. 96.7%) university centers of the SFD. In this regard, we believe that the cities – university centers of the Siberian Federal District can be considered as model cities within the framework of our research.

Interpretation of the findings of the study

In the course of the research, we tested the methodology on the statistical data of the Monitoring of the Ministry of Science and Higher Education of the Russian Federation on universities of the Siberian Federal District.

The study of the effectiveness of implementing the export educational activity potential in the cities – university centers was based on the analysis of the indicators of individual universities, which allowed, on the one hand, identifying the most successful universities in the market of export of educational services, on the other hand, considering the geography of the cities – university centers. We carried out the analysis both by individual components of the potential (educational and research) and by the value of the complex index.

Educational potential of export activities. There are 115 universities in 30 cities of the Siberian Federal District. Foreign students study in 104 universities in 29 cities. At the same time, only 65 universities received income from educational activities from foreign sources in 2021: only 11 universities, 6 of which are medical universities, were able to receive more than 100 thousand rubles per one foreign student. The highest indicator – almost 252 thousand rubles per one foreign student – was earned by Novosibirsk National Research State University, while in 18 universities such income amounted to less than 10 thousand rubles.

Only in two universities, the share of students from non-CIS countries exceeds 10% (Altai State Medical University – 11.5% and Glinka Novosibirsk State Conservatoire – 15%). In 18 universities their share is from 1 to 10%, and in 45 universities of the district there are only students from CIS countries. The education of students from CIS countries is financed from the state budget of the Russian Federation (including through Rossotrudnichestvo); applicants from a number of countries can participate in the general competition, along with Russian applicants, there are also students studying under contract. In a number of cases, tuition fees for foreign students are paid by Russian organizations providing intermediary services in the organization of education: as a result, the host university cannot demonstrate in its reporting the income from educational activities from foreign sources.

In 2021, 12 universities from 7 cities of the Siberian Federal District became leaders in educational potential of export activity (index value more than 0.25): three of the most effective universities are located in Novosibirsk and Tomsk, two in Kemerovo, one each in Barnaul, Irkutsk, Omsk, and Krasnoyarsk (*Tab. 1*).

Thus, the educational potential of export activities of individual universities is most effectively realized in two cities – Novosibirsk and Tomsk (leading research centers of not only Russian but also world level). Omsk Humanitarian Academy (a private university) occupies the seventh place in the rating, which is determined by a significant share of foreign students (more than 70%). However, out of 5.5 thousand students, only 300 are full-time students. It is quite difficult to confirm the high efficiency of export of educational services by this university: the multiplier effect for the city is minimal.

The research potential of export activities of universities is realized only by 54 universities of the district, of which only 8 show significant results. Employees of 51 universities in Siberian cities have joint publications with foreign colleagues. The highest publication activity is noted in the Novosibirsk State University (more than two articles per faculty member). In other universities this indicator is significantly lower: in three universities – from 0.84 to 0.5 articles, and in 27 universities – less than 0.1.

Table 1. Universities of the Siberian Federal District – leaders in the rating of educational potential of export activities of universities of cities – university centers (IEdPEA), 2021

No	City	University	Value of IEdPEA
1	Barnaul	Altai Medical State University	0.603
2	Novosibirsk	Novosibirsk State University	0.470
3	Irkutsk	Irkutsk State Medical University	0.456
4	Novosibirsk	Glinka Novosibirsk Conservatoire	0.452
5	Kemerovo	Kemerovo State Medical University	0.390
6	Kemerovo	Kemerovo State University of Culture and Arts	0.372
7	Omsk	Omsk Humanitarian Academy	0.360
8	Novosibirsk	Novosibirsk State Medical University	0.357
9	Tomsk	National Research Tomsk State University	0.298
10	Tomsk	Tomsk State University Architecture and Building	0.294
11	Krasnoyarsk	Krasnoyarsk State Medical University	0.290
12	Tomsk	Tomsk Polytechnic University	0.252
Source: own compilation.			

Only 20 universities (about 20%) receive funds for R&D from foreign citizens and foreign legal entities. At the same time, the share of foreign sources in the total amount of research funding of most universities is insignificant: Omsk State Medical University – more than 25%, Tuvan State University – more than 13%, Krasnoyarsk State Medical University – 6.6%, Tomsk Polytechnic University – 5.4%. For another five institutions (two medical, two classical state universities, one agrarian) this share is from 1 to 5%. And for 11 higher education institutions – less than 1%. As a result, only 8 universities have significant indicators of realization of export potential of research activities (*Tab. 2*).

In terms of research potential, the leading cities were those with either medical (3 out of 8) or national research (3 out of 8) universities. In general, according to this index, no city had more than two successful universities, which gives grounds to assert the difficulty of implementing the research potential of export activities by universities in the cities – university centers of the SFD.

The Novosibirsk State University (QS 2023 – 421st place, 9th place among Russian universities) – a recognized world center of education and research activity – showed the highest results of the *complex indicator of educational services export efficiency* (*Tab. 3*).

Table 2. Universities of the Siberian Federal District – leaders in the rating of research potential of export activities of universities of cities – university centers (IRDPEA), 2021

No	City	University	Value of IRDPEA
1	Omsk	Omsk State Medical University	0.501
2	Novosibirsk	Novosibirsk State University	0.500
3	Tomsk	Tomsk Polytechnic University	0.283
4	Kyzyl	Tuvan State University	0.266
5	Tomsk	National Research Tomsk State University	0.226
6	Barnaul	Altai Medical State University	0.187
7	Krasnoyarsk	Krasnoyarsk State Medical University	0.152
8	Kemerovo	Kemerovo State Medical University	0.101
Source: own compilation.			

Table 3. Universities of the Siberian Federal District of the RF – leaders in the rating of the efficiency of export activities of universities of cities – university centers, 2021

City	University	Rating position	IEdPEA	IRDPEA	EA
Novosibirsk	Novosibirsk State University	1	0.470	0.500	0.485
	Glinka Novosibirsk Conservatoire	8	0.452	0.000	0.226
Barnaul	Altai Medical State University	3	0.603	0.072	0.337
	Altai State University	10	0.213	0.187	0.200
Томск	Tomsk Polytechnic University	4	0.252	0.283	0.268
	National Research State University	5	0.298	0.226	0.262
Omsk	Omsk State Medical University	2	0.243	0.501	0.372
Kemerovo	Kemerovo State Medical University	6	0.390	0.101	0.245
Irkutsk	Irkutsk State Medical University	7	0.456	0.019	0.237
Krasnoyarsk	Krasnoyarsk State Medical University	9	0.291	0.152	0.221
Barnaul	Altai State University	10	0.213	0.187	0.200
Source: own compilation.					

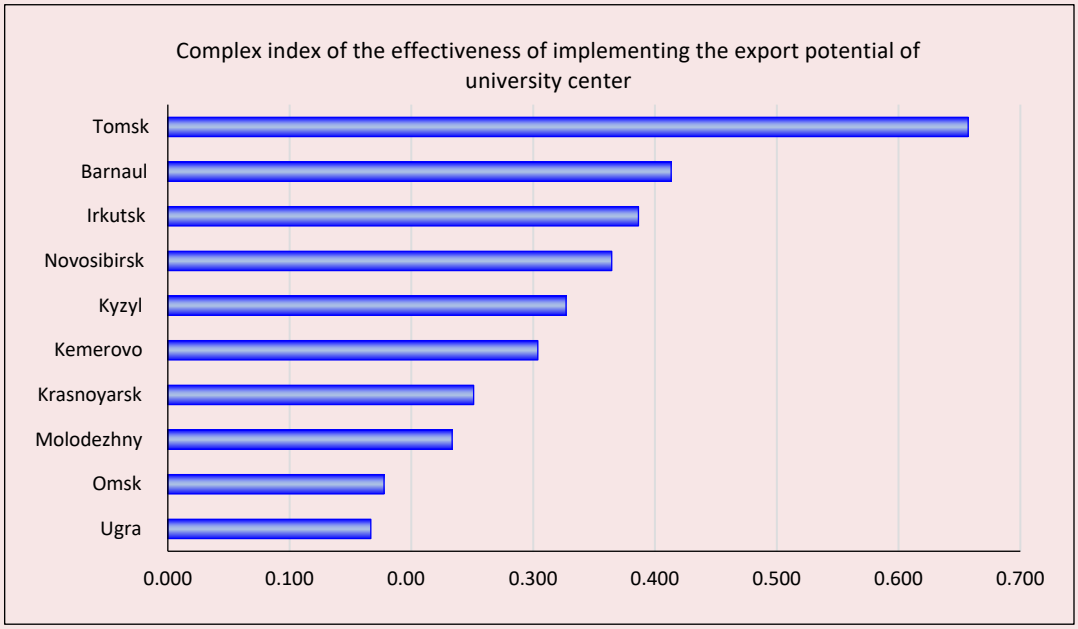
The leaders of the rating are located in eight cities – the leading educational centers of the RF, which are also actively involved in the implementation of the national project "Science and Universities", and in Tomsk, in addition to the two universities – leaders of the rating by a comprehensive indicator of export performance, three more universities are involved.

The rating of cities – university centers of the Siberian Federal District on the efficiency of export activities of universities reflects the reputation of the centers in the world market of educational services, as well as the specificity and intensity of educational and research activities, including international cooperation with foreign countries in the implementation of educational programs, joint research, etc. (*Tab. 4*).

Table 4. Rating of cities – university centers of the Siberian Federal District on the efficiency of implementation of export of educational services, 2021

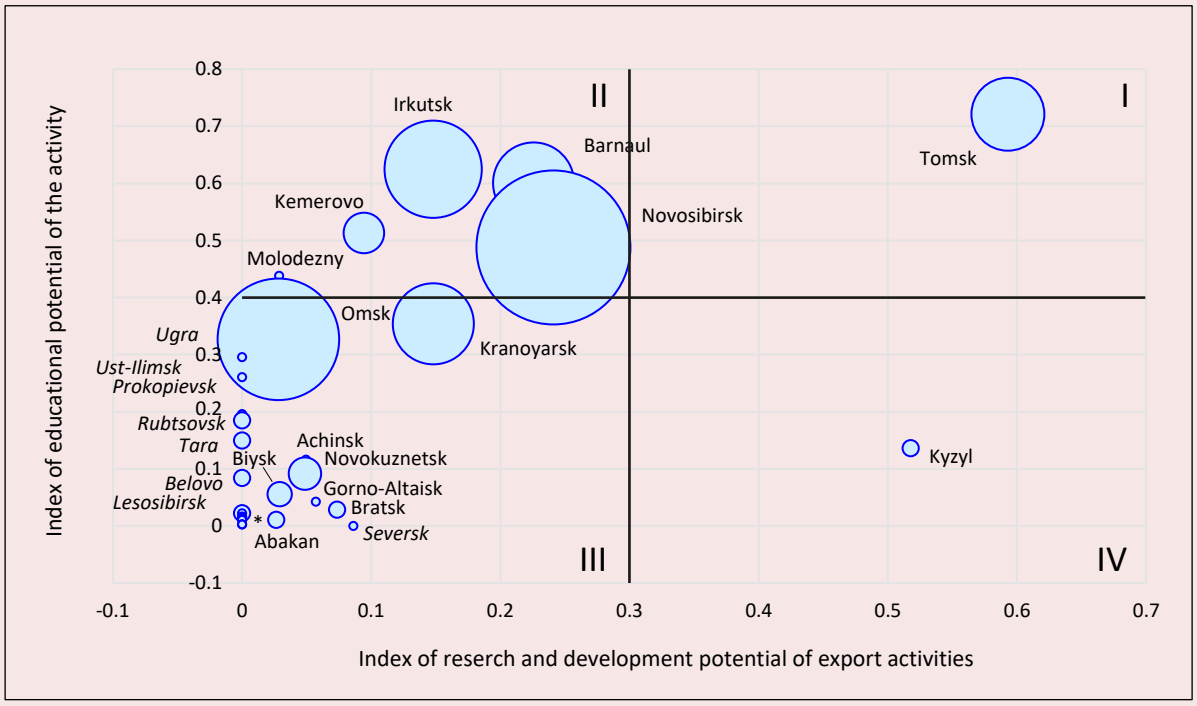
Rating position	City	Number of universities	IEdPEA	IRDPEA	EA
1	Tomsk	9	0.593	0.721	0.657
2	Barnaul	10	0.226	0.601	0.413
3	Irkutsk	12	0.148	0.625	0.386
4	Novosibirsk	19	0.241	0.488	0.364
5	Kyzyl	2	0.518	0.136	0.327
6	Kemerovo	5	0.094	0.513	0.304
7	Krasnoyarsk	10	0.148	0.354	0.251
8	Molodezhny	1	0.029	0.438	0.233
9	Omsk	15	0.028	0.327	0.178
10	Yurga	1	0.000	0.333	0.167
11	Ust-Ilimsk	1	0.000	0.296	0.148
12	Prokopyevsk	1	0.000	0.261	0.130
13	Ob	1	0.000	0.196	0.098
14	Rubtsovsk	2	0.000	0.185	0.092
15	Achinsk	1	0.049	0.116	0.083
16	Tara	2	0.000	0.150	0.075
17	Novokuznetsk	4	0.049	0.092	0.070
18	Bratsk	2	0.074	0.029	0.051
19	Gorno-Altaisk	1	0.057	0.042	0.050
20	Seversk	1	0.086	0.000	0.043
21	Biysk	3	0.029	0.056	0.042
22	Belovo	2	0.000	0.084	0.042
23	Abakan	2	0.026	0.011	0.019
24	Lesosibirsk	2	0.000	0.022	0.011
25	Angarsk	1	0.000	0.022	0.011
26	Belokurikha	1	0.000	0.016	0.008
27	Norilsk	1	0.000	0.014	0.007
28	Kuibyshev	1	0.000	0.013	0.007
29	Sayanogorsk	1	0.000	0.010	0.005
30	Mezhdurechensk	1	0.000	0.003	0.001
Source: own compilation.					

Figure 1. Cities of the Siberian Federal District – leaders in terms of the value of a complex indicator of the effectiveness of the implementation of export potential by universities of cities – university centers, 2021



Source: own compilation.

Figure 2. Ratio of educational and research potential of export activities in university centers of the Siberian Federal District, 2021



Source: own compilation.

Tomsk became the absolute leader in the rating by the value of the *complex indicator of the efficiency of the export potential* of university centers of the Siberian Federal District (*Fig. 1*). Tomsk universities offer the world market a significant list of educational services not only in traditional areas of study, but also promptly update it in accordance with the most demanded competencies in the labor market (for example, the launch of international educational programs, including nuclear medicine). In addition, the status of the student capital (every eighth resident of the city is either a student or a teacher of one of the universities) and the recognition of the research complex as a city-forming one give the opportunity to receive education with the involvement of specialists and using the equipment of several universities at once.

At the final stage of the study, we compared the values of indices of educational and research potential of export activities of universities, which allowed identifying four types of cities – university centers (*Fig. 2*).

The diameter of the punxons of the diagram is proportional to the number of universities in a city.

Types of cities – university centers by potential of educational and research export activities

Group 1. Cities with high potential of educational and research export activities. This group includes only one city – Tomsk. It is the oldest university center of Siberia (Imperial Tomsk University was founded in 1878) with a long history and established traditions in international university cooperation. Currently, there are 9 universities in the city, 6 of which are actively involved in the training of foreign students from near and far abroad. A significant share of students are full-time students, which creates additional advantages both for the city economy and for the promotion of Tomsk in the global education market.

Group 2. Cities with high educational and research potential for export activities. Ii includes 4 cities and Molodezhny settlement (Irkutsk urban agglomeration), where Irkutsk Agrarian University is located. The features of training at universities that train specialists for the agro-industrial complex (for example, the presence of experimental fields, which requires significant space) require the removal of educational buildings outside the boundaries of large urban agglomerations, but at the same time within transport accessibility. Although Irkutsk itself provides the real realization of the export potential of educational services.

Group 3. Cities with low educational and research potential of educational activities. It is the most numerous (22 cities) and the most heterogeneous group. More than half of the cities do not realize the export potential of R&D activities (13 cities) or educational activities (Seversk). On the one hand, it includes small cities - district centers or cities of regional subordination, where branches of regional universities most often function (Lesosibirsk, Belovo, Rubtsovsk, Ob, Prokopyevsk, Ust-Ilimsk, etc.); the number of foreign students is extremely small, and the indicators of the effectiveness of educational potential are low. On the other hand, cities - administrative centers of the Siberian Federal District subjects, including Gorno-Altaisk, Abakan, Omsk and Krasnoyarsk, were in this group. The presence of Gorno-Altaisk and Abakan in this group is explained by the relatively low positions of their universities in the ratings of higher education institutions (in the Interfax national rating of universities Gorno-Altaisk State University ranks 250–253 place, Katanov Khakassia State University – 240–243 place). Katanov Khakassia State University ranks 240–243). The weak positions of Omsk and Krasnoyarsk are associated with a significant differentiation

of university performance indicators. Both Omsk and Krasnoyarsk have a significant number of universities (15 and 10 respectively), but their performance is different. Of the 15 universities in Omsk, only seven universities have students from CIS countries (a significant part of which are part-time students); the income per foreign student varies from 4.27 to 144.39 thousand rubles. Only five universities conduct joint scientific research. In fact, only three universities realize the scientific and educational potential of export activities: Omsk State Technical University; Dostoevsky Omsk State University and Siberian State Automobile and Highway University. The situation is similar with the universities of Krasnoyarsk: only Krasnoyarsk State Agrarian University and Krasnoyarsk State Medical University are the leaders in the export of educational services.

Group 4. Cities with low educational potential and high research potential of educational activity. Only the capital of the Tyva Republic – Kyzyl – can be referred to this group according to the results of the university activity. Tuvan State University was established in 1995 on the basis of the merger of Kyzyl Pedagogical Institute (year of foundation 1952) and branches of Krasnoyarsk Polytechnic Institute and Krasnoyarsk State Agrarian University. At present, the university is actively developing international cooperation in the field of research and educational activities related to ethno-cultural direction. A significant factor hindering the realization of Kyzyl's export potential is poor transport accessibility (no railroad, limited number of direct flights).

Thus, out of 30 cities – university centers of the Siberian Federal District, 76.7% belong to the group with low educational and research potential. There are more centers in the group with high educational and low R&D potential (5 cities; 16.7%) than in the group with low educational and high R&D potential (1 city; 3.3%): it is easier to realize the educational potential of export activity than that of R&D. The current disproportion is quite objective: export of educational services can be effectively implemented only in university centers with the presence of rated universities located in multifunctional cities (with developed economic, transport, logistics and administrative functions) with a developed adapted urban environment for foreign students.

Universities of cities – university centers of different types can adjust their development strategies taking into account the assessment of their potential: the presence of at least one strong (in terms of export activity implementation) university gives growth incentives to other universities. Cooperation between universities in a city (through inclusion in joint educational programs, joint research projects, etc.), taking into account the most promising areas of export of educational services, can become the basis for improving the quality of training specialists for both external and domestic markets. For such centers, it is rather important to transform the strategies of urban environment development in terms of increasing comfort for the student audience, including foreign students.

In the group with low efficiency of educational services export implementation (except for Omsk and Krasnoyarsk, for which the position in this group is associated with a significant differentiation in the efficiency of universities with a significant number of them), all cities can be considered university centers only formally, since almost all universities operating in them are branches of large regional or federal universities and provide training of specialists for their region. In some cases, their remoteness from major economic and transport-logistic centers (Norilsk) complicates the situation. For such centers of higher education, the analysis

of the experience of other centers and trends in the development of export of educational services in them can also become the basis for adjusting their educational programs in terms of not only improving the level of training of specialists for their regions and regions of the RF, but also attracting foreign students.

Only an integrated approach, consisting of both quantitative (number of foreign students) and qualitative indicators (international scientific cooperation, expansion of the range of demanded specialties, adjustment of educational programs), will significantly improve the efficiency of universities' implementation of strategies for exporting educational services, as well as educational and research activities in the domestic market.

Thus, further development of the export potential of Russian education can be associated not only with the provision of higher education services, but also with deeper inclusion in the work of international professional associations in terms of identifying the most relevant in the global market and competencies demanded by employers.

Conclusion

The export of education, despite the changed geopolitical conditions, continues to be an important state strategy and task of Russian education. Assessment of the efficiency of the export of education implementation by individual universities and cities – university centers is an important research and practical task, the solution of which will help to adjust the development strategies of both universities and their host cities.

The research reveals problems in the existing methods of assessing the effectiveness of export activities of universities in the cities – university centers of the Russian Federation. The approach used in the Rosobrnadzor Monitoring – the assessment of the share of foreign students in the total number of students – does not reflect the diversity of activities of modern universities: the most important element of competitiveness is scientific research, opportunities for commercialization of new knowledge and inclusion in international scientific collaborations; integration of science, business and education. We propose and test a methodology for the development of indices for assessing the effectiveness of the implementation of educational potential of cities – university centers on the basis of multivariate statistical analysis on the materials of the Siberian Federal District. The clustering makes it possible to differentiate university centers by the degree of efficiency of export potential realization, to specify the goals of strategic development of universities and their host cities.

We test the methodology on the materials of 30 cities of the Siberian Federal District, and identify four groups of cities – university centers: 1) with high educational and research potential of education export – Tomsk; 2) with high educational and low research potential of education export – 5 cities; 3) with low educational and research potential of education export – 22 cities; 4) with low educational and high research potential of education export – Kyzyl. For each group, we propose strategies of higher education development in the context of its export realization.

Further scientific and practical research of conceptual and practical approaches in terms of methods for assessing the export potential of university centers, deeper factor analysis of its implementation will significantly improve the effectiveness of strategic planning at the municipal and regional levels, synchronizing the strategies of university development and urban environment development directions, as well as mechanisms and

tools for the formation of urban agglomerations in Russian regions. For a more complete and in-depth analysis of implementing the export of educational services by universities, taking into account the different contributions of individual indicators to the comprehensive index assessment, it is necessary to further compare the indicators of different types of university activities with the nature of their impact on the effectiveness of the implementation of individual models of university development.

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Public Opinion Monitoring of the State of the Russian Society

As in the previous issues, we publish the results of the monitoring of public opinion concerning the state of the Russian society. The monitoring is conducted by VolRC RAS in the Vologda Region[1].

The following tables and graphs show the dynamics of several parameters of social well-being and socio-political sentiment of the region's population according to the results of the latest round of the monitoring (December 2023) and for the period from December 2022 to December 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 October – December 2023, the approval level for the RF President's work did not change significantly and amounted to 62–63%. The share of negative judgments was 21–23%[3].

Over the past 12 months (from December 2022 to December 2023), the share of positive assessments of the activities of the head of state has not changed significantly (60–62%).

However, in general, in 2023, compared with the average annual data for 2022, there is an increase in support for the work of the head of state (by 4 percentage points, from 57 to 61%)[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 Region's adult population. Sampling error does not exceed 3%.

More information on the results of VolRC RAS surveys is available at http://www.vscc.ac.ru/.

[2] In 2020, four rounds of the monitoring were conducted. Surveys in April and June 2020 were not conducted due to quarantine restrictions during the spread of COVID-19.

[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 December 2023 and the results of the monitoring round conducted in December 2022 are given in the frame, as well as the average data for 2023 compared to the average annual data for 2022.

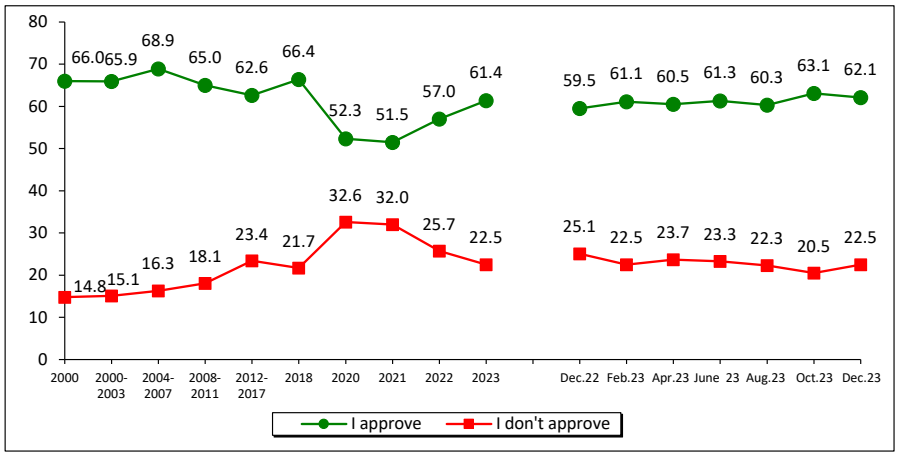
How would you assess the current work of…? (% of respondents)

Answer option	Dynamics of the average annual data									Dynamics of the data for the last 7 surveys							Dynamics (+/-), Dec., 2023 to	
	2000	2007	2011	2012	2018	2020	2021	2022	2023	Dec. 2022	Feb. 2023	Apr. 2023	June 2023	Aug. 2023	Oct. 2023	Dec. 2023	Dec. 2022	Oct. 2023
RF President																		
I approve	66.0	75.3	58.7	51.7	66.4	52.3	51.5	57.0	61.4	59.5	61.1	60.5	61.3	60.3	63.1	62.1	+3	-1
I don't approve	14.8	11.5	25.5	32.6	21.7	32.6	32.0	25.7	22.5	25.1	22.5	23.7	23.3	22.3	20.5	22.5	-3	+2
Chairman of the RF Government																		
I approve	-	-	59.3	49.6	48.0	38.7	39.9	45.4	50.1	50.1	49.3	48.3	49.2	50.8	51.3	51.9	+2	+1
I don't approve	-	-	24.7	33.3	31.6	40.4	37.6	32.0	27.6	29.9	27.9	28.1	27.1	26.1	28.6	27.9	-2	-1
Vologda Region Governor*																		
I approve	56.1	55.8	45.7	41.9	38.4	35.0	36.7	40.9	48.1	45.5	47.1	48.3	48.7	48.1	47.5	49.1	+4	+2
I don't approve	19.3	22.2	30.5	33.3	37.6	42.5	40.5	35.8	30.9	35.2	33.0	32.3	30.7	29.7	29.7	29.9	-5	0

Wording of the question: "How do you assess the current work of ...?"*

October 31, 2023, Presidential Decree 814 "On the Acting Governor of the Vologda Region" marked the resignation of the Governor of the Vologda Region O.A. Kuvshinnikov at his own request. G.Yu. Filimonov was appointed acting head of the region. Nevertheless, in a survey conducted in November – December 2023, residents of the region were asked to evaluate the activities of O.A. Kuvshinnikov (due to the insufficient duration of G.Y.u Filimonov's work as Acting Governor). Residents of the region will be asked to evaluate G.Yu. Filimonov's work starting from the first round of the monitoring next year (February 2024).

How would you assess the current work of the RF President?
(% of respondents, VolRC RAS data)



Dynamics (+/-), December 2023 to		
Answer option	Dec. 2022	Oct. 2023
I approve	+2	-1
I don't approve	-2	+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.

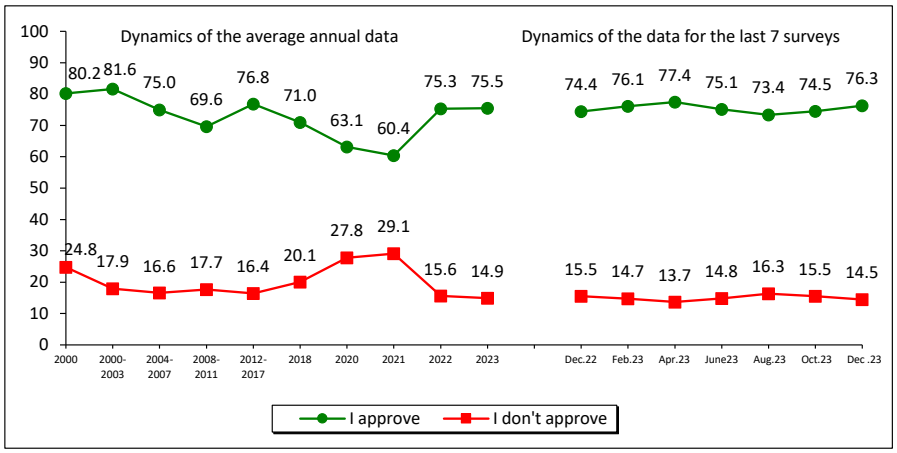
For reference:

According to VCIOM, the level of approval of the RF President's work for the period from October to the 1st half of December 2023 amounted to 75–76%. The proportion of negative reviews was 15–16%.

The population's estimates are slightly better than in December 2022 (the approval level increased by 2 percentage points during this period (from 74 to 76%).

At the same time, on average in 2023, Russians' support for the work of the head of state remained at the level of the average annual data for 2022 (75%).

In general, do you approve or not approve of the work of the RF President? (% of respondents; VCIOM data)



Dynamics (+/-), December 2023 to		
Answer option	Dec. 2022	Oct. 2023
I approve	+2	+1
I don't approve	-1	-1

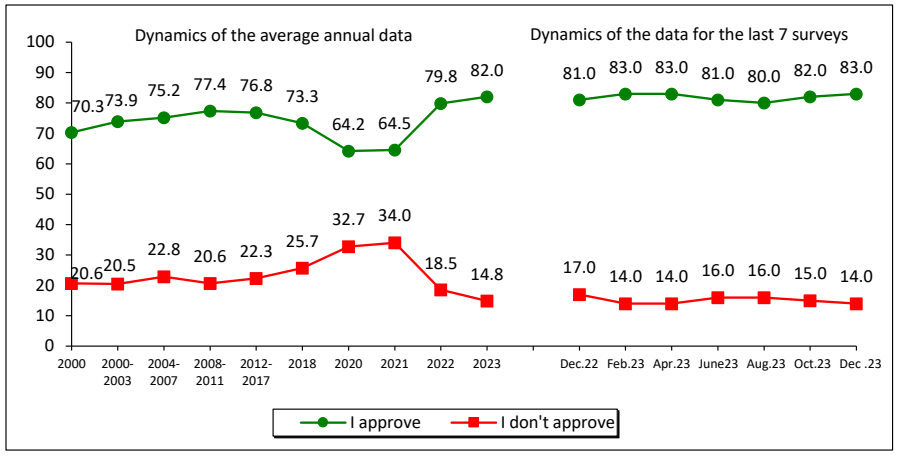
Wording of the question: "In general, do you approve or not approve of the work of the President of the Russian Federation?"
Source: VCIOM. Available at: https://wciom.ru/
Data for December 2023 represent the average for three surveys: (December 3, 2023, December 10, 2023, and December 17, 2023).

According to Levada-Center, the share of positive assessments of the RF President's activities in October – December 2023 amounted to 82–83%. The share of negative ratings was 14–15%.*

From December 2022 to December 2023, the level of approval of the activities of the head of state increased slightly (by 2 percentage points, from 81 to 83%). The share of negative assessments decreased by 3 percentage points (from 17 to 14 percentage points).

Also in 2023, support for the work of the RF President continued to grow according to the average annual data: in 2021 – 65%, in 2022 – 80% (increased by 15 percentage points), in 2023 – 82% (increased by another 2 percentage points, compared to 2022).

In general, do you approve or not approve of the work of Vladimir Putin as President of Russia? (% of respondents; Levada-Center* data)



Dynamics (+/-), December 2023 to		
Answer option	Dec. 2022	Oct. 2023
I approve	+2	+1
I don't approve	-3	-1

Source: Levada-Center*. Available at: https://www.levada.ru
Wording of the question: "In general, do you approve or not approve of the work of Vladimir Putin as President of Russia?"
The latest data are as of December 2023.

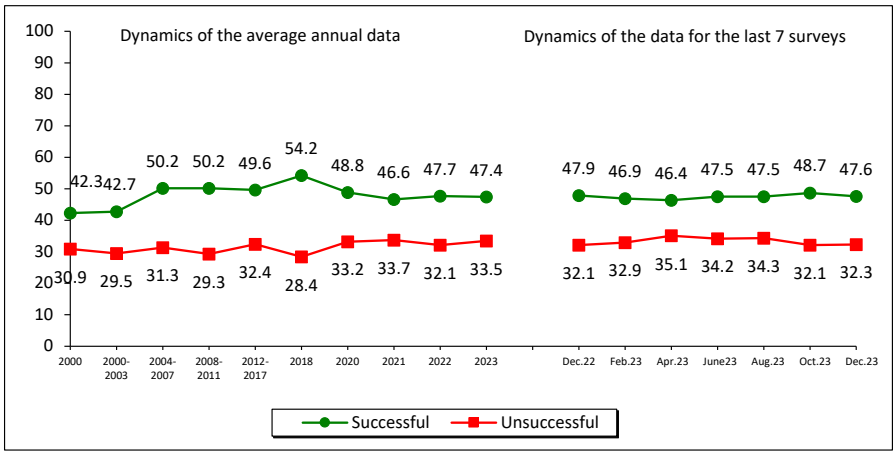
* Included in the register of foreign agents.

In your opinion, how successful is the RF President in coping with challenging issues? (% of respondents; VolRC RAS data)

In October – December 2023, the share of residents of the region who consider the actions of the RF President to strengthen Russia's international positions to be successful amounted to 48–49% The proportion of those who hold the opposite point of view is significantly less (32%).

Compared to December 2022, as well as the average for 2022–2023, population estimates have not changed.

Strengthening Russia's international position

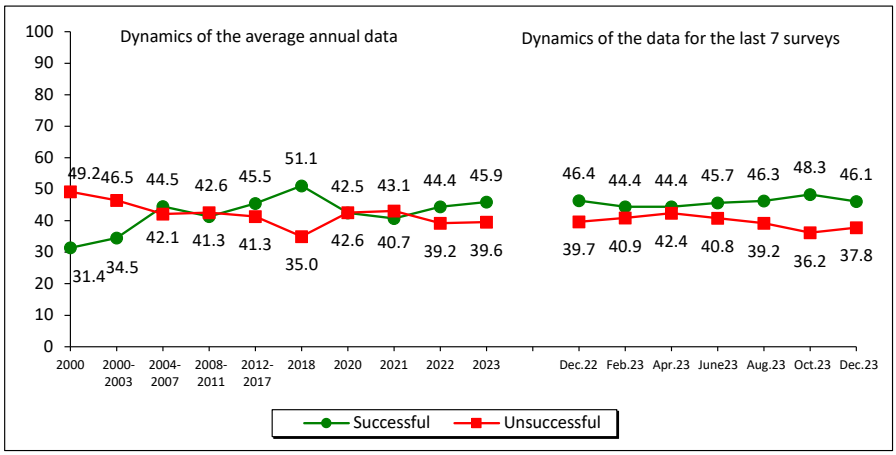


Dynamics (+/-), December 2023 to		
Answer option	Dec. 2022	Oct. 2023
Successful	0	-1
Unsuccessful	0	0

Over the past two months, the opinion of residents of the region about the activities of the head of state to restore order in the country has remained the same: the share of positive judgments was 46–48%, negative – 36–38%

There have been no noticeable changes in the dynamics of population estimates over the past 12 months and on average for 2022–2023.

Imposing order in the country



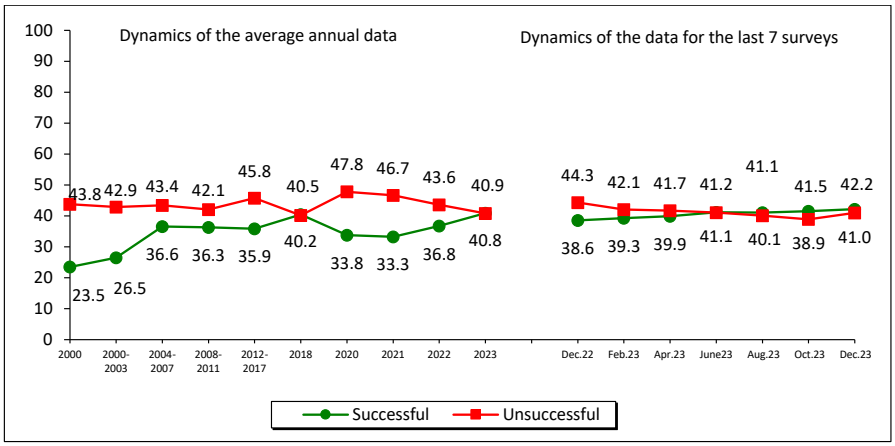
Dynamics (+/-), December 2023 to		
Answer option	Dec. 2022	Oct. 2023
Successful	0	-2
Unsuccessful	-2	+2

In October – December 2023, the share of residents of the region who positively assess the RF President's efforts to protect democracy and strengthen citizens' freedoms amounted to 42%; the proportion of opposite opinions was 39–41%.

The estimates of the population are slightly better than in December 2022 (the share of positive characteristics increased by 3 percentage points, from 39 to 42%).

Positive changes are also observed on average in 2023 compared to 2022: there has been an increase in the proportion of positive judgments by 4 percentage points (from 37 to 41%).

Protecting democracy and strengthening citizens' freedoms



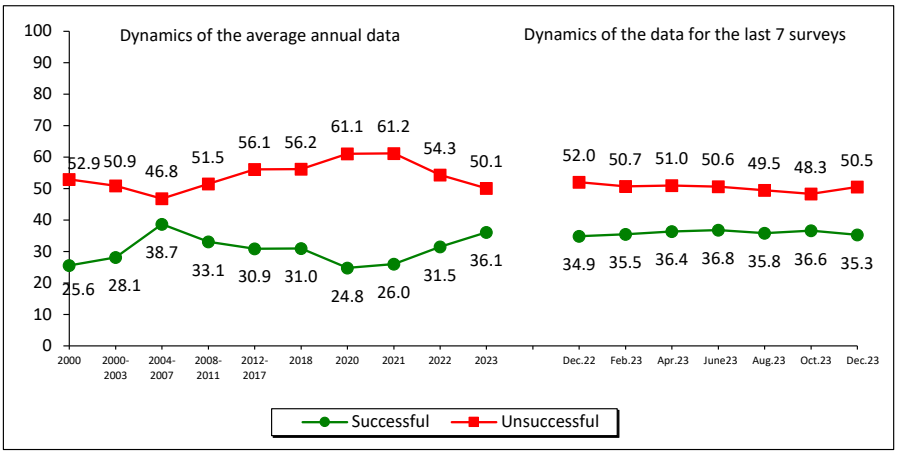
Dynamics (+/-), December 2023 to		
Answer option	Dec. 2022	Oct. 2023
Successful	+4	+1
Unsuccessful	-3	+2

The share of positive judgments about the President's work to boost the economy and increase the welfare of citizens over the past two months amounted to 35–37%; however, there has been a slight increase in the proportion of negative characteristics (by 3 percentage points, from 48 to 51%).

For the period from December 2022 to December 2023, population estimates have not changed significantly.

At the same time, on average, in 2023, compared with 2022, positive trends are noted: the share of those who consider that the head of state is successfully solving economic problems increased by 4 percentage points (from 32 to 36%); the proportion of residents holding the opposite opinion decreased by 4 percentage points (from 54 to 50%).

Economic recovery, increase in citizens' welfare



Dynamics (+/-), December 2023 to		
Answer option	Dec. 2022	Oct. 2023
Successful	0	-1
Unsuccessful	-2	+3

In October – December 2023, the structure of political preferences of the residents of the region remained stable. The share of people whose interests are expressed by the United Russia party was 42%, the Communist Party – 10%, LDPR – 7–8%, Just Russia – 4–5%, New People – 2%.

From December 2022 to December 2023, the level of support for United Russia increased (by 4 percentage points, from 38 to 42%), and the proportion of people who believe that none of the parliamentary parties expresses their interests decreased (by 3 percentage points, from 30 to 27%).

Similar positive changes in the dynamics of public opinion are observed on average in 2023 compared to 2022.

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 (+/-), Dec. 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	2023	Dec. 2022	Feb. 2023	Apr. 2023	June 2023	Aug. 2023	Oct. 2023	Dec. 2023	Dec. 2022	Oct. 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	39.5	38.3	39.1	37.6	39.3	39.0	40.3	41.7	+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	9.6	9.3	9.5	9.3	9.5	9.8	9.8	9.8	+1	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	7.0	6.3	5.9	6.9	6.7	7.8	7.9	6.5	0	-1
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	4.4	4.7	4.6	4.7	4.7	4.5	4.5	3.5	-1	-1
New People*	–	–	–	–	–	–	–	–	–	5.3	2.3	1.5	1.9	1.5	1.3	2.1	2.1	2.3	1.5	1.9	0	0
Other	0.9	1.8	1.9	–	2.1	0.3	–	0.7	0.5	–	0.2	0.3	0.1	0.0	0.1	0.1	0.0	0.2	0.0	0.3	0	0
None	29.6	17.8	29.4	–	31.3	29.4	–	28.5	34.2	–	33.9	30.6	26.5	29.9	28.0	28.0	26.5	25.2	24.6	26.6	-3	+2
I find it difficult to answer	20.3	21.2	13.2	–	11.7	12.0	–	11.2	11.1	–	10.0	10.1	11.1	9.9	11.4	11.4	11.4	11.2	11.4	9.9	0	-2

* The New People party was elected to the State Duma of the Russian Federation for the first time following the results of the election held on September 17–19, 2021.

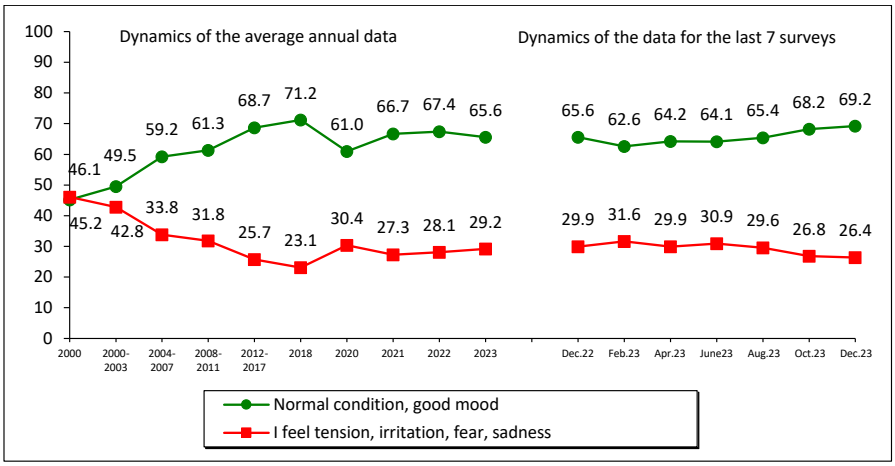
Estimation of social condition (% of respondents; VolRC RAS data)

Over the past two months, the share of positive assessments of social mood has amounted to 68–69%; the proportion of negative characteristics was 26–27%

Over the past 12 months, the proportion of people describing their daily emotional state as "normal, fine" increased by 3 percentage points (from 66 to 69%). The proportion of those who experience mainly "tension, irritation, fear, sadness" decreased by 4 percentage points (from 30 to 26%).

On average, population estimates have not changed significantly in 2023 compared to 2022.

Social mood

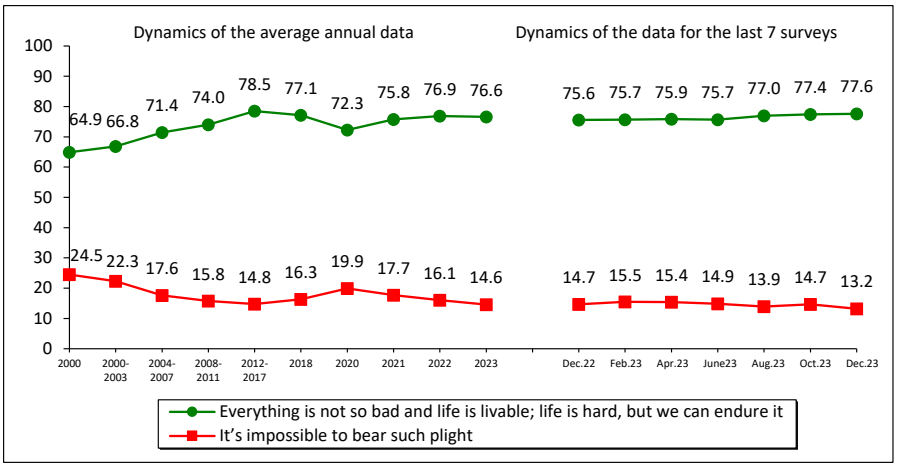


Dynamics (+/-), December 2023 to		
Answer option	Dec. 2022	Oct. 2023
Usual condition good mood	+3	+1
I feel tension, irritation, fear, sadness	-3	0

The stock of patience remains at a consistently high level: in October – December 2023, 77% of Vologda Region 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" amounted to 13–15%.

Similar estimates of residents of the region were noted in December 2022, as well as on average for 2022–2023.

Stock of patience

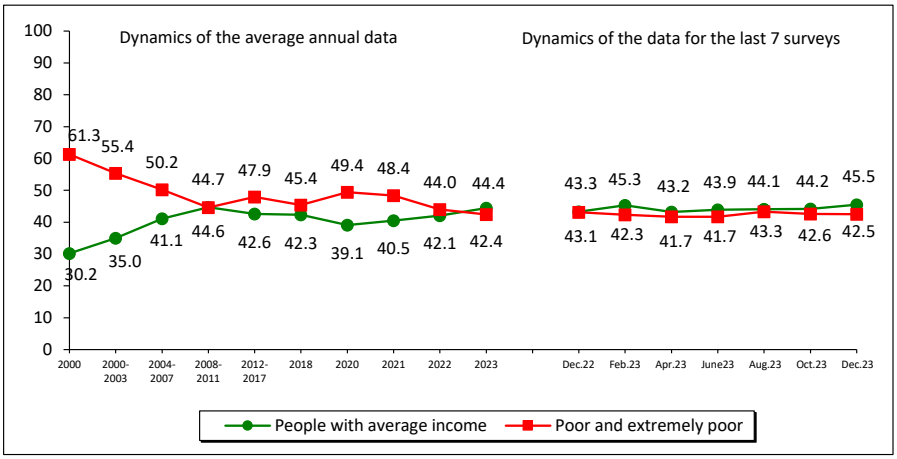


Dynamics (+/-), December 2023 to		
Answer option	Dec. 2022	Oct. 2023
Everything is not so bad and life is livable; life is hard, but we can endure it	+2	0
It's impossible to bear such plight	-2	-2

Like in October 2023, in December 2023 the proportion of residents of the region subjectively classifying themselves as "middle-income" people was 44–46%. The share of those who classify themselves as "poor and extremely poor" has not changed (43%).

Over the past 12 months, the share of "middle-income" people has increased by 3 percentage points (from 43 to 46%). On average, in 2023, compared with 2022, it increased by 2 percentage points (from 42 to 44%).

Social self-identification



Dynamics (+/-), December 2023 to		
Answer option	Dec. 2022	Oct. 2023
People with average income	+3	+1
Poor and extremely poor	-1	0

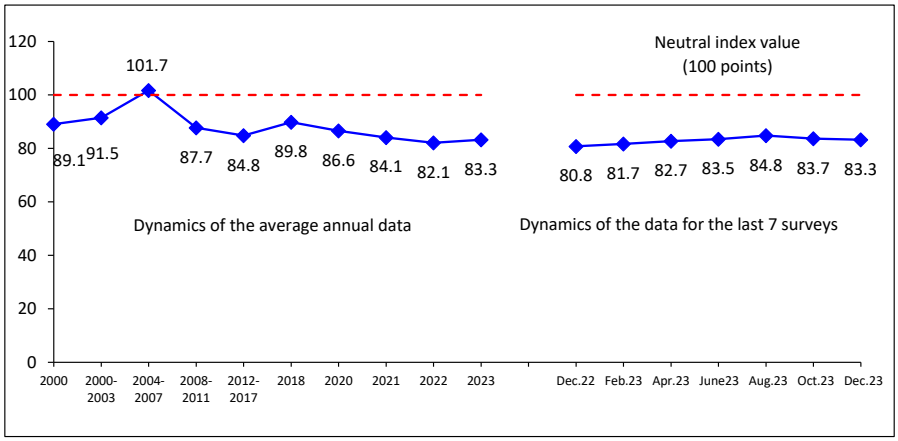
Wording of the question: "What category do you belong to, in your opinion?"

The consumer sentiment index (CSI) in October – December 2023 amounted to 83–84 points.

This is slightly higher than the value of the CSI in December 2022 (by 2 percentage points).

However, on average, there were no significant changes in the dynamics of the CSI in 2022–2023 (82–83 points).

Consumer Sentiment Index (CSI, points; VolRC RAS data for the Vologda Oblast)



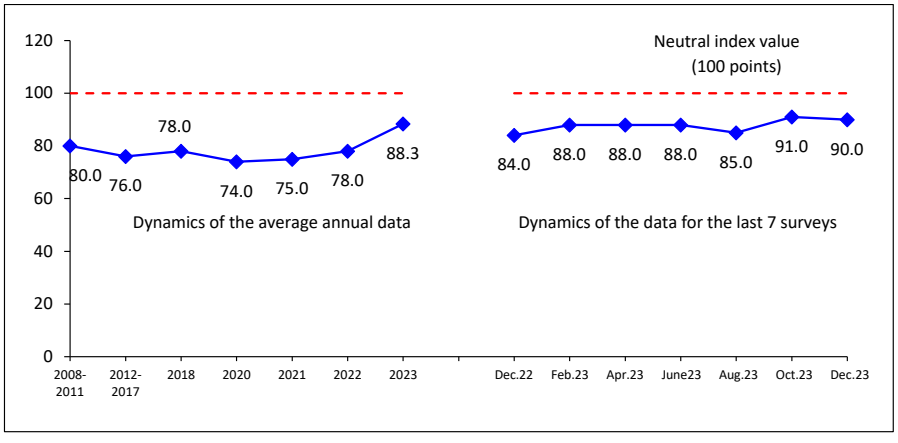
Dynamics (+/-), December 2023 to		
CSI	Dec. 2022	Oct. 2023
Index value, points	+2	0

For reference:

According to the latest data from the all-Russian surveys of Levada-Center (for the period from October to December 2023), the consumer sentiment index amounted to 90–91 points.*

Tangible positive changes have been observed over the past 12 months (the CSI increased by 6 points, from 84 to 90 p.); as well as on average for the period from 2022 to 2023 (the CSI increased by 10 points, from 78 to 88 p.)

Consumer Sentiment Index (CSI, points; Levada-Center* data for Russia



Dynamics (+/-), December 2023 to		
CSI	Dec. 2022	Oct. 2023
Index value, points	+6	+1

* The index is calculated since 2008.

The latest data are as of December 2023.

Source: Levada-Center*. Available at: https://www.levada.ru/indikatory/sotsialno-ekonomicheskie-indikatory/

* Included in the register of foreign agents.

During the period from October to December 2023, there were no significant changes in the dynamics of the share of positive assessments of social mood in any of the main socio-demographic groups. There is only a slight (by 3 percentage points) increase in the proportion of people who positively characterize their daily emotional state in the following groups: men (from 67 to 70%), people with higher and incomplete higher education (from 70 to 73%), as well as among those who, according to subjective self-assessments of their income level belonging to the top 20% (from 73 to 76%).

From December 2022 to December 2023, the share of positive assessments of social mood increased in 6 of the 14 main socio-demographic groups, especially among 60% of the middle-income people (by 7 percentage points, from 66 to 73%) and residents of Vologda (by 8 percentage points, from 57 to 65%).

On average, in 2023, compared with 2022, negative trends were noted in several categories (in 5 out of 14): the proportion of those who characterize their mood as "normal, fine" decreased by 3–4 percentage points among people under the age of 30 (from 78 to 75%) and among those aged over 55 (from 61 to 58%); in the group of people with secondary and incomplete secondary education (from 65 to 62%); in the category of 20% of the most affluent residents of the region (from 78 to 74%), as well as among residents of Cherepovets (from 71 to 68%). Tangible negative changes were also recorded among people who, according to self-estimates of their own income, belong to the category of 20% of the least well-off (by 7 percentage points, from 57 to 50%).

Social mood in different social groups (answer option: "Wonderful mood, normal, stable condition", % of respondents; VolRC RAS data)

Population group	Dynamics of the average annual data									Dynamics of the data for the last 7 surveys							Dynamics (+/-), Dec. 2023 to	
	2000	2007	2011	2012	2018	2020	2021	2022	2023	Dec. 2022	Feb. 2023	Apr. 2023	June 2023	Aug. 2023	Oct. 2023	Dec. 2023	Dec. 2022	Oct. 2023
Sex																		
Men	50.1	65.9	64.5	69.1	72.8	60.8	65.7	66.8	65.5	64.7	62.5	65.4	63.4	65.4	66.9	69.6	+5	+3
Women	43.3	61.7	62.0	65.8	69.8	61.2	67.4	67.9	65.7	66.5	62.7	63.4	64.7	65.3	69.4	68.9	+2	-1
Age																		
Under 30	59.1	71.3	70.0	72.3	80.0	67.6	73.5	77.6	75.0	78.7	70.6	72.9	72.9	76.2	79.4	78.0	-1	-1
30–55	44.2	64.8	62.5	67.9	72.6	61.8	69.5	69.4	68.8	68.5	63.9	67.7	68.6	69.2	71.1	72.3	+4	+1
Over 55	37.4	54.8	58.3	62.1	65.2	57.4	60.5	61.1	58.2	57.2	58.1	56.9	55.4	56.3	60.5	62.0	+5	+2
Education																		
Secondary and incomplete secondary	41.7	58.4	57.4	57.2	64.8	56.1	62.1	64.6	62.0	62.7	57.2	60.2	61.6	63.2	64.4	65.5	+3	+1
Secondary vocational	46.4	64.6	63.6	66.7	72.2	63.5	66.7	68.3	66.1	64.3	63.7	65.1	63.7	65.1	70.1	69.1	+5	-1
Higher and incomplete higher	53.3	68.6	68.3	77.0	76.8	63.3	71.5	69.5	68.8	70.6	67.3	67.3	68.2	67.4	70.0	72.8	+2	+3
Income group																		
Bottom 20%	28.4	51.6	45.3	51.5	57.3	43.4	54.6	57.0	50.1	55.4	46.2	47.8	50.4	49.6	52.5	54.2	-1	+2
Middle 60%	45.5	62.9	65.3	68.7	71.9	62.6	67.3	68.1	67.4	66.1	62.2	64.4	65.7	67.9	71.0	73.1	+7	+2
Top 20%	64.6	74.9	75.3	81.1	82.9	75.6	79.9	78.3	73.9	74.9	73.8	78.2	72.1	70.3	73.2	75.9	+1	+3
Territory																		
Vologda	49.2	63.1	67.1	73.6	71.0	60.9	60.3	59.8	59.6	57.2	54.5	56.0	57.8	60.8	63.8	64.8	+8	+1
Cherepovets	50.8	68.1	71.2	76.2	75.8	60.4	71.0	71.2	68.1	69.1	65.9	68.4	67.9	66.4	69.4	70.6	+2	+1
Districts	42.2	61.6	57.1	59.8	68.7	61.4	67.8	69.5	67.7	68.5	65.3	66.6	65.6	67.3	70.2	70.9	+2	+1
Region	46.2	63.6	63.1	67.3	71.2	61.0	66.6	67.4	65.6	65.7	62.6	64.3	64.1	65.3	68.3	69.2	+3	+1

RESUME

The results of the six rounds of the monitoring conducted in 2023 allow us to state the following (in general, for 2023 compared with the average annual data for 2022).

1. There is an increase in approval of the activities of authorities at all levels, as well as support for United Russia. The share of positive assessments of the RF President's work increased by 4 percentage points (from 57 to 61%); the Chairman of the Government – by 5 percentage points (from 45 to 50%), the Governor of the Vologda Region – by 7 percentage points (from 41 to 48%). The proportion of those who believe that their interests are reflected by the party in power increased by 5 percentage points (from 35 to 40%).

2. Since 2021, a stable background of people's psychological well-being has been maintained. The share of Vologda Region residents who characterize their daily emotional state as "normal, fine" is 66–67%. The proportion of those who believe that "everything is not so bad and life is livable; life is hard, but we can endure it" is 76–77%.

3. Positive trends are noted in the dynamics of the subjective assessments of own financial situation and the economic situation in the country by the region's residents. The share of those who classify themselves as "poor and extremely poor" has been gradually decreasing since 2020 (from 2020 to 2023 – by 7 percentage points, from 49 to 42%); the proportion of people of "average income" has increased by 5 percentage points over the past 4 years (from 39 to 44%). Also, since 2020, the share of those who consider the actions of the head of state to boost the economy and increase the welfare of the population to be successful continues to increase (from 2020 to 2023 – by 11 percentage points, from 25 to 36%).

Among the negative changes in the dynamics of public opinion over the period from 2022 to 2023, the following is noted.

1. Deterioration of the social mood in certain groups of citizens. First of all, attention is drawn to the decrease in the share of positive assessments among people who, according to self-estimates of income, belong to the group of 20% of the least well-off residents of the region (by 7 percentage points, from 57 to 50%).

2. So far, there is no tangible impact of the positive dynamics of self-assessment of the financial situation on consumer sentiment trends. The Consumer Sentiment Index remains stable, but still low: 81–83 points, which means that people's pessimistic forecasts about the future of the Russian economy and their personal material well-being prevail.

We should emphasize that all trends in public opinion revealed during the monitoring cannot currently be interpreted outside the context of the ongoing special military operation and the resulting aggravation of threats to national security for Russia from NATO countries (territorial, political, economic, etc.).

From this standpoint, we can say that the authorities manage quite successfully to maintain the stability of the social situation, which is primarily evidenced by the improvement of the psychological climate and the support of government bodies (at all levels).

The consistently low value of the CSI is explained by the fact that this index is largely a psychological indicator reflecting people's ideas about the future. Indeed, it remains extremely alarming, and, apparently, this situation will persist, at least until the goals of the SMO are achieved and until there are any tangible

signs of normalization of the international political situation. This, in our opinion, is related to the fact that the dynamics of the CSI practically does not reflect positive changes in indicators of self-assessment of own financial situation.

More attention should be paid to the deterioration of indicators of social well-being in certain socio-demographic groups (and not only among the bottom 20%). This requires further monitoring of the situation, as well as attention from the authorities in order to prevent the development of negative trends.

We should note that on March 17, 2024 (in less than three months), the presidential election will be held in Russia, in which the current President of the Russian Federation, Vladimir Putin, announced his participation on December 8, 2023[5]. In today's almost military situation, most experts have no doubt that Vladimir Putin's presidential term will continue, because "in the current situation, only Putin can make decisions"[6] and "there is a high demand in society for Putin to nominate his candidacy"[7].

The latest conceptual speeches by the head of state (October 5 at the meeting of the Valdai International Discussion Club; November 28 at the plenary session of the World Russian People's Council, where Vladimir Putin stressed that "our fight for sovereignty and justice is, without exaggeration, one of national liberation, because we are upholding the security and well-being of our people, and our supreme historical right to be Russia – a strong independent power, a civilization state[8]), as well as the "direct line" with Russians held by the President on December 14, during which he once again noted the stability of the Russian economy[9] and the success of the actions of the Russian armed forces on the front line[10], make it possible to verify the validity of expert assessments.

However, many experts say that unfriendly countries will try to interfere in the course of the election campaign, and use "various methods to compromise the vote"[11] for this purpose. In such conditions, the task of maintaining social stability and the financial situation of various social strata and groups becomes even more relevant (in addition, of course, to the main factor – the range of problems and threats posed to Russia by the Collective West).

Materials were prepared by M.V. Morev, I.M. Bakhvalova

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[5] Conversation with participants in the ceremony marking Heroes of the Fatherland Day, December 8, 2023. Available at: http://www.kremlin.ru/events/president/news/72935

[6] A. Asafov (first deputy Chairperson of the Commission of the Civic Chamber of the Russian Federation on public examination of draft laws (sources: Vzglyad. December 8, 2023. Available at: https://vz.ru/politics/2023/12/8/1243372.html; Sputnik-Abkhazia. December 11, 2023. Available at: https://sputnik-abkhazia.ru/20231211/politolog-o-reshenii-putina-vydvigatsya-v-prezidenty-vazhno-i-dlya-abkhazii-1049411089.html).

[7] E. Minchenko (president of the communication holding "Minchenko Consulting") (source: ibidem).

[8] Vladimir Putin's speech at the plenary session of the World Russian People's Council, November 28, 2023. Available at: http://www.kremlin.ru/events/president/news/72863

[9] Vladimir Putin: "The margin of safety of the Russian economy is big enough so that we not just feel confident but also progress" (source: Results of the Year with Vladimir Putin, December 14, 2023. Available at: http://www.kremlin.ru/events/president/news/72994)

[10] Vladimir Putin: "Let us be humble about it, but our Armed Forces are improving their position almost along the entire line of contact... and the position of our troops is improving along the entire line of contact (source: ibidem).

[11] A.A. Klimov (Deputy Chairperson of the Federation Council Committee on International Affairs, Chairperson of the Interim Commission of the Federation Council for the Protection of State Sovereignty and Prevention of Interference in the Internal Affairs of the Russian Federation) (source: *Parlamentskaya gazeta*. December 13, 2023. Available at: https://dzen.ru/a/ZXmQcIV5niAfae6o).

Index of articles published in 2023

AUTHOR GUIDELINES
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1. The following materials are submitted to the editorial office in electronic form:
2. The file containing the article in Microsoft Word format .docx. The name of the file is typed in the Roman characters and contains the author's last name (e.g.: Ivanova. docx). Full information about the author on a separate page: full name, academic degree and title, place of work and position, contact information (postal address, telephone, email), ORCID, Researcher ID.
3. Scanned copy of the author's commitment not to publish the article in other publications.
4. A color photo of the author in the .jpeg/.jpg format of no less than 1 MB.

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