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ECONOMIC AND SOCIAL CHANGES: FACTS, TRENDS, FORECAST

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

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

Founder: Vologda Research Center of the Russian Academy of Sciences

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

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

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

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

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

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

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

INTERNATIONAL TIES AND PROJECTS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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A Framework for a New Social Contract Is Being Formed in Russia

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Abstract. The development of the foreign policy situation and the course of actions in the area of the special military operation indicate that the SMO is becoming protracted. This was emphasized by the President of the Russian Federation at the meeting of the Council for Civil Society and Human Rights (December 7, 2022) and at the expanded meeting of the Board of the RF Ministry of Defense (December 21, 2022). Therefore, the situation itself urges the Russian leadership and the entire ruling vertical to set goals and tasks aimed to comprehensively change the Russian society so that the country could achieve full national sovereignty and competitiveness in the 21st century. In this regard, many experts say that currently in Russia in the context of the SMO the prerequisites are being created for the formation of a new Social Contract, as well as new criteria for the coexistence and interaction of society and government, which will become relevant after all the goals of the special military operation have been achieved. In the article, we consider new features of civil society that are evolving into the outlines of a new Social Contract; factors that contribute to and hinder this process; conditions that need to be implemented in

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order for these still disparate contours to develop into concrete, real-life points of the Social Contract, supported by the majority of the population and determining the legitimacy of power at the new historical stage of Russia's development.

Key words: President, special military operation, new Social Contract, Board of the Ministry of Defense of the Russian Federation, collapse of the USSR, public opinion.

December 21, 2022 (the date is the birthday of Joseph Stalin, symbolically[1]) an expanded meeting of the Board of the RF Ministry of Defense was held; at the meeting, the President of the Russian Federation summed up the interim results of the past 10 months of the special military operation (SMO) and identified key areas for further development of the Russian armed forces, taking into account current relations with NATO.

> "It is well known that the military potential and capabilities of almost **all major NATO countries** are being widely used against Russia. Still, our soldiers, sergeants and officers are fighting for Russia with courage and fortitude and are fulfilling their tasks with confidence, step-by-step. **Without a doubt, these tasks will be fulfilled in all territories of the Russian Federation, including the new territories, and a safe life for all our citizens will be ensured.** Our Armed Forces' combat capability is increasing day by day, **and we will certainly step this process up.... Today, our goal is to implement the entire scope of necessary measures to achieve a qualitative renewal and improvement of the Armed Forces"**[2].

Perhaps, taking into account the geopolitical situation that has developed around Russia in 2022, we can agree with experts who compared the speech of the Supreme Commander-in-Chief at the Board of the RF Ministry of Defense to the President's Address to the Federal Assembly that did not take place this year. This "corresponds to the priorities at hand"[3].

In the context of Russia's active confrontation with NATO countries and taking into consideration the ongoing SMO, the state and society understand the importance of achieving complete victory on the front line and are ready to "provide the army with everything it needs". This allows us to count on the fact that all the key goals and objectives announced by the President will be implemented in full.

> "I would like to draw the attention of the Defence Minister, the Chief of the General Staff and all the commanders here: **we have no funding restrictions. The country, the Government will provide whatever the Army asks for, anything.** I hope that the answer will be properly formulated and the appropriate results will be achieved"[4].

Boris Rozhin, an expert with the Center for Information and Geopolitical Research, noted the following key points in the speech of the Russian President at the Board of the Ministry of Defense:

"1. The war with the West in Ukraine will be long. The course toward achieving the goals of the SMO does not change. You can find the official list of the goals in Putin's speech on February 24 (plus the Kherson and Zaporozhye oblasts). Unofficial goals can be interpreted quite broadly.

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[1] December 21, 2022 marks the 143rd anniversary of the birth of Joseph Stalin.

[2] Vladimir Putin's speech at an expanded meeting of the Board of the Defense Ministry. Available at: http://www.kremlin.ru/events/president/transcripts/70159

[3] Instead of the Address to the Federal Assembly, Putin delivered an address to the Ministry of Defense; this measure is generally in line with the priorities set. Available at: https://rus-republic.com/2022/12/21/vmesto-poslaniia-federalnomy-sobraniu-pytin-vystypil-s-poslaniem-k-minoborony-chto-v-celom-sootvetstvyet-rasstavlennym-prioritetam/

[4] Vladimir Putin's speech at an expanded meeting of the Board of the Defense Ministry. Available at: http://www.kremlin.ru/events/president/transcripts/70159

2. There will be no back door deal, because the West is not ready to recognize Russia's right to equal agreements with it. We haven't fit into the "civilized world". Good riddance.

3. The army will receive more resources – material, financial, human. But without fanaticism, so as not to strain the economy. The concept of "guns instead of oil" is not our choice. A reasonable balance will be sought for. Next year, the army will receive many different weapons, much more than in 2021–2022. There will also be more drones.

4. Various pre-war mistakes related to the military logistics, the mobilization system, repair facilities, underestimation of the role of drones and concepts of multi-domain operations have been admitted, though not always openly. It has been considered desirable to criticize the related drawbacks.

5. The Russian army is to undergo a fairly significant reform, which is both a consequence of the various drawbacks revealed during the SMO, and the growing threat from the United States and NATO. Russia's sovereignty will be based on the growth of the capabilities of our nuclear triad as the only reliable guarantor of military and political sovereignty"[5].

In general, the President confirmed that the goals of the special military operation continue to be implemented, but the process is protracted, and this also means the long-term nature of threats to national security and an alarming situation in society against the background of ongoing economic sanctions, the Collective West pouring weapons into Ukraine, the continuing threat of direct military conflict between Russia and NATO, in fact, daily shelling of Russian territories by the Armed Forces of Ukraine, public statements by representatives of the Western political establishment about the need to abolish Russian culture, the possibility of information fakes aimed at strengthening anti-Russian sentiment and escalation of the conflict.

Some experts point out that "the beginning of Russia's special military operation in Ukraine is a turning point in Russian history. It is quite natural that at this crucial time, the social contract of the previous period is now largely dated, leading to the emergence of new imperatives among various population groups"[6].

In other words, the situation itself, following the SMO, puts forward an objective need to formulate the task of designing a new Social Contract as "a set of mutual obligations between the supreme power (state) and the population (society), which are accepted by both sides and thereby provide consensus for the further peaceful existence of the nation"[7]; the need for comprehensive changes in the system of public administration, information agenda, civil society, public consciousness in order to develop an adequate response to the nature of the threats hanging over the country after February 24, 2022. **All this is necessary and vital for the formation of a sovereign competitive state in the 21st century.**

In fact, Russia has found itself in this situation not because of the events unfolding after February 24, 2022, but because of the betrayal of the ruling elites, which led to the collapse of the USSR, the turbulent 1990s and, in general, the subsequent 30 years of the country's existence within the framework of the liberal-capitalist development paradigm, characterized today by many as a period of "paradigmatic mental occupation"[8] resulting in the "loss of historical time"[9].

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[5] Opinion of B. Rozhin, an expert with the Center for Information and Geopolitical Research. Available at: https://zavtra.ru/events/vistupleniya_v_v_putina_i_s_k_shojgu_na_rasshirennom_zasedanii_kollegii_minoboroni_rf

[6] Balatsky E.V. Russia 2022: The content of a new social contract. Available at: https://kapital-rus.ru/articles/article/rossiya_2022_goda_soderjanie_novogo_obschestvennogo_dogovora/

[7] Balatsky E.V., Ekimova N.A. (2022). Social Contract in Russia: Before and after 2022. *Journal of Institutional Studies,* 14(3), 76.

[8] Dugin A. The SMO and the change of the world order. Available at: https://izborsk-club.ru/23426

[9] Khubiev K.A., Tenyakov I.M. (2022). The fractured vector of development of the Russian economy. *Voprosy politicheskoi ekonomii*, 2, 22–39.

Our monitoring shows that individual strokes of a new Social Contract are already being formed today, in the conditions of the SMO. And they are not just being formed, but also enshrined in normative legal acts of the RF President, the Government, the Federal Assembly (laws, decrees, resolutions, etc.), which bind separate strokes of a new Social Contract into its general contours due to the fact that they have real legal force and thus have a direct impact on people's lives; they form the "rules of the game" of life in the country; and every citizen, no matter what views they adhere to, is obliged to observe these rules.

Therefore, in our opinion, the state policy in the context of the SMO can be named the first and main emerging contour of a new Social Contract.

First "contour" – state policy in the context of the SMO

The monitoring of the key steps taken by the authorities in the context of the SMO (we launched the monitoring in June 2022[10]) allows us to say that from February to December 2022, about 70 significant managerial decisions were made at different levels and in different spheres of public life (we show not all the decisions, but only those we consider key ones; *Insert 1*).

Summarizing the results of their analysis, we can say that public policy in the conditions of the SMO assumes a mobilization character. Thus, after February 24, 2022, three vectors are clearly traced in the management decisions taken by Vladimir Putin, approved by the Federal Assembly and the Government of the Russian Federation:

✓ socio-economic support for broad segments of the population (motherhood, childhood) and certain categories of citizens (military personnel participating in the SMO, members of their families)[11];

✓ stricter discipline and personal responsibility in various spheres of life (primarily in the army, in the defense industry, in the field of culture, including the media)[12];

✓ concretization, the most clear delineation of the boundaries of the image of the future of Russia and work with young people; that is, in fact, the society and the general population receive a clear idea of the direction in which the country is moving, what it is fighting for, what it should become after it emerges from the civilizational conflict with the Collective West[13] (*Insert 1*).

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[10] Ilyin V.A., Morev M.V. (2022). The difficult road after the Rubicon. *Economic and Social Changes: Facts, Trends, Forecast,* 15(3), 9–41.

[11] For example:

✓ RF Government Resolution 1677 "On the preservation of jobs for mobilized citizens" (September 22, 2022);

✓ Decree on a lump sum payment of 195 thousand rubles to servicemen undergoing military service under a contract in the Armed Forces of the Russian Federation (November 4, 2022);

✓ equating the status of volunteers participating in the SMO with the status of military personnel (November 4);

✓ introduction of a new monthly allowance in connection with the birth and upbringing of a child into the unified system of state benefits for families with children (November 21, 2022), etc.

[12] For example:

✓ establishment of administrative liability for public actions aimed at discrediting the Armed Forces of Russia and criminal liability for public dissemination under the guise of reliable reports of deliberately false information containing data on the use of the Armed Forces of Russia (March 4, 2022);

✓ Federal Law 255 "On control over the activities of persons under foreign influence", according to which "a foreign agent is not entitled to carry out educational activities in relation to minors and pedagogical activities in state and municipal educational organizations" (July 4, 2022);

✓ Federal Law "On amendments to the Criminal Code of the Russian Federation and Article 151 of the Criminal Procedure Code of the Russian Federation" (September 24, 2022);

✓ Decree on the introduction of martial law in the territories of the DPR, LPR, Zaporozhye and Kherson oblasts; Decree "On measures implemented in constituent entities of the Russian Federation in connection with Presidential Decree 756, dated October 19, 2022" (October 19, 2022), etc.

[13] For example:

✓ Federal Law 261-FZ "On the Russian Movement of Children and Youth" (July 14, 2022);

✓ approval of the Naval Doctrine of the Russian Federation and the Naval Charter of the Navy (July 31, 2022);

✓ Presidential Decree 611 "On approval of the Concept of Humanitarian Policy of the Russian Federation Abroad" (September 5, 2022);

✓ Decree on the approval of the Fundamentals of state policy for the preservation and strengthening of traditional Russian spiritual and moral values (November 9, 2022).

Insert 1

Monitoring of the key decisions adopted by the RF President (October 21 – December 20, 2022)[14]

October 21 – Decree on the Coordination Council under the Government to meet the needs of the Armed Forces of the Russian Federation, other troops, military formations and bodies. The Council was formed to "organize the interaction of federal executive authorities and executive authorities of RF constituent entities in addressing issues related to ensuring the needs of the Armed Forces of the Russian Federation, other troops, military formations and bodies during the special military operation". The Chairman of the Coordination Council is the Chairman of the RF Government. The composition of the Coordination Council is approved by the RF President. According to experts, "this is done in order to efficiently allocate limited resources to key tasks". At the beginning of 2020 the government created a coordination council to combat coronavirus, and it "proved to be an effective structure"[15].
October 26 – the list of Russian credit institutions, in respect of which a ban is imposed on transactions with their shares and equity stakes, is approved. The list comprises 45 organizations, including not only foreign, but also Russian credit organizations with parent structures abroad, including **"systemically significant** Raiffeisenbank and UniCredit, as well as Citibank, which is in the top 30"[16].
November 3 – Decree on a lump sum payment of 195 thousand rubles to servicemen undergoing military service under a contract in the Armed Forces of the Russian Federation.
November 4 – amendments were made to the Code of the Russian Federation on Administrative Offenses. It is now established that the refusal or evasion of a supplier (contractor, contractor) from concluding a state contract for a state defense order, a contract necessary to fulfill a state defense order, entails administrative liability if these actions do not contain a criminally punishable act.
November 4 – amendments were made to the legislation defining the status of volunteer formations that contribute to the fulfillment of the tasks assigned to the Armed Forces. Russians serving in volunteer formations receive the status of military personnel.
November 4 – a law aimed at improving the legislation on the state civil service is signed. The law provides for the possibility of extending civil service beyond the age limit of 65 years and up to 70 years for managers from the main group of positions in federal departments subordinate to the RF Government.
November 4 – amendments were made to the law on mobilization training and mobilization. The law defines the procedure for alternative civil service after the announcement of mobilization. The document also approves that during the mobilization there is a possibility of conscription of convicts who have an outstanding conviction or criminal record for a number of serious crimes.

[14] The Insert is a continuation of the monitoring of management decisions of the authorities, which we started in the article "The difficult road after the Rubicon" in *Economic and Social Changes: Facts, Trends, Forecast*, 15(3), 9–41.

[15] How will the coordination council work for the "economics of military operations" (opinion of the Director of the HSE Center for Market Research G. Ostapkovich). Available at: https://www.rbc.ru/economics/19/10/2022/63500e719a79471d547078d8

[16] Putin banned transactions with shares of 45 banks without permission. Available at: https://www.rbc.ru/finances/26/10/2022/635910419a794725725385f1

Continuation of Insert 1

November 9 – Decree approving the foundations of state policy for the preservation and strengthening of traditional Russian spiritual and moral values. The document defines traditional values (moral guidelines that form the worldview of Russian citizens, transmitted from generation to generation, underlying the all-Russian civic identity and the unified cultural space of the country, strengthening civic unity). **The document lists traditional values** (life, dignity, human rights and freedoms, patriotism, citizenship, service to the Fatherland and responsibility for its fate; high moral ideals, strong family, creative work, priority of the spiritual over the material, historical memory and continuity of generations, unity of the peoples of Russia); **threats to traditional values** (including the United States and other "unfriendly countries"). The destructive ideology includes the cultivation of selfishness and immorality and the propaganda of non-traditional sexual relations.
November 14 – Decree on the procedure for coordination with federal public authorities on the implementation of public authority in the Zaporozhye and Kherson oblasts. As experts noted, this law "introduces, in fact, direct subordination of two new constituent entities of the Russian Federation to the federal center... A strict procedure has been introduced for the heads of these entities to coordinate appointments to all positions with the Presidential Administration and the Government. A unified system of public authority will be immediately organized in the new territories..."[17]
November 14 – Decree on amendments to the Regulation on the procedure for military service. The Regulation determines the order of military service in peacetime... for citizens who have citizenship of a foreign state or a residence permit or other document confirming the right to permanent residence for a citizen on the territory of a foreign state, and for foreign citizens – in the Armed Forces of the Russian Federation.
November 15 – The cities of Melitopol and Mariupol were awarded the honorary title **"City of Military Glory"**. The honorary title **"City of Labor Valor"** was awarded to Astrakhan, Vologda, Gorlovka, Zlatoust, Kaspiysk, Lugansk, Norilsk, Orsk, Yakutsk.
November 17 – Presidential Decree 832 On amendments to the composition of the Presidential Council for the Development of Civil Society and Human Rights" approved by Presidential Decree 691, dated December 3, 2018. Ten people were excluded from the Council (A.G. Asmolov, A.V. Babushkin, M.A. Bolshakova, A.M. Verkhovsky, E.V. Vinokurov, N.L. Evdokimova, I.I. Zasursky, I.A. Kalyapin, G.A. Osokina, N.K. Svanidze). Ten people were also included in the Council: Yu.A. Belekhova, Ya.V. Vlasov, O.Yu. Demicheva, N.F. Ivanov, V.Yu. Ikonnikov, A.I. Kotz, A.V. Melnikov, S.E. Rukshin, E.V. Smoroda, E.N. Shishkina. As D. Peskov noted, the leaders of public opinion are changing, the process of rotation is underway... "In the new circumstances, other persons can best represent civil society; they are the most correct reflection of civil society"[18].
November 21 – amendments were made to the legislation establishing the right of volunteers to receive support in the form of payment for communication services. Also, Article 217 of Part Two of the Tax Code has been amended, according to which the list of income not subject to personal income tax includes income received by volunteers.

[17] Garmonenko D. Russia is integrating new territories without acceleration. Available at: https://www.ng.ru/politics/2022-11-14/3_8589_polit02.html

[18] Putin signed a decree on changing the composition of the Human Rights Council. Available at: https://ria.ru/20221117/spch-1832189632.html

Continuation of Insert 1

November 21 – amendments were made to Article 4 of Part One and Part Two of the Tax Code, as well as to certain legislative acts. For 2023, the validity of the norms granting the RF Government the authority to issue regulatory legal acts is extended in the sphere of regulation of tax legal relations in terms of changing the deadlines for payment of taxes, fees, insurance premiums. It establishes the possibility of applying a 0 percent tax rate on value added tax for the sale in 2023 of ships owned by a Russian leasing company and registered in the Russian International Register of Ships.
November 21 – the law on easing the budget rule for 2023–2024 was signed. According to the document, the Budget Code contains the defined volume of basic oil and gas revenues that can be spent in 2023–2025 in absolute terms at the level of 8 trillion rubles with further annual indexation of 4% starting from 2026. This volume corresponds to moderately conservative estimates of external conditions with a stable exchange rate in the range of 65–75 rubles per dollar. This will ensure the stability of budget expenditures regardless of the variability of the conjuncture and minimize the impact of oil and gas rental income volatility on the economy, the explanatory note said. The Cabinet of Ministers will also be able to make decisions on the provision of state guarantees of the Russian Federation in 2023 that are not provided for by the programs on such guarantees, and in the manner and on the terms established by the Cabinet itself[19].
November 21 – the law on the status of combat veteran for members of volunteer formations participating in the special military operation was signed. Volunteers participating in the special operation to liberate Donbass will receive the status of combat veteran. In addition, the document establishes the status of combat disabled for volunteers who were seriously injured.
November 21 – features of conformity assessment of space technology for various purposes, as well as processes related to its development, creation and use were established. The Government of the Russian Federation will approve the procedure for assessing the conformity of space technology intended for use in scientific and socio-economic purposes. The Government will also approve the procedure for accreditation in the field of space activities.
November 21 – a new monthly allowance in connection with the birth and upbringing of a child was introduced into the unified system of state benefits for families with children. The right to such an allowance is granted to pregnant women in need of social support and persons with children under the age of 17, provided that they are citizens of the Russian Federation and permanently reside in the territory of the Russian Federation. If there are several children under the age of 17 in the family, an allowance is assigned for each such child. The RF Government is authorized to establish the procedure and conditions for the appointment and payment of allowances.
November 21 – the Air Code was amended. The authorized body in the field of defense receives the power to approve federal aviation regulations governing activities in the field of state aviation. The RF Government is vested with the authority to establish the procedure for using state aviation for testing aviation equipment.

[19] Putin signed a decree on softening the budget rule for 2023–2024. Available at: https://ria.ru/20221121/byudzhet-1833112507.html

Continuation of Insert 1

November 21 – amendments were made to the legislation concerning the preferential right of admission to study in basic general education programs in a state or municipal educational organization. The law provides that a child "who is under guardianship in a family, including from a foster family, has the right of preferential admission to study in the basic general education programs of preschool education and primary general education in a state or municipal educational organization in which a **child who is brought up with him/her in the same family is studying".**
December 5 – amendments were made to certain legislative acts concerning, in particular, the civil service. Amendments are being made to the federal law "On the system of public service of the Russian Federation", providing for the grounds and procedure for suspending public service. In particular, such grounds include **conscription of a civil servant for military service on mobilization**, their conclusion in accordance with paragraph 7 of Article 38 of the Federal Law "On military duty and military service" of a contract on military service or their conclusion of a contract on voluntary assistance in performing tasks assigned to the Armed Forces of the Russian Federation.
December 5 – amendments were made to the law on information and certain legislative acts. The federal law is aimed at preventing the dissemination on the territory of the Russian Federation of information promoting nontraditional sexual relations and (or) preferences, pedophilia, sex change. In addition, it provides for the procedure for monitoring information and telecommunications networks, including the Internet.
December 5 – amendments were made to the Code of the Russian Federation on Administrative Offenses. Administrative liability is established for the promotion of non-traditional sexual relations and (or) preferences, sex change, pedophilia propaganda, as well as for the dissemination among minors of information demonstrating nontraditional sexual relations and (or) preferences or capable of causing minors to desire to change their sex. **Increased administrative liability** is provided for the commission of these administrative offenses with the use of mass media and (or) information and telecommunication networks (including the Internet). In case of committing such administrative offenses by a foreign citizen or a stateless person, an administrative penalty is provided in the form of administrative expulsion from Russia.
December 19 – administrative liability for providing false information about critical information infrastructure objects was introduced by law. Administrative liability is established for providing false information about the results of assigning an object of critical information infrastructure of the Russian Federation one of the categories of significance provided for by legislation in the field of ensuring the security of critical information infrastructure of the Russian Federation, or about the absence of the need to assign it one of such categories... Until December 31, 2023, the term is extended for the regulation granting officials of the executive authorities of the RF constituent entities, the list of which is approved by the highest official (head of the supreme executive body of state power) of the RF constituent entity, the right to draw up protocols on administrative offenses provided for in Article 20.61 of the Code on Administrative Offenses of the Russian Federation (failure to comply with the rules of conduct in an emergency situation or the threat of its occurrence).

Continuation of Insert 1

December 19 – the deadline for the application of a set of measures to preserve the stability of the Russian economy in the face of external sanctions pressure is extended by law. In particular, in 2023, the following legislative provisions concerning the authority of the RF Government remain in effect:

✓ organizing and implementing the types of state control (supervision), municipal control;

✓ licensing, accreditation, certification, state registration, conducting qualification examinations, inclusion in the register, as well as other permissive regimes established by the legislation of the Russian Federation;

✓ implementation of urban planning activities;

✓ regulation of certain issues related to the shared construction of real estate;

✓ regulation of labor relations, as well as relations in the field of employment promotion;

✓ admission to study, state final certification, recognition in the Russian Federation of education received in a foreign state, in relation to citizens forced to interrupt their studies abroad due to unfriendly actions of foreign states;

✓ the procedure for entering into circulation, turnover and withdrawal from circulation of goods subject to mandatory labeling by means of identification, without applying identification means to them.

December 19 – a law was signed that reduces the tax burden on NPOs in the implementation of federal projects. Operations on the implementation of works (services), property rights performed (rendered), transferred by nonprofit organizations within the framework of their implementation of federal projects, the source of financial support for which is a subsidy from the federal budget provided on the basis of the federal law on the federal budget for the current financial year and planning period, are exempt from value added tax. In addition, the list of income not taken into account when determining the tax base for corporate income tax includes income in the form of works (services), property rights received free of charge from organizations that carry out activities for the implementation of federal projects at the expense of subsidies provided on the basis of the federal law on the federal budget for the current fiscal year and the planning period.

December 19 – a law was signed aimed at optimizing the requirements for the charters of NPOs. The mandatory inclusion in the charters of information on the procedure for making amendments and additions to them, sources of formation of funds and other property, as well as on the procedure for reorganization and (or) liquidation of nonprofit organizations is canceled. The requirement of the need to determine the conditions of retirement from members of public associations by age in the charters is excluded.

End of Insert 1

December 20 – the resolution "On the working group on ensuring interaction between public authorities and organizations on issues of mobilization training and mobilization, social and legal protection of citizens of the Russian Federation participating in the special military operation, and their family members". The working group includes 31 people. Its head is the Vice-Speaker of the Federation Council A. Turchak. Tasks of the working group:

- ✓ ensure the interaction of legislative and executive authorities on the preparation of mobilization;
- ✓ organize the placement and provision of mobilized citizens;
- ✓ monitor social support for families of mobilized Russians;
- ✓ prepare proposals on the legal regulation of mobilization; monitor the law enforcement practice on conscription;
- ✓ promote mobilization;
- ✓ analyze the course and results of patriotic education of young people;
- ✓ prepare proposals for the creation and development of mobilization capacities, production of products necessary for the armed forces and the needs of the population.

December 21 – an expanded meeting of the Board of the Ministry of Defense of the Russian Federation was held, at which the RF President and the RF Minister of Defense gave a general assessment of the course of the SMO and identified the key goals and objectives of the development of the Russian Army for the coming years. Some of them are as follows:

- ✓ when recruiting the Armed Forces, gradually increase the age of conscription of citizens from 18 to 21 years, and raise the limit to 30 years;
- ✓ create two interspecific strategic territorial associations of the Armed Forces – the Moscow and Leningrad military districts;
- ✓ increase the responsibility of the main commands for the preparation and use of associations and formations;
- ✓ increase the number of the Armed Forces to one and a half million military personnel, including military personnel under contract – up to 695 thousand people;
- ✓ increase the number of military personnel under contract, taking into account the replacement of mobilized citizens in the groups of troops and the recruitment of new formations by the end of 2023 to 521 thousand people;
- ✓ introduce federal state civil service in military commissariats with an increase in the number of military posts in them; complete the digital transformation of military enlistment offices, etc.

December 22 – amendments were made to the decree on the application of retaliatory special economic measures in connection with the unfriendly actions of some foreign states and international organizations; and a decree was signed on the application of special economic measures in the field of natural gas supplies in connection with the unfriendly actions of some foreign states and international organizations.

The RF Government was granted the authority to issue temporary permits for certain transactions (operations, actions) with persons under sanctions. It is prohibited for PJSC Gazprom and its affiliates to fulfill obligations to foreign persons associated with foreign states who commit unfriendly actions against the Russian Federation. The RF Government was instructed to set a price limit for the payment of supplies and services related to the production of natural gas, gas condensate within ten days.

December 23 – Order of the Ministry of Education of the Russian Federation 1014 "On approval of the federal educational program for secondary general education". It includes elementary military training in the classes on health and safety training, as well as such topics of history lessons as the accession of Crimea to Russia; Russia's foreign policy and assistance to Syria; events in Ukraine in 2014 and Russia's position; the Minsk Agreements on Donbass and humanitarian assistance to the DPR and LPR; the section about the special military operation.

Simultaneously with the implementation of these key areas of state policy in the conditions of the SMO, the work has intensified on removing those representatives of elite groups who could not or did not want to accept the agenda of the SMO, change their lifestyle and their activities, from power (in the system of public administration, business, culture)... In this sense, the liberal elites are experiencing the real "time of troubles". So, after February 24, 2022, Presidential Adviser V. Yumashev resigned[20] (a man whom some experts called the "ideologue of the Family"[21] and the "brain" of the liberal clan"[22]); former Deputy Prime Ministers A. Chubais[23], A. Khloponin[24], A. Dvorkovich[25], I. Klebanov[26] have left Russia.

Significant personnel changes have also taken place in the field of culture. For example, on June 29, 2022, artistic directors of several theaters were removed from their posts (K. Serebrennikov from the Gogol Theater, J. Reichelhaus from the School of Modern Play, V. Ryzhakov from the Sovremennik). Earlier (May 16, 2022), R. Tuminas, former artistic director of the Vakhtangov Theater, was excluded from the list of persons who were awarded the 2021 prize of the Government of the Russian Federation in the field of culture.

In recent months, this list has been supplemented with new names:

✓ November 29, 2022, A. Kudrin announced his resignation from the post of Head of the RF Accounts Chamber; according to experts, he is "an ideologist of systemic liberals" and "one of the key emissaries of globalism in the Russian Federation"[27];

✓ December 1, the Magomedov brothers businessmen were sentenced along with the whole criminal community of major entrepreneurs[28]; moreover, such people as billionaire G. Timchenko and ex-head of Ingushetia R. Aushev stood bail for the brothers before the court; president of the Russian Union of Industrialists and Entrepreneurs, president of the National Research University Higher School of Economics, member of the bureau

[20] According to RBK, Yumashev left the post around the end of April – beginning of May 2022 (source: https://www.rbc.ru/politics/30/05/2022/629507469a7947e575bb39cf).

[21] "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

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

[23] A. Chubais, the former head of Rusnano, was spotted in Turkey on March 23, 2022, the day after the current head of Rusnano, S. Kulikov, submitted an application to the Prosecutor General's Office with a request to check the work of the state corporation for the period from 2010 to 2020 (source: https://www.kp.ru/daily/27380.5/4574001/).

[24] The first reports of emigration from Russia emerged in April 2022 (source: https://regcomment.ru/regions/altai/pokinul-stranu-i-brosil-komandu-pochemu-hloponin-mozhet-isportit-kareru-ryadu-gubernatorov/).

[25] Former Deputy Prime Minister of the Russian Federation A. Dvorkovich resigned from the post of chairman of the Skolkovo Foundation in March 2022, after giving a resonant interview to the American publication *Mother Jones*, in which he criticized the special military operation (source: https://www.business-gazeta.ru/article/543843). He did not speak about emigration, but, according to various Telegram channels, he lives in Israel (source: https://sibkray.ru/news/2127/954638/).

[26] In May 2022, the State Duma adopted a protocol instruction to the Security and Anti-Corruption Committee to request information from the FSB, the Prosecutor General's Office, the Investigative Committee and the government on the reliability of information about the departure from the Russian Federation of persons with access to state secrets, as well as on the legality of such departure in the context of the special military operation in Ukraine. The document mentioned I. Klebanov (source: https://www.tek-all.ru/news/id8811-gde-zhivet-chlen-soveta-direktorov-pao-transneft-ilya-klebanov/).

[27] Kudrin resigned. Available at: https://zavtra.ru/events/kudrin_podal_v_otstavku

[28] Artur Maksidov, former CEO of Intex, which was part of the Summa Group, and Sergey Polyakov, former director of United Grain Company JSC, were sentenced to 12 years imprisonment in a penal colony, Roman Gribanov, former head of the Department of Economic Security of the UGC, was sentenced to 10 years in a general regime colony and a fine of 1 million rubles, CEO of the Energia-M enterprise Yuri Petrov was sentenced to 7 years imprisonment in a general regime colony and a fine of 700 thousand rubles. Someone is beyond the reach of Russian justice; this is, for example, former director of the Podolsk Electromechanical plant Murman Zakaradze (ex-adjutant of the Deputy Minister of Defense of the Russian Federation; fled to Georgia) and former co-owner of the Lithuanian bank Snoras David Kaplan (ex-executive director of Stroynovatsiya LLC, ex-chairman of the Board of Directors of Intex LLC, co-founder of the Magomedov charitable foundation "PERI", ex-director for development at the International Chess Federation and ex-director of the FIDE representative office in the Russian Federation, ex-member of the extremely violent gang "Vilnius Brigade" under the nickname "Dodik"; fled to Israel).

of the Supreme Council of the United Russia Party A. Shokhin asked the court to remit the sentence for Ziyavudin and Magomed Magomedov[29];

✓ December 9, D. Muryshov, head of the anti-corruption department of the Federal Customs Service of Russia, was arrested; he was the "chief anti-corruption officer and the closest creature of Vladimir Bulavin, head of the RF Federal Customs Service"; according to investigators, he received three bribes totaling several tens of millions of rubles (and was preparing to receive another one) through subordinate intermediaries[30].

From the point of view of the formation of prerequisites for a future Social Contract, it is important to note that Vladimir Putin's article "Russia at the turn of the millennium" (1999) has been especially relevant in the conditions of the SMO. In fact, its main ideas that had been maturing for almost 25 years, were concretized in Presidential Decree 809 of November 9, 2022 "On approving the Fundamentals of state policy for the preservation and strengthening of traditional Russian spiritual and moral values"; the Fundamentals significantly (from 4 to 17) expand the list of traditional values as "moral guidelines, shaping citizens' worldview" (paragraph 4). According to the Fundamentals ..., these include "life, dignity, human rights and freedoms, patriotism, citizenship, service to the Fatherland and responsibility for its fate, high moral ideals, strong family, creative work, priority of the spiritual over the material, humanism, mercy, justice, collectivism, mutual assistance and mutual respect, historical memory and continuity of generations, unity of the peoples of Russia" (paragraph 5; *Insert 2*).

We should also note that Presidential Decree 809 sets out the goals of state policy for the preservation and strengthening of traditional values ("preservation and strengthening of traditional values; countering the spread of destructive ideology; formation of the international image of the Russian state as a guardian and defender of traditional universal spiritual and moral values" (paragraph 23). In fact, they represent major areas of practical implementation of the "Russian Idea", which Vladimir Putin wrote about in 1999.

In general, we can point out the following: despite the fact that it will be possible to talk directly about the formation of a new Social Contract in Russia only after the end of the special military operation, the current managerial decisions of the authorities in the context of the SMO already set the appropriate vector of changes in society; work is underway for the future.

The results of this work are manifested in the second "contour" of a new Social Contract – in the consolidated support of the head of state by society and in the assessment of public administration effectiveness.

Second "contour"– public opinion dynamics

According to the results of sociological surveys, society shows consolidated support for the activities of the head of state. According to VCIOM, on average in Russia during the period of the SMO (from February to December 2022), the share of positive assessments of the RF President's activities increased by 9 percentage points (from 65 to 74%); negative – decreased by 8 percentage points (from 24 to 16%). For comparison, over the same period of 2021, the shares of positive and negative assessments regarding the work of the head of state have not actually changed (61 and 28%, respectively).

Similar dynamics are demonstrated by the data of the public opinion monitoring conducted by VolRC RAS on the territory of the Vologda Oblast. From February to December 2022, the share of positive assessments of the President's activities increased by 12 percentage points (from 48 to 60%); negative – decreased by 8 percentage points (from 33 to 25%). During the same period of the previous year, the level of approval of the work of the head of state has not actually changed (50–51%; *Tab. 1*).

[29] Ivanov A. Sentence: long imprisonment terms for the Magomedov brothers. Available at: https://zavtra.ru/events/prigovor_dlitel_nie_sroki_dlya_brat_ev_magomedovih

[30] The head of the Anti-Corruption Department of the Federal Customs Service of the Russian Federation was arrested on charges of corruption. Available at: https://zavtra.ru/events/nachal_nika_antikorruptcionnogo_upravleniya_fts_arestovali_po_obvineniyu_v_korruptcii

Insert 2

Putin V.V. "Russia at the turn of the millennium" (1999)	**Presidential Decree 809 of November 9, 2022 "On approving the Fundamentals of state policy for the preservation and strengthening of traditional Russian spiritual and moral values"**
"Our country's genuine renewal without any excessive costs cannot be assured by a mere **experimentation** in Russian conditions with abstract models and schemes taken from foreign text-books. The mechanical copying of other nations' experience will not guarantee success, either. **Every country, Russia included, has to search for its own way of renewal…** Such are the main lessons of the outgoing century. They make it possible to outline the contours of a long-term strategy which is to enable us, within a comparatively short time, by historic standards, to overcome the present protracted crisis and create conditions for our country's fast and stable economic and social headway: **A) Russian Idea.** Fruitful and creative work which our country needs so badly today is impossible in a split and internally disintegrated society, a society where the main social sections and political forces have different basic values and fundamental ideological orientations... **The main point of consolidation of Russian society is what can be called the traditional values of Russians. Today, these values are seen quite clearly: patriotism, statesmanship, sovereignty, social solidarity.** **B) Strong State.** A key to Russia's recovery and growth is in the state-policy sphere today. **Russia needs a strong state power and must have it…** A strong state power in Russia is a democratic, law-based, workable federative state. **C) Efficient Economy.** The country needs a long-term national strategy of development... The lack of a long-range development strategy for the next 15–20 and more years, is badly felt in the economy. Another important lesson of the 1990s is the conclusion that Russia needs to form a **wholesome system of state regulation of the economy and social sphere".**	"4. Traditional values are **moral guidelines that form the worldview of Russian citizens,** passed down from generation to generation, underlying the all-Russian civic identity and the unified cultural space of the country, strengthening civic unity, which have found their unique, original manifestation in the spiritual, historical and cultural development of the multinational people of Russia 5. Traditional values include **life, dignity, human rights and freedoms, patriotism, citizenship, service to the Fatherland and responsibility for its fate, high moral ideals, strong family, creative work, priority of the spiritual over the material, humanism, mercy, justice, collectivism, mutual assistance and mutual respect, historical memory and continuity of generations, unity of the peoples of Russia.** 7. The Russian Federation considers traditional values **as the basis of Russian society,** which makes it possible to protect and strengthen the sovereignty of Russia, ensure the unity of our multinational and multi-confessional country, preserve the people of Russia and develop human potential 23. **The goals** of the state policy for the preservation and strengthening of traditional values are: a) **preservation and strengthening of traditional values,** ensuring their transmission from generation to generation; b) **countering the spread of destructive ideology;** c) formation of the image of the Russian state in the international arena **as a guardian and defender of traditional universal spiritual and moral values".**

Table 1. Dynamics of assessments of the RF President's work in February – December 2021–2022 according to VCIOM and VolRC RAS, % of respondents

Answer options	Feb. 2021	Dec. 2021	Dynamics (+/-), p.p.	Feb. 2022	Dec. 2022	Dynamics (+/-), p.p.
VCIOM data (national average)*						
Share of positive assessments	61.4	60.6	-1	65.4	74.2	+9
Share of negative assessments	28.7	28.4	0	23.9	15.5	-8
VolRC RAS data (for Vologda Oblast)**						
Share of positive assessments	50.1	50.6	+1	48.0	59.5	+12
Share of negative assessments	30.9	33.8	+3	32.9	25.1	-8

* Wording of the question: "In general, do you approve or disapprove of the work of the RF President?" Survey method – phone interview. For December 2022, the average data for two surveys are presented (as of December 4, 2022 and December 11, 2022).
Source: Ratings. Activities of governmental institutions. Available at: https://wciom.ru/ratings/dejatelnost-gosudarstvennykh-institutov/
** Wording of the question: "How do you currently assess the work of the RF President?" Survey method – questionnaire at the place of residence of respondents.

In addition to supporting the political course implemented by the head of state, in the context of the SMO (as we noted in the previous article[31]) new features of civil society are being formed: "Without waiting for draft summons, more than 20 thousand people joined the military as volunteers ...; the Yunarmiya [Youth Army] movement covered all regions of Russia and united more than 1,251 thousand children and adolescents; in cooperation with the authorities of RF constituent entities, work continued on the development of the "Avangard" network of educational and methodological centers for military-patriotic education of youth. In 2022, 20 regional centers and 25 urban centers will be opened in cities with a population of over 100 thousand people. In total, more than 150 thousand high school students have been trained in 88 "Avangard" centers"[32].

It is also important that in the conditions of the SMO and the political decisions taken by the state, certain ideas about the image of the country's future are formed in Russian society. Thus, according to an all-Russian research conducted by the Institute of Sociology of the Federal Center of Theoretical and Applied Sociology, Russian Academy of Sciences (IS FCTAS RAS), the main and most desirable characteristics of the image of the future of Russia, according to citizens, are "social justice" (despite the fact that from 2021 to 2022, the proportion of those sharing this opinion decreased by 4 percentage points, from 51 to 47%), "strong power" (increased by 9 p.p., from 31 to 40% compared to 2021, "respect for human rights" (decreased by 2 p.p., from 41 to 39%), "traditional values" (increased by 6 p.p. compared to 2021, from 33 to 39%; *Tab. 2*).

According to VolRC RAS monitoring data, over the past 20 years (from 2000 to 2022), there has been an increase in the share of people who believe that the ideas uniting the country should be as follows: "unity of the peoples of Russia" (by 29 p.p., from 23 to 52%), "strengthening Russia as a country with the rule of law" (by 17 p.p., from 22 to 39%), "uniting peoples to address global issues (by 18 p.p., from 8 to 26%), "returning to socialist ideals and values" (by 13 p.p., from 7 to 20%). Moreover, it is important to note that over the same period, the share of those who find it difficult to answer this question has significantly decreased (by 11 p.p., from 32 to 21%), that is, people have become more confident in their choice of the main vectors of Russia's development (*Tab. 3*).

[31] 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] Speech of Russian Defense Minister Sergei Shoigu at an expanded meeting of the Board of the RF Ministry of Defense, December 21, 2022. Available at: http://www.kremlin.ru/events/president/transcripts/70159

Table 2. Desired image of the future of Russia in the mass consciousness of Russians (IS RAS national average data)*, %

Answer option	2021	2022	Dynamics (+/-) 2022 to 2021
A country where social justice is ensured	**51**	**47**	**-4**
A country in which there is a strong government that ensures order and development	**31**	**40**	**+9**
A country in which human rights, democracy, and freedom of personal expression are ensured	**41**	**39**	**-2**
A country that has preserved national traditions, moral and religious values	**33**	**39**	**+6**
A great world power, uniting different peoples	27	35	+8
A country with a free market, private property, and minimal state interference in the economy	16	21	+5
A country where social inequalities and social stratification are limited	20	17	-3
An active partner of the West	15	14	-1
The Russian State is a country first of all for Russians (Russian nation-state)	12	8	-4

* More than three answers were allowed; ranked according to the data for 2022.
Source: Russian society in the context of new challenges and threats (context of sociological diagnostics). Information and analytical report of IS RAS. Moscow 2022. P. 187.

Table 3. Perceptions of the region's population about the idea of unification of Russian society (VolRC RAs data for the Vologda Oblast), % of respondents

Answer option	2000	2022	Dynamics (+/-) 2022 to 2021
The idea of uniting the peoples of Russia in order to revive it as a great power	**22.6**	**51.9**	**+29**
The idea of strengthening Russia as a state governed by the rule of law	**22.1**	**38.5**	**+16**
The idea of uniting peoples to address global issues facing humanity	**7.8**	**25.9**	**+18**
Return to socialist ideals and values	**6.6**	**20.1**	**+14**
The idea of uniting all Slavic peoples	**5**	**18.2**	**+13**
The idea of opposition to the West, self-reliance	3.2	12.1	+9
The idea of individual freedom, priority of the interests of the individual over the interests of the state	3.9	9	+5
The idea of national uniqueness, a special historical mission of the Russian people	2.3	6.7	+4
The idea of rapprochement with the West, Russia's entry into the Common European Home	3.9	3	-1
The idea of cleansing society through the Orthodox faith	4.1	2.7	-1
Another idea	0.2	3.2	+3
I find it difficult to answer	31.9	20.5	-11

Ranked according to data for 2022. Wording of the question: "What idea, in your opinion, is capable of uniting our society?"

Thus, sociological surveys, which are the main tool for measuring the "temperature" of society and the dynamics of social attitudes, convincingly show that the majority of the country's population supports Russia's active struggle to achieve full national sovereignty; moreover, the decisions taken by the authorities in response to the challenges that arise in the course of the SMO change society, consolidate various segments of the population around such concepts as "traditional values", "social justice", "strong state", "national culture", etc. All this, of course, is one of the contours of the future of a new Social Contract.

There also emerges the third "contour". It consists in raising the question of the need for the preparation of a new Social Contract by the expert community.

In the expert environment there emerge practical proposals for the formulation and discussion of specific points of a new Social Contract. For example, according to E.V. Balatsky, its foundations can be as follows[33]:

- ✓ **new ideology;**
- ✓ **determining the national economic system;**
- ✓ **providing the means of professional social mobility and personal responsibility;**
- ✓ **integrating the Bank of Russia into the general system of public administration** (the Bank of Russia should become a full-fledged element of the national system of economic regulation rather than act contrary to the interests of the national producer);
- ✓ **de-bureaucratization of the economy** (it is necessary to fight against all kinds of bureaucracy, and this should become a national task);
- ✓ **alleviating extreme forms of inequality** (fighting against extreme forms of inequality should be complemented by a system of popular capitalism, when the largest possible part of the population is involved as owners of public and private enterprises);
- ✓ **stopping uncontrolled immigration** (ignoring the interests of indigenous representatives of the labor market and Russian culture can lead to outbreaks of violence and loss of control of the authorities over the situation);
- ✓ **introducing responsibility for political sabotage** (Russia's SMO in Ukraine gave rise to a new phenomenon for the country – mass emigration of public figures who continued anti-government propaganda from abroad; the overwhelming part of the population was outraged by such behavior of these persons; thus, society is expecting fair punishment of people who left the country in difficult times and who took the side of the enemy).

A.G. Dugin's proposals on the formation of an "original ideology in Russia"[34] are less specific, but still important from the point of view of forming the prerequisites for a new Social Contract. The main features of this ideology are as follows:

- ✓ **sharp divergence from liberal democracy, which the Collective West seeks to impose on all mankind... is an alternative model of the socio-political system;**
- ✓ **continuity of cultural and ideological constants (both in traditional society and in Soviet times) in Russian history;**
- ✓ **difference from any previous ideology, each of which is historically limited, but offers an original and original synthesis of what was most essential in each of them;**
- ✓ **inviting all Russian citizens to the free creative construction of a truly just, spiritual, honest moral society on the other side of narrow dogmas and artificial axiomatics – in a sense, this is an open ideology aimed at the future;**
- ✓ **disclosure of the essence of Russia's civilizational uniqueness and the dialogue with other civilizations in the context of a multipolar world order.**

[33] Balatsky E.V., Ekimova N.A. (2022). Social Contract in Russia: Before and after 2022. *Journal of Institutional Studies,* 14(3), 74–90.

[34] Dugin A.G. Decree 809. The foundation of the sovereign ideology is laid: 14 points of the sovereign ideology of Russia. Available at: https://izborsk-club.ru/23617

Thus, in the context of increased threats to national security accompanying the period of the special military operation and, in fact, the period of Russia's open struggle to achieve full national sovereignty, we can talk about the formation of at least three contours of a future Social Contract – directly related to the activities of the state, to the changes occurring under the influence of specific management decisions, and to the request (specific proposals) for a new Social Contract from the expert community.

However, the mere presence of certain contours does not guarantee that they will become a system. There are a number of very significant circumstances that prevent this.

First, the goals of the SMO have not yet been achieved, and without this, neither a new Social Contract within the country nor an attitude toward Russia as a full-fledged, sovereign geopolitical partner in the international political arena is possible. At the same time, we can agree with experts who note that "there is no predetermination in the future of Russia, and there cannot be any"[35]; everything depends on us.

Second, in order to implement the provisions of a new Social Contract formulated by experts and fulfill the main criteria of the image of the future formulated by Russian society, **there are still not enough specific organizational mechanisms and tools;** in particular, it is evident from the effectiveness of achieving the goals stated by Vladimir Putin in 1999 in the article "Russia at the turn of the millennium": the goals represent a triad of "Russian Idea", "Strong State", and "Efficient Economy", which the President named as "outlines of a long-term strategy designed to... create prerequisites for rapid and sustainable economic and social development". For example:

✓ Many experts have been talking about the necessity and essence of the "Russian Idea" in recent years (A. Dugin, N. Starikov, S. Sulakshin, A. Fursov, etc.). The President himself expressed his understanding of the "Russian Idea" when he said that "the national idea of Russia is patriotism, I think there can be nothing else... But patriotism should not be leavened, musty and sour. Patriotism consists in devoting oneself to the development of their country, its movement forward"[36].

However, the Constitution of the Russian Federation still contains a ban on state ideology[37], and this prevents the transition of the "Russian Idea" to a new level – to the level of its clear formulation at the state level and bringing it to understanding and unambiguous interpretation by the broad strata of Russian society.

Over the past 20 years, much has been done to implement such an element as "Strong State" ("strong state power"). This is especially true concerning the amendments to the 2020 Constitution, many of which are aimed precisely at strengthening the power hierarchy in Russia[38].

In fact, the entire system of public administration built by the RF President is centralized, and Vladimir Putin plays the role of "chief arbiter" in it.

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[35] Balatsky E.V. (2022). Russia in the epicenter of geopolitical turbulence: Signs of eventual domination. *Economic and Social Changes: Facts, Trends, Forecast*, 15(5), 51.

[36] Interview with the President of the Russian Federation Vladimir Putin in the program "Moscow. Kremlin. Putin". Available at: https://tass.ru/obschestvo/8438743

[37] Article 13, paragraph 2 of the RF Constitution: "No ideology can be established as state or mandatory". The Constitution of the Russian Federation as amended on July 1, 2020. Available at: http://www.kremlin.ru/acts/constitution/item#chapter_start

[38] For example, introducing a ban on foreign citizenship and a residence permit for the Prime Minister, ministers and heads of federal bodies, governors, senators, deputies and judges; strengthening interaction between state and municipal authorities; introducing a provision on the State Council into the Constitution; the right of the State Duma to approve the Prime Minister, and upon their proposal – all their deputies and federal ministers; "zeroing" of presidential terms; the President of the Russian Federation gets the right to personally appoint and dismiss federal ministers (Article 112), may dismiss the Prime Minister (Article 83, paragraph "a"), etc.

Table 4. The share of Russians who voted for Vladimir Putin in the presidential elections in the period from 2000 to 2018

Presidential elections	March 26, 2000	March 14, 2004	March 4, 2012	March 18, 2018
million people	39.74	49.56	45.6	56.4
% of turnout	52.94	71.31	63.60	76.69
Source: RF Central Election Commission.				

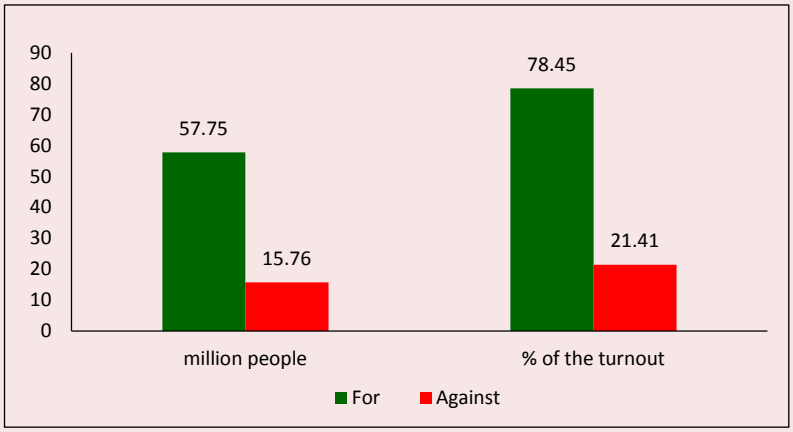
Table 5. The share of Russians who voted for the United Russia Party in the elections to the RF State Duma in the period from 2003 to 2021

State Duma elections	Dec. 7, 2003	Dec. 2, 2007	Dec. 4, 2011	Sept. 18, 2016	Sept. 19, 2021
million people	22.78	44.71	32.37	28.53	28.06
% of turnout	37.56	**64.30**	**49.31**	**54.20**	**49.82**
Source: RF Central Election Commission.					

At the same time, we should emphasize that the "credit of trust" that the society regularly "issues" personally to the President and the party in power at the presidential elections (*Tab. 4*) and parliamentary elections (*Tab. 5*), as well as the results of the all-Russian vote on amendments to the Constitution, which showed that 79% of the population support the consolidation of traditional spiritual and moral values in the Basic Law of the country and the strengthening of the organizational foundations of the public administration system (including in the form of strengthening the powers of the head of state; *Fig. 1*), allow us to say that the course of strengthening the power announced by the President in 1999 received support in Russian society.

In times of crisis, such a system of "hands-on" control of the state plays a significant positive role. For example, in 2020, against the background of force majeure and extreme conditions caused by the first "waves" of the coronavirus pandemic, the centralized nature of the public administration system allowed it to adapt to new challenges: the personnel composition of the RF Government has changed; operational meetings and specific decisions on the implementation of complex tasks started to take place on a daily basis (including with the personal participation of the President); in the fight against coronavirus and maintaining the socio-economic situation, the role of the heads of RF constituent entities has significantly increased.

Figure 1. Results of the all-Russian vote on amendments to the Constitution (June 25 – July 1, 2020)



Wording of the question: "Do you approve of the amendments to the Constitution of the Russian Federation?"
Source: RF Central Election Commission.

This experience is largely reproduced in the conditions of 2022. Thus, during the special operation:

✓ a number of laws have been adopted aimed at strengthening the powers of the RF Government[39];

✓ after the "stupidity" revealed during the partial mobilization[40], on October 21, 2022, the Coordination Council under the Government was established to meet the needs of the RF Armed Forces, other troops, military formations and bodies (the chairman of the Coordination Council is the chairman of the Government of the Russian Federation; the composition of the Coordination Council is approved personally by the President);

✓ according to the decree "On measures implemented in RF constituent entities in connection with Presidential Decree 756, dated October 19, 2022", the heads of RF constituent entities received additional powers to make decisions on carrying out certain measures for territorial and civil defense, measures to protect the population and territories from natural and man-made emergencies, and also the authority to implement measures to meet the needs of the Armed Forces.

> According to experts, "the Coordination Council headed by Prime Minister Mikhail Mishustin has been entrusted with mobilizing the state for the special military operation. The governors are also strengthening their powers – and thus **Vladimir Putin repeats the scheme of division of responsibility used in the fight against COVID"**[41].

And nevertheless it is premature to talk about a "strong state" in Russia with a significant part of liberal elites in power, occupying various (including high) positions in the public administration system. In previous articles, we have repeatedly given concrete examples of how officials of various stripes (from federal ministers to municipal-level civil servants) raised in conditions of liberal ideology demonstrate their ability to bypass legal and moral laws in order to achieve personal gain[42].

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[39] For example:

June 7, 2022, amendments were made to the law on the use of pension savings of liquidated nonstate pension funds (NPFs) remaining after settlements with creditors. As experts noted, "the fundamental meaning of the amendments is simple: the President of Russia can do anything in the financial sphere... liberals of all stripes formally remain in their places, but their actual capabilities are reduced to operational, tactical, routine management... the real power in the field of finance will go to professionals who are not visible in the presidential administration (it is no more engaged in economics for quite a long time), but are quite obvious in the Mishustin government" (source: Prime Minister Mishustin provided the legal framework for ensuring financial stability and comprehensive modernization. Available at: https://delyagin.ru/articles/183-sobytija/102696-prem-er-mishustin-obespechil-juridicheskie-ramki-obespechenija-finansovoy-stabil-nosti-i-kompleksnoy-modernizatsii).

November 4, a law was signed aimed at improving the legislation on the state civil service. The law provides for the possibility of extending civil service beyond the age limit of 65 years and up to 70 years for managers from the main group of positions in federal departments subordinate to the RF Government.

November 21, a law on softening the budget rule for 2023–2024 was signed, according to which the Cabinet of Ministers will be able to make decisions on granting state guarantees of the Russian Federation in 2023 that are not provided for by the programs of such guarantees, and in the manner and on conditions that he himself will establish (source: Putin signed a decree on softening the budget rule for 2023–2024. Available at: https://ria.ru/20221121/byudzhet-1833112507.html), and others.

[40] Speech of the RF President at a meeting with the elected heads of regions. Available at: http://www.kremlin.ru/events/president/news/69567

[41] Rodin I. Putin introduces Russia into a paramilitary situation. Available at: https://www.ng.ru/politics/2022-10-19/3_8569_securitycouncil.html

[42] See, for example:

Ilyin V.A., Morev M.V. (2018). "...And most importantly, there will be no destitute people in Russia". "Capitalism for the few" – a key problem of national security. *Economic and Social Changes: Facts, Trends, Forecast,* 11(2), 9–23; Ilyin V.A., Morev M.V. (2020). Russian statehood in the face of the "corruption of the elites" threat. *Economic and Social Changes: Facts, Trends, Forecast,* 13(6), 24–53; Ilyin V.A., Morev M.V. (2022). A difficult road after the Rubicon. *Economic and Social Changes: Facts, Trends, Forecast,* 15(3), 9–41.

Real life today, during the period of SMO, shows that many representatives of the ruling elites still continue to behave the way they used to behave in the era of the liberal 30 years that is obviously becoming a thing of the past; they continue to make decisions that in the new conditions only cause outrage among the general population[43].

To put it mildly, the idea of "strong state" is undermined also by some reports criticizing managerial decisions made by the authorities[44], as well as statements of some representatives of the elites, including people from the Presidential Administration and their family members, contradicting the public's ideas about those celebrities who left the country after the start of the SMO[45].

[43] See, for example:

1. The story of the Russian gymnast I. Kulyak (May 2022), who was suspended by Russian officials from participating in national competitions for one year for public support of the special operation. "If we allow Kulyak to participate in competitions, then sanctions may be imposed on the entire federation", said Valentina Rodionenko, senior coach of the Russian national gymnastics team (source: Soshenko A. Sports officials: Behaving like goats going after carrots. Available at: https://zavtra.ru/blogs/sportivnie_chinovniki_kak_kozli_za_morkovkoj). The official decision is as follows: "In accordance with the decision of the disciplinary commission of the Gymnastics Ethics Foundation (GEF) dated May 17, 2022, Ivan Kulyak is not allowed to participate in events held under the auspices of the International Gymnastics Federation (FIG), as well as in competitions organized by an affiliated FIG member federation, for one year from the date of this decision" (source: https://aif.ru/sport/dvazhdy_nakazannyy_za_z_gimnastu_kulyaku_zapretili_vystupat_v_rossii)

2. The case of Kh. Pirogova, an independent deputy of the Novosibirsk City Council (July 2022), who spoke unethically about the servicemen who died during the special operation; her statement led to the initiation of criminal proceedings against her. On July 25, Pirogova was supposed to come for questioning, but instead left Russia for Kazakhstan, and then for Georgia. Since August 4, she has been put on the international wanted list (source: https://www.om1.ru/news/society/290711-svadba_kleveta_vzjatki__top-5_gromkikh_politicheskikh_skandalov_novosibirska_v_2022_godu/).

3. The scandal with the sale of the book *Leto v pionerskom galstuke* (Summer in the Young Pioneer Scarf), which contains explicit LGBT propaganda (the book received sharp criticism from Z. Prilepin, N. Mikhalkov, State Duma deputies A. Balberov, V. Milonov, Commissioner for Children's Rights in the Moscow Oblast K. Mishonova, etc.); however, after conducting an appropriate check, Roskomnadzor explained: "Since the book is marked "18+", it means that its turnover does not violate the law "On the protection of children from information that harms their health and development" (source: https://iz.ru/1375659/ekaterina-korinenko/lvpg-tematika-roskomnadzor-proveril-roman-leto-v-pionerskom-galstuke). Nevertheless, Roskomnadzor proposed to the Russian Book Union to withdraw the works of fiction about child non-traditional love relationships from sales (source:https://news.rambler.ru/community/49235259-dilogiya-leto-v-pionerskom-galstuke-ostaetsya-v-prodazhe-posle-preduprezhdeniya-roskomnadzora/), and currently, the online copies of the book are being withdrawn from online stores (source: https://www.kommersant.ru/doc/5707669) and from the bookshelves of many regions of Russia (sources: https://bel.ru/news/2022-12-08/vot-i-konchilos-leto-kniga-o-geyah-pionerah-bolshe-ne-prodayotsya-v-belgorode-2610787; https://msk1.ru/text/business/2022/11/26/71848241/ and others.). In Khabarovsk, all the available printed copies of the book were bought up and destroyed by the public organization "Council of Fathers" (source: https://news.ru/regions/ya-schastliv-eto-delat-v-habarovske-unichtozhili-knigi-s-lgbt-propagandoj/).

4. A scandal at the intellectual literature fair "Non/fictio№24" (November 2022). Several writers and poets who write about the Donbass (I. Karaulov, O. Starushko, A. Gasparyan; A. Revyakina, a poet and member of the DPR Writers Union, and others) were denied participation in one of the main events of the Russian book world, which traditionally gathers hundreds of authors and tens of thousands of visitors. This caused a flurry of criticism against the organizers, and immediately after the scandal they made changes to the schedule of the fair and reported that there was no problem anymore (sources: https://dailystorm.ru/kultura/patrioticheskie-pisateli-otvoevali-pravo-na-uchastie-v-knizhnoy-yarmarke-non-fictiono24)

[44] See, for example: VCIOM message containing criticism of the law banning LGBT propaganda (November 2022). After the RF State Duma adopted a package of draft laws banning LGBT propaganda, pedophilia and transgenderism, a message appeared in the VCIOM telegram channel containing, among other things, the following lines (direct quote): "Now all the sexually "wrong" people will be doing this on the sly, as they always have been doing (until the last 30 years). And if they don't want to hide, they will simply go somewhere where there is no need to hide! Therefore, one might call this law differently: the Law on the Promotion of Emigration. And to be more precise – on encouraging the emigration of creative people. After all, it is in this area, as we all know perfectly well, that nontraditional sex, like everything nontraditional in general, is much more widespread. But on the other hand, why do we need creative people, this vaunted "creative class"? All they bring is unrest!" (source: Ivanov A. Coming-out of VCIOM? We are waiting for explanations from the management of the eminent state corporation. Available at: https://zavtra.ru/events/kaming-aut_vtcioma_zhdyom_ob_yasnenij_ot_rukovodstva_imenitoj_goskontori). December 2, A. Khinshtein, head of the State Duma Committee on Information Policy, in his telegram channel made a request to clarify the situation (source: https://www.rbc.ru/politics/02/12/2022/ 638a2e3e9a7947024c7c7b95).

[45] See, for example: Dmitri Peskov, press secretary for the Russian President, called Ivan Urgant a "great patriot"; Peskov's wife Tatyana Navka spoke in support of the showman: "I respect Ivan very much and he should not disappear" (source: Ivanov A. The wife of the press secretary for the RF President declared great respect for Ivan Urgant. Available at: https://zavtra.ru/events/supruga_press-sekretarya_prezidenta_rf_zayavila_o_bol_shom_uvazhenii_k_ivanu_urgantu).

Thus, in achieving the goal of having "strong power" in Russia, as the President wrote in 1999, there are still quite contradictory results.

✓ The results of achieving the task of building an "efficient economy" in Russia are also contradictory. On the one hand, the Russian economy managed to overcome the difficult period associated with the acute phase of the coronavirus pandemic (2020–2021), accompanied, among other things, by large-scale quarantine restrictions throughout the country, financial costs to meet the needs of the healthcare system, etc. Russia's economy also managed to withstand the unprecedented pressure of the Collective West's economic sanctions that hit it after February 24, 2022, which allowed the President to openly declare that "the strategy of economic blitzkrieg has failed"[46].

On the other hand, postponement of the implementation of national projects[47], absence of tangible positive changes in the dynamics of poverty and inequality[48], the Central Bank of the Russian Federation acting autonomously from the state (and, accordingly, from the goals of national development) and the still existing system of "crony capitalism"[49] – so far, all this does not allow us to say that the goal of creating an "efficient economy" in Russia has been fully achieved.

Thus, practice shows that the Russian economy is able to mobilize and respond to external "shocks", but in the absence of tangible and long-term success in combating poverty and inequality it cannot be considered a "pillar" of Russian statehood based on a new Social Contract, in which social values and social justice occupy a significant place.

We should also note that the stability of a new Social Contract, its viability for decades directly depends on the extent **to which an element that prevents the threat of destruction from within is introduced into its informal structure.** This is clearly evidenced by the historical experience of the collapse of the USSR, when, despite the quite unambiguous opinion of the majority of citizens of the country (90% of voters voted for the preservation of the Soviet Union[50]), individual representatives of the ruling elites (namely S. Shushkevich and V. Kebich on the part of the Republic of Belarus, B. Yeltsin and G. Burbulis on the part of the Russian Federation (RSFSR), L. Kravchuk and V. Fokin on the part of Ukraine) signed the Belovezha Accords on December 8, 1991, which stated that **"the USSR as the subject of international law and the geopolitical reality ceases to exist"**[51]...

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[46] The RF President's speech at a meeting on economic issues, April 18, 2022. Available at: http://www.kremlin.ru/events/president/transcripts/68228

[47] Decree on the national development goals of Russia until 2030. July 21, 2020. Available at: http://www.kremlin.ru/events/president/news/63728

[48] According to Rosstat, the share of the Russian population with monetary incomes below the subsistence level has not actually changed since 2015 and amounts to 12–13% of the total population: in 2015 – 13.4%, in 2020 – 12.1%, in the 1st half of 2022 – 13.1% (sources: Official statistics. Standard of living. Available at: https://rosstat.gov.ru/folder/13397; Information and analytical materials. Short-term economic indicators of the Russian Federation – 2022. Available at: https://gks.ru/bgd/regl/b22_02/Main.htm).

The R/P 10% ratio (showing how many times the average level of monetary income of 10% of the population with the highest incomes exceeds the average level of monetary income of 10% of the population with the lowest incomes) in Russia for the same period decreased from 15.5 to 14.1 times: in 2015 – 15.5 times, in 2020 – 14.4 times, in January – September 2022 – 14.1 times (source: Socio-economic situation of Russia: Report. Available at: https://rosstat.gov.ru/compendium/document/50801)

[49] Dobrenkov V.I., Ispravnikova N.R. (2013). The Russian version of "capitalism for the few". *Vestnik Moskovskogo universiteta. Seriya 18. Sotsiologiya i politologiya*, 3, 26–55.

[50] The turnout for the All-Union referendum on the preservation of the USSR on March 17, 1991 was 97.8% (1233858 people). 89.8% of voters (1107980 people) voted for the preservation of the USSR; 9.2% (113283 people) voted against its preservation. Source: Message of the Central Commission of the USSR Referendum "On the results of the USSR referendum held on March 17, 1991". Available at: https://www.gorby.ru/userfiles/file/referendum_rezultat.pdf

[51] The text of the agreement on the establishment of the Commonwealth of Independent States on December 8, 1991. Available at: http://www.rusarchives.ru/statehood/10-12-soglashenie-sng.shtml

There are many books and articles on the subsequent raider seizure of power and the transfer of national wealth and state property (natural resources, economic entities, financial capital, etc.) into the hands of individual representatives of economic and political "elites" for a song. The main thing is that both the collapse of the USSR and the subsequent establishment of the system of "oligarchic capitalism" in Russia were carried out by **a very limited number of people in power,** whose names have already been made public, and the historical assessment of their actions (at least in the expert community), by and large, has been given: "national betrayal, which has no statute of limitations".

The Russian sociologist, RAS Corresponding Member Zh.T. Toshchenko gives the following characterization to those people who stood at the origins of the collapse of the USSR, which led "to the collapse of the established way of life, revision of orientations and values of tens of millions of people... and the gap in the progressive development of the state and society"[52]:

"...They have specific characteristics; first, **their behavior is completely (or significantly) at variance with (and even contradicts) the interests and concerns of the population;** second, these people propose (and even implement) such actions, which **can be called shocking (to put it mildly);** third, they have specific personal traits...:

First, many of them have **irrepressible, unlimited and even pathological craving for power. Power for these people becomes an end in itself, for which they are ready to change their ideological positions, go over corpses, turn friends into enemies and vice versa.**

Second, phantom types are characterized by an **explicit or hidden (undeclared) desire for fame, fame, publicity.** They need to be in the limelight, to claim that they express public opinion, to be influential in politics and the social field.

Third, the indicator of the phantom personality type is **pathological thirst for wealth,** which is gained through various frauds and sometimes criminal actions; various loopholes and gaps in legislation were used, personal and group connections were mobilized. And if in the rest of the world wealth was achieved by long and hard work, then in post-Soviet Russia various ways of achieving it were used: financial pyramids were created, voucher and collateral auctions were organized, threats and violence were practiced in every possible way, up to the physical elimination of competitors or people just standing in their way, false bankruptcy was carried out, unjustified benefits were obtained.

And finally, one should not ignore the personality traits – **love of power, vanity, unbridled ambitions. These characters easily changed their political ambitions and preferences by "putting on different masks".**

[52] Toshchenko Zh.T. (2015). *Fantomy rossiiskogo obshchestva* [Phantoms of the Russian Society]. Moscow: Tsentr sotsial'nogo prognozirovaniya i marketinga. Pp. 14, 64.

The newspaper *Pravda*, under the heading "The disguises of werewolves"[53], published an interview with Zh.T. Toshchenko, the author of the monograph Phantoms of the Russian Society in order (as the authors of the heading note) **"to consider personally the historical guilt of especially odious traitors [Yeltsin, Kalugin, Yakovlev, Sobchak, Nemtsov, etc.], which has no statute of limitations...** If it had been possible to prevent or stop in time the beginning of the country's defeat, officially named Gorbachev's "perestroika" and Yeltsin's "reforms", then the great Soviet Union would have celebrated its 100th anniversary in December this year. However, the plan of the enemies of socialism in the fateful 1991 was put into action. And a colossal role in this, as our people are becoming increasingly aware of, was played **by the betrayal in the highest echelons of the leading party and state bodies...**

The man-made nature of our tragedy and its consequences should already be clear to everyone today. After all, if you come to think of it, the current military operation in Ukraine is a forced result of treacherous actions of the very "fifth column" aimed at eliminating the Soviet power. That is why there is no statute of limitations for the crime committed by Gorbachev, Yeltsin, A.N. Yakovlev and others like them".

> "... the dark shadows of the treacherous past hover in today's reality, they are in no hurry to completely disappear. **Conducting the special military operation requires a clearer and sharper approach to assessing the figures responsible for everything that our people have experienced over the past thirty years. We will be able to go along the right way into the future only if we make fair assessments of the behavior of the destroyers of the Soviet power"**[54].

Nevertheless, considering the prospects for the formation of a new social contract, it is fundamentally important that the events of 30 years ago be critically evaluated at the state level. And not only the very fact of the collapse of the USSR (which the President has already called "the largest geopolitical catastrophe of the 20th century"[55]), but also the people who arranged it.

After all, in fact, it was the collapse of the USSR that predetermined the further development of Russia in line with the liberal-capitalist paradigm, which ultimately forced it to take up arms and defend its right to the future and to the preservation of national sovereignty; it also led to the emergence on December 17, 2021 of official draft documents of the Russian Ministry of Foreign Affairs with the

[53] See, for example:
1. Political nonentity. *Pravda*, 2021, no. 69, July 2–5.
2. The disguises of werewolves. *Pravda*, 2021, no. 93, August 27–30.
3. "Shock therapist" Gaidar acted recklessly and mercilessly. *Pravda*, 2022, no. 20, February 25–28.
4. How many people remember who Burbulis is? *Pravda*, 2022, no. 28, March 18–21.
5. This Kozyrev played with someone else's trumps. *Pravda*, 2022, no. 40, April 15–18.
6. Berezovsky's Diaboliad. *Pravda*, 2022, no. 64, June 17–20.
7. The abyss of betrayal – Aleksandr Yakovlev. *Pravda*, 2022, no. 91, August 19–22.
8. An insidious knife in the back of state security. *Pravda*, 2022, no. 106, September 23–26.
9. He became a murderer of his country. *Pravda*, 2022, no. 108, October 1–4.
10. Sobchak is a narcissistic talker and grandstander. *Pravda*, 2022, no. 114, October 15–18.
11. The Nemtsov outdid Khlestakov himself. *Pravda*, 2022, no. 132, November 25–28.

[54] An insidious knife in the back of state security. *Pravda,* 2022, no. 106, September 23–26.

[55] Address of the President of the Russian Federation to the Federal Assembly, April 25, 2005. Available at: http://www.kremlin.ru/acts/bank/36354

requirement to ensure legal security guarantees from the United States and NATO[56] (what the West called nothing else than "Putin's ultimatum"[57]); and a little later (February 24, 2022), when it became obvious that all diplomatic opportunities for ensuring Russia's sovereign development were reduced to "zero", the special operation began – a symbol and a real Rubicon, which indicated that in its struggle for a new, sovereign and nationally oriented Social Contract, Russia would go to the end...

In other words, it is impossible to build a new Social Contract without a critical, full and open assessment of the previous contract (at least so as not to "walk into the same trap twice" in the future), and the state has not provided this assessment so far.

Thus, we agree with experts that it is impossible for Russia to achieve full national sovereignty without comprehensive changes at the national level and without a new Social Contract that would define key criteria of the relationship between society and government; in this regard, the following two points should be noted.

1. The presence of the contours of a new Social Contract indicates that the course of the national policy of the head of state, implemented in fact since 1999, can ultimately help Russia to achieve full national sovereignty, competitiveness and find its own place, worthy of Russian culture and history, in the system of international relations in the geopolitical reality that is being formed before our eyes.

Russia's demands to ensure legal security guarantees from the United States and NATO:

- "exclude the further expansion of NATO and the accession of Ukraine to the alliance;
- abandon any NATO military activity in Ukraine, Eastern Europe, Transcaucasia, Central Asia;
- do not deploy medium-range and shorter-range missiles where they can hit the territory of the other party;
- give an obligation not to create conditions that can be regarded as a threat by the other party;
- not to deploy weapons and forces in areas where it will be perceived by the other party as a threat to national security;
- the United States undertakes to exclude further expansion of NATO to the east and to refuse post-Soviet countries admission to the alliance;
- the United States undertakes not to create military bases in post-Soviet countries, not to use their military infrastructure and not to develop military cooperation with them"[58].

2. However, the presence of many factors (external and internal) that hinder further development of separate and so far disparate elements of a new Social Contract indicates that the right course is being implemented at an insufficient pace.

Currently, the President has to act in extremely difficult conditions. At the same time we should emphasize that against the background of, one might say, extreme geopolitical threats (and having a direct impact on the internal socio-economic

[56] About Russian draft documents on ensuring legal guarantees of security by the United States and NATO. Available at: https://www.mid.ru/ru/foreign_policy/international_safety/1790809/

[57] "Putin's ultimatum": How will NATO's undertaking in Ukraine turn out for the world. Available at: https://www.ntv.ru/novosti/2648130/

[58] About Russian draft documents on ensuring legal guarantees of security by the United States and NATO. Available at: https://www.mid.ru/ru/foreign_policy/news/1790809/); RIA Novosti. Available at: https://ria.ru/20211217/bezopasnost-1764226189.html

situation in the country), both international contacts and internal meetings of the head of state continue to be conducted using a "hands-on approach". The recent meeting of the Council for Strategic Development and National Projects has shown[59] that the issues of investments in technological development projects, social support, modernization of primary health care, development of preferential and family mortgage mechanisms and many other aspects of domestic policy, determining the living conditions of citizens and ensuring the national sovereignty of the country, continue to remain in the attention of the head of state. The President noted that "we will do it **calmly, routinely and consistently, without haste**. We will attain our objectives to strengthen our defense capability in general as well as meeting the goals of the special military operation"[60]; and this cannot but inspire optimism and confidence in the decisions he makes.

However, the Rubicon that Russia crossed on February 24, 2022, as well as the protracted nature of the special operation, dictates the need to take a significant number of difficult but important steps related to achieving the goals of the SMO.

It will be possible to start designing a new Social Contract only after the goals of the SMO have been achieved and only after a public and comprehensive assessment has been conducted with regard to the period of the "turbulent 1990s" (including persons involved in the collapse of the USSR) and the liberal elites who still continue to implement activities that do not fit into the rhetoric and the goal-setting of Russia's struggle to achieve full national sovereignty and competitiveness of the state.

Nevertheless, the head of state, through his specific decrees, continues to implement a purposeful movement toward the development of civic responsibility and patriotic self-awareness in new generations of Russians. Thus, December 23, 2022, a history course was introduced into the federal educational program for secondary general education, containing the section "Russia in the 21st century", which reveals such topics as "economic recovery in 1999–2007; crisis in 2008; President Dmitry Medvedev; election of Vladimir Putin; "The Immortal Regiment" and celebration of the 75th anniversary of the Great Victory; accession of Crimea to Russia; Olympic Games in Sochi and the World Cup; Russia's foreign policy and assistance to Syria; events in Ukraine in 2014 and Russia's position; Minsk Agreements on Donbass and humanitarian assistance to the DPR and LPR; fight against coronavirus and the global oil crisis; special military operation and sanctions against Russia; and many others"[61].

The society is waiting for the next concrete step from the head of state and the Government, since "Russia no longer has either the right or the time to doze"[62].

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[59] Meeting of the Council for Strategic Development and National Projects on December 15, 2022. Available at: http://www.kremlin.ru/events/president/news/70086

[60] Vladimir Putin's speech at an expanded meeting of the Board of the Defense Ministry. Available at: http://www.kremlin.ru/events/president/transcripts/70159

[61] Ivanov A. The school curriculum that includes initial military training and the study of the SMO has been approved. Available at: https://zavtra.ru/events/utverzhdena_shkol_naya_programma_s_nachal_noj_voennoj_podgotovkoj_i_izucheniem_svo

[62] Dugin A.G. Dromocracy. Speed as power. Available at: https://zavtra.ru/blogs/dromokratiya_skorost_kak_vlast_

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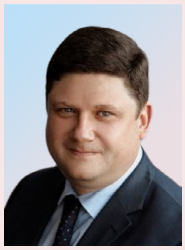
Predictive and Analytical Capabilities of Macroeconomic Models in Conditions of Crisis Economic Development (Using the Example of the QUMMIR Model)



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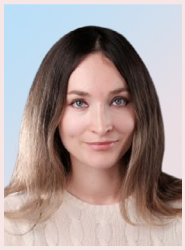

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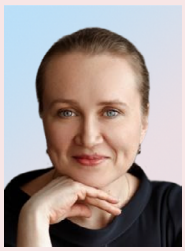

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Abstract. The article deals with the use of econometric macromodels for solving applied problems to substantiate economic policy. The questions of the applicability of econometric methods for modeling economic processes are considered. The requirements for the key qualities of complex macroeconomic models are being formed. Emphasis is placed on the fact that it is econometric modeling based on large amounts of data that contributes to a deep analysis of the causal relationships existing in the economy. As an illustration, we use the description of the quarterly macroeconomic model QUMMIR, which has been used for a decade and a half at the Institute of Economic Forecasting of the Russian Academy of Sciences for medium-term forecasting. It is shown that in conditions of increasing economic uncertainty, the importance of analyzing scenarios of socio-economic development and substantiating economic policy measures aimed at tapping the internal potential of economic development increases. We argue that the use of advanced predictive and analytical tools can significantly improve the quality of forecast estimates and the validity of decisions made on their basis. The structure of the model is described in detail with an emphasis on budget and financial blocks. The final part of the article provides an example of using a quarterly macroeconomic model to analyze decisions in the field of fiscal and monetary policy. Calculations demonstrate a positive impact on the dynamics of GDP on the part of budget system expenditures in the absence of a significant effect on the growth of inflation. In terms of monetary policy, calculations demonstrate its relative neutrality in relation to economic dynamics, as well as the exhaustion of the positive impact on the economy in the current conditions due to the weakening of the ruble exchange rate.

Key words: macroeconomic models, econometric modeling, economic policy, fiscal policy, monetary policy.

Introduction

Russia's economic development over the previous 30 years has been characterized by periodic shocks of both economic and non-economic nature. We can recall at least five of the most significant crises that seriously affected the prevailing macroeconomic proportions and required significant adjustments to the parameters of economic policy: the default of 1998 (Drobyshevskii, Kadochnikov, 2003), the global financial crisis of 2008–2009 (Voskoboynikov et al., 2021), the monetary and financial crisis of 2014–2015 (Dubinin, 2015), the pandemic crisis of 2020, the sanctions crisis of 2022 (Shokhin et al., 2021). Every time during these crises, the question arose about the quality of macroeconomic forecasts and their place in the decision-making system.

As a science, economics is inseparable from calculations. As we know, it is possible to manage qualitatively only those processes that can be measured. At the same time, the criteria for the calculation accuracy applied to the natural sciences cannot be automatically transferred to social processes where experiment is practically impossible and there is no absolute evidence. The behavior of economic agents is a complex process, the description of which can be approached, but as it is fashionable to say now, to have a complete digital double of society is still beyond human capabilities. Due to the noted above, we should unequivocally state that the use of a calculated approach in justifying economic policy can play a key role, but cannot serve as the only proof of the correctness of a particular decision.

However, questions about the quality and accuracy of forecasts are constantly being raised both in the expert community and at the government level (Klistorin, 2011), so it seems important to discuss once again the key principles of

developing medium-term macroeconomic models and forecasts based on them. As the material for such an analysis, we chose the quarter macroeconomic model QUMMIR[1], which has been developed at the Institute of Economic Forecasting of RAS for a number of years. To date, more than 50 quarterly macroeconomic forecasts have been prepared on its basis, which means that quite a lot of experience has been accumulated in the application of such tools. In addition, at least four economic crises occurred during this period of contemporary Russian history, which also provided a large amount of information about the necessary properties of large macroeconomic models.

Macroeconomic modeling and economic policy

Applied simulation of economic processes became widespread in the 1960s, when, first, a modern methodological base of global statistical observations was formed (Tinbergen, Boss, 1967), and second, a set of econometric and balance approaches to the practical use of mathematical methods in the analysis and forecasting of economic dynamics was developed (DeJong, 2011).

However, in 1976 R. Lucas published an article, where he criticized the use of econometric models for economic policy analysis (Lucas, 1976). By giving concrete examples of the use of econometric models to analyze the effects of tax policy, Lucas proved the impossibility of obtaining adequate results. The criticism given in the article concerned specific examples, in particular the effects of changes in tax policy, as well as the relationship between inflation and unemployment based on the Philips curve. A significant part of economists took this article as proof of the impossibility of analyzing the effects of economic policy using econometric models, although the material presented was absolutely insufficient to prove such a thesis. Moreover, according to the fair remark of C. Almon, any parameter of economic policy can be replaced by an appropriate variable reflecting its functionality (Almon, 2016), which means that the solution to the problem is not to abandon econometrics, but to make econometric dependencies have a clear interpretation and most adequately describe the cause-and-effect relationships that exist in the real economy.

Lucas' criticism forced many economists to think about the correspondence of the mathematical tools used to the tasks of describing the real economy and led to the development of other methods of economic modeling aimed at describing the economic behavior of economic agents (Shoven, Whalley, 1984; Shoven, Whalley, 1992; Makarov et al., 2022). This direction has given rise to whole classes of models, such as, for example, computable general equilibrium models (CGE) or dynamic stochastic general equilibrium models (DSGE). It is worth saying that from the point of view of forecasting and economic analysis, these models are an accurate response to criticism of using the econometric approach, since they rely on the theory of the real business cycle and try simulating changes in the behavior of economic agents for various macroeconomic shocks. The only problem is that when conducting behavioral modeling, theoretical postulates are used, which do not always correspond to the reality of specific national economies. In this regard, we can say that this class of models contributed to the advancement of economics, but could not replace models that consider cause-and-effect relationships within a particular economy (Hausman, 2011; Bardazzi, Ghezzi, 2021). To solve this problem, it is necessary to work with real data and describe the interactions existing in the economy with the help of econometric dependencies.

Creating an applied econometric model is a complex task requiring considerable time and efforts of qualified specialists. At the same time, this is the best way to understand the features of the

[1] Available at: https://ecfor.ru/nauchnye-izdaniya/kvartalnye-prognozy-makroekonomicheskih-pokazatelej-rf/

functioning of the real economy, especially for young colleagues who are taking their first professional steps in studying the national economy (Almon, 2012). As practice shows, it is better to start introducing students and postgraduates into the complex world of economic interactions with simple macroeconomic calculations describing one or another aspect of economic life: population incomes and expenditures, budget system, foreign trade, etc. However, work on a comprehensive model is a key step for developing the general economic outlook of a specialist who wants to work in the field applied analysis and justification of economic policy. The ability to work with a complex macroeconomic model, form scenarios and modernize the main dependencies create the basis for working on more complex forecasting and analytical structures, including intersectoral ones.

In this regard, the quarter macroeconomic model QUMMIR should be perceived not only as a key predictive tool used for medium-term forecasting in the IEF RAS, but also as an important element of analytical work that allows quickly assessing changes in key factors affecting the economic development.

Quarter macroeconomic model QUMMIR – general description

The model is based on a sequential iterative calculation of forecast indicators of economic dynamics in increments of one quarter. The calculation of the dynamics of macroeconomic indicators is carried out in the logic of demand: population, business and the state. Demand is formed depending on the income level, as well as the structure and volume of savings of economic entities.

Incomes, in turn, are formed on the basis of the economic activity results obtained in accordance with the distribution of demand of economic agents for imported and Russian products, as well as the dynamics of external demand (exports). We assume that the demand for goods and services of Russian production is fully provided by the corresponding supply. In our opinion, such logic of calculation construction is appropriate when modeling the economy's dynamics in short and medium term. Forecasting indicators over a longer period requires additional consideration of resource constraints, including the volume and structure of capital.

Thus, the model is a closed system in which income, demand, domestic production, imports and prices interact.

Currently, there are more than 2,000 variables in the database and a system of more than 200 equations.

The statistical database of the model contains quarter data series in the following directions:

1) national accounts: GDP produced (since 2003), GDP used (since 1993), GDP by sources of income (since 1995, source: Rosstat);

2) investments in fixed assets by sources of financing (since 2002, source: Rosstat);

3) population income and expenses (since 1995, source: Rosstat);

4) employment statistics (since 1998, source: Rosstat);

5) demographic statistics (since 1996, source: Rosstat);

6) price dynamics (since 1993 deflators of elements of final demand and consumer price indices, source: Rosstat);

7) consolidated budget and budgets of extra-budgetary funds (since 1995, source: Federal Treasury of the Russian Federation, Ministry of Finance of the Russian Federation);

8) indicators of the financial condition of organizations (since the 2nd quarter of 1998, source Rosstat);

9) external sector statistics: balance of payments in analytical representation (since 1994, source: Central Bank of the Russian Federation), ruble exchange rate (to the U.S. dollar since 1993, to the euro since 1999, source: Central Bank of the Russian Federation);

10) foreign trade statistics: exports of energy goods, structure of imports of goods by end-use purposes, export price of natural gas (since 1994, source: Federal Customs Service of Russia);

11) review of credit institutions and the Central Bank (since 1995; source: Central Bank of the Russian Federation);

12) statistics on the activities of fuel and energy companies (since 2005, source: Rosstat, Ministry of Energy of the Russian Federation), price of Urals grade oil (since 1993, source: Ministry of Finance of the Russian Federation);

13) statistics of goods and services markets (from 1993–1995, source: Rosstat);

14) indices of prices of energy resource producers (since 2000), tariffs for railway transportation of goods (since 1997, source: Rosstat);

15) other variables of internal economic activity: minimum wage (since 1993), pension amount (since the 2nd quarter of 2006), new housing supply (since 1998, source: Rosstat);

16) outside world statistics: U.S. GDP, U.S. current account balance (since 1993, source: U.S. Bureau of Economic Analysis), Eurozone GDP (since 1995, source: European Central Bank);

17) world market indicators: Brent oil prices, wheat (since 1993, source: World Bank), U.S. Federal Reserve System discount rate (since 1993, source: U.S. Federal Reserve System).

The model contains GDP calculation by elements of use in current and comparable prices in terms of modeling price dynamics (deflators of elements of final demand). In addition, the account of GDP production in constant prices is modeled.

The model includes a system of balances, which allows limiting the range and increase the "rigidity" of the forecast in the calculation system. They include:

– balance of personal income and expenses;
– incomes, expenses and budget surplus/deficit;
– balance of payments;
– balance of the Central Bank;
– balance of credit institutions.

In accordance with the logic of calculation formation, the model is a system of several interrelated blocks, including GDP calculation block; price block; personal income and expenditure block; tax and budget block; investment block; block of balance of payments; financial block; employment block; and energy block.

The main exogenous variables of the model are a set of parameters of the external economic environment, as well as internal factors, mainly related to the parameters of economic policy.

External factors include variables reflecting the external and associated conditions of the functioning of the Russian economy. The complex of external factors can be divided into groups.

1. Global demand for goods and services:
– price of Brent and Urals crude oil;
– gas price;
– dynamics of U.S. and Eurozone GDP;
– wheat price.
2. World demand/supply of financial resources:
– ratio of world currencies (euro/U.S. dollar);
– dynamics of external debt of the Russian private sector (banks and other sectors) in the context of the investment climate/element of geopolitics.

Internal factors include variables reflecting the internal conditions of the functioning of the Russian economy. This group of factors characterizes the Russian policy directions, prices of the infrastructure sector, and describes the demographic situation, certain aspects of enterprises' activities.

According to the Russian policy directions, we can distribute the factors as follows.

1. Fiscal policy:
– in terms of budget system revenue generation (tax rates);
– in terms of requirements for the dynamics of budget expenditures (functional structure of consolidated budget expenditures);

– from the standpoint of the possibility of attracting sources of financing the budget deficit (the amount of public debt – external and internal, the use of previously accumulated funds of the National Welfare Fund);

2. State social policy: minimum wage; average pension growth index.

3. Monetary policy:

– ruble exchange rate (actions of the Central Bank of the Russian Federation on the Russian currency market, including within the framework of the budget rule, provision of funds in foreign currency to credit institutions, restrictions on the movement of capital of individuals and legal entities, standards for the mandatory sale of foreign exchange earnings);

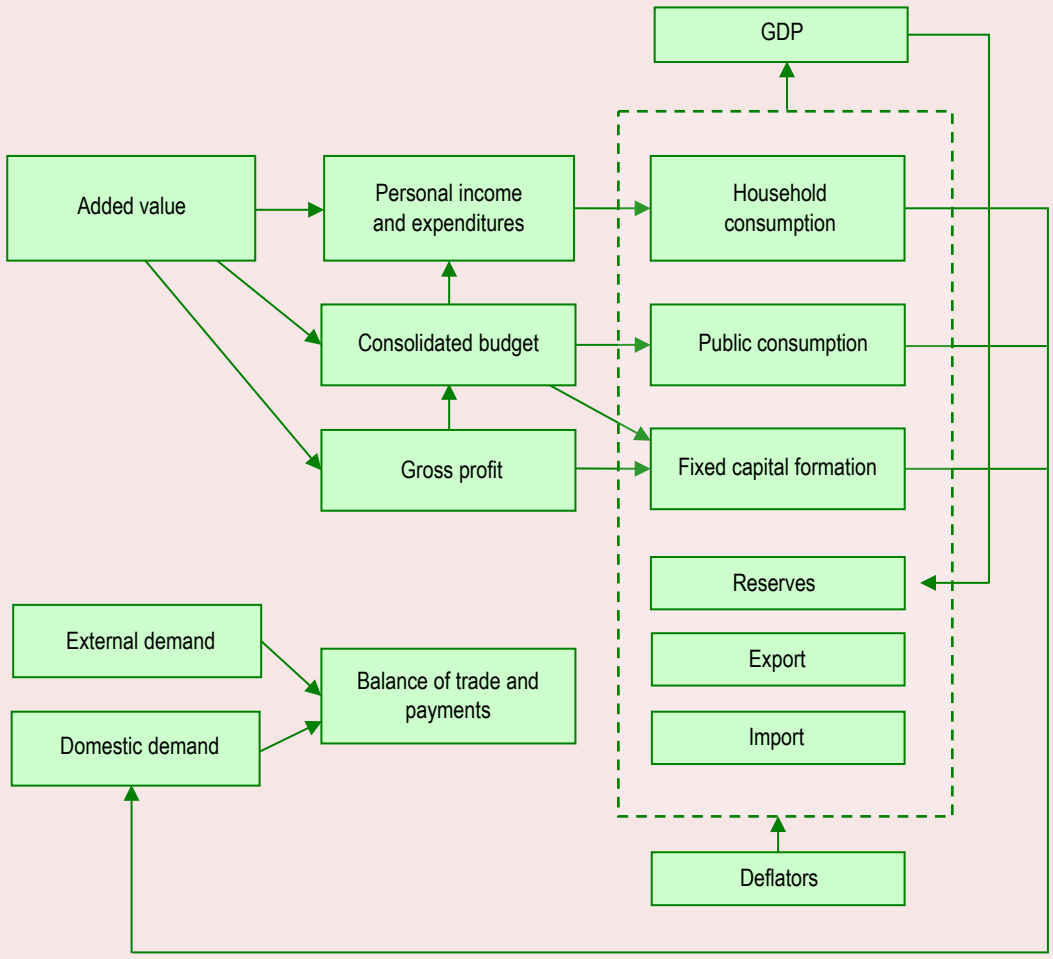
– key rate of the Bank of Russia.

The parameters of the infrastructure sector and demographic situation include the price indices of natural monopolies (electricity, gas, rail transportation) and demographic indicators (population, including those of working age; number of students, pensioners).

Figure 1 shows the schematic diagram of calculations based on the QUMMIR model.

Forecast calculations within the framework of the quarter macroeconomic model are carried out by the iteration method through the simultaneous

Figure 1. Schematic diagram of GDP calculation by using the QUMMIR model



Source: own compilation.

solution of a system of equations with specified accuracy parameters. The convergence criterion is determined for household consumption in such a way that the discrepancy of the calculation results between iterations does not exceed 0.01%.

In turn, scenarios differ in a set of exogenous variables, so the formation and coordination of scenario conditions is a key element of the procedure for predictive calculations.

The model allows making calculations based on scenarios associated with changes in exogenous parameters, including for assessing the effects of various shocks. It is possible to consider both particular scenarios of changes in individual policy directions, and complex scenarios of changes in the situation in the entire economy as a whole.

Estimates of economic dynamics using the QUMMIR model taking into account the ongoing geo-economic changes

The most common option for a medium-term forecast, performed using a quarterly macroeconomic model, is an inertial scenario. Its choice makes it possible to assess economic dynamics in the logic of business as usual in the absence of significant changes in the field of economic policy.

The formation of inertial scenarios is more or less based on the scenario conditions of the Ministry of Economic Development of the Russian Federation, the parameters of the three-year budget and forecast indicators of leading world organizations (International Monetary Fund, World Bank, International Energy Agency).

The value of such a scenario is that it allows assessing the risks of maintaining the current parameters of economic policy in the medium and long term. On the other hand, within the framework of an inertial scenario, it is impossible to implement one of the key goals of forecasting – to justify the economic policy.

This problem can be solved on the basis of assessments of alternative macroeconomic scenarios assuming certain shifts in the parameters of economic policy. The most interesting ones are those in which changes in the parameters of monetary and budgetary policy are assessed, which should be immersed in the general context of the Russian economy development.

The situation developing in the Russian economy after the introduction of new sanctions restrictions in 2022 is characterized by a significant change in the proportions of exchange with the outside world, which inevitably affects the parameters of production, financial and budgetary systems and, in general, the economic dynamics in the country.

According to our estimates, the current crisis features will be the duration of the period of negative GDP dynamics, which will be associated both with restrictions on the supply of imported products and decisions of unfriendly countries to abandon Russian energy carriers and raw materials. In such conditions, a certain period of adaptation of the Russian economy to changes in the structure of production, income and prices will be required. This period will become a necessary condition for the next stage of the Russian economic development – structural and technological restructuring aimed at forming a stable development base in the medium and long term.

In the short term, restrictions related to the unavailability of a number of imported goods will have the most serious impact on the economic dynamics in the country. They will restrain both demand and production, in the part where imported raw materials and components are used. The restoration of import flows, including through the change of suppliers, as well as parallel import mechanisms, will have the greatest impact on the timing of adaptation of the Russian economy to new conditions. We should also take into account that the import of goods is the most significant channel for the receipt of research and development results of developed countries into the Russian economy. Thus, in the medium term, the restrictions imposed on the

Russian economy will directly restrain the growth of production efficiency through restrictions on access to the most effective technological solutions. This situation can be overcome only if investments in research and development are increased, as well as dependence on imports is reduced. It is clear that we are not talking about any form of autarky. Moreover, without building deep cooperative relations in the scientific and technological field with friendly countries, the task of achieving technological sovereignty cannot be solved.

Increasing cooperation with friendly countries will become a natural development of processes in the global economy, where after a period of growth due to globalization processes, a period of slowing down of trade growth and the formation of large regional blocks occurs, which is accompanied by a decrease in the reliability of investments in reserve currencies and the growth of non-tariff barriers to trade. At the same time, the key constraint for developing countries, as before, will remain technological dependence on solutions worked out in developed economies. To change the situation, it is necessary to create an alternative contour of trade and economic relations, which has relative independence from traditional mechanisms of financing, reservation and scientific and technological development.

Technological modernization of the Russian economic development should be supported by appropriate decisions in the field of project financing. In fact, we are talking about a balance between budget and market financing of the directions of structural and technological restructuring of the economy. Here, we should make one important remark – budgetary sources of the economy's financing are largely limited. For example, the total expenditures of the consolidated budget in 2021 did not exceed 32% of GDP. Accordingly, it will be impossible to rely mainly on the budget channel during the structural readjustment of the economy. At the same time, budgetary resources can become the most important source for launching a new investment cycle, as they allow directing resources to where there are opportunities to achieve the greatest macroeconomic effect, and also demonstrate to business directions for effective investment of funds.

Increasing budget financing requires maintaining a budget deficit for the transition period, which can be financed by internal borrowing. At the same time, it is necessary to comply with a number of conditions: relatively low inflation, definition of the limits of increasing domestic debt. According to our estimates, in the period up to 2025, the benchmark for the level of budget deficit may be up to 3% of GDP, which will not lead to significant damage to the parameters of microfinance stability. It is fundamentally important that irregular budget expenditures related to the structural and technological modernization of the economy should be financed primarily due to the budget deficit.

As for monetary policy, it will play a supporting role when launching a new economic cycle. It is important to maintain a level of the key rate that would not impair the ability of non-financial enterprises to use borrowed resources to finance working capital and investments. However, as economic activity recovers, the role of debt financing will naturally grow, and the role of the banking sector in shaping economic dynamics will increase significantly.

In order to build an active economic policy, aimed at mitigating the negative impact of external restrictions on the Russian economy, it is important to understand the range of influence of key parameters on the formation of economic dynamics. To this end, it is advisable to consider appropriate alternative scenarios.

Before proceeding to the assessment of such scenarios in more detail, let us focus on calculation description in the budget and financial blocks of the QUMMIR model.

Financial block of the model

The purpose of creating a financial block based on the macroeconomic model of Russia is the desire to describe the patterns of development of the monetary sphere in interaction with macroeconomic dynamics. The functioning of the monetary sphere is provided by the country's banking system, the institutional subjects of which are the Bank of Russia and credit organizations[2]. Thus, the main task in developing the financial block is to model the performance indicators of banks and the Bank of Russia from the perspective of their internal interaction and relations with other economic entities. As a result, the financial block is represented by interconnected balance sheets of the Central Bank of the Russian Federation and credit institutions, while the connecting elements are the volume of lending to banks from the Central Bank and the requirements of banks to the Central Bank.

Elements of bank balance sheets are calculated taking into account the behavior of the main subjects of the economy: population, organizations, public administration, the outside world – in relation to the formation of savings and borrowing. We use regression analysis to model relationships. The independent variables of the financial block are either endogenous, i.e. calculated within the framework of other blocks of the model, or exogenous – set from the outside.

Personal deposits are modeled depending on wages, incomes, prices and exogenously set exchange rate of the ruble and the structural share of cash in circulation as part of the money supply. Deposits of financial and non-financial organizations are modeled depending on GDP at current prices, turnover of organizations, and exchange rate. Personal loans are calculated depending on incomes and prices, exogenous loan rates and the exchange rate. In addition, exogenous variables of loan terms by type of loans are used to estimate the volume of payments to the population for repayment of credit debts, when modeling housing loans, exogenous indicators of the volume of new housing supply and housing loan rates are used, when calculating car loans, the specified share of passenger car sales in retail trade turnover and the loan rate are used. The dynamics of loans and other requirements to organizations are influenced by the volume of GDP at current prices, the available resources of the banking system, the price level and exchange rate, the rate on loans to organizations calculated depending on the level of a given key rate.

Deposits and other attracted funds of public administration authorities in the banking system are calculated taking into account the balances on the accounts of the expanded government at the beginning of the period, income and expenses of the consolidated budget, volume of external and internal sources of financing of the budget surplus/deficit. The dynamics of banks' requirements to government authorities is determined by an exogenously set volume of net issuance of government securities on the domestic market.

The external assets and liabilities of banks depend on the exogenously specified structure of their constituent elements and foreign trade volume.

The requirements of banks to the Central Bank are modeled on the basis of the amount of funds raised, mandatory reserve standards, the key rate, and the price level. This indicator, together with cash in circulation, represents the monetary base in a broad definition, which, along with public funds in the Central Bank, forms the economy's demand for money. The assets of the Central Bank provide the supply of monetary liquidity, the main components of assets are international reserves and loans and other requirements to banks from the Central Bank. The dynamics of the Central Bank's requirements for non-residents is determined by exogenous indicators – changes in foreign exchange reserves (including as a result of operations), the volume of monetary gold and the exchange rate. Lending to

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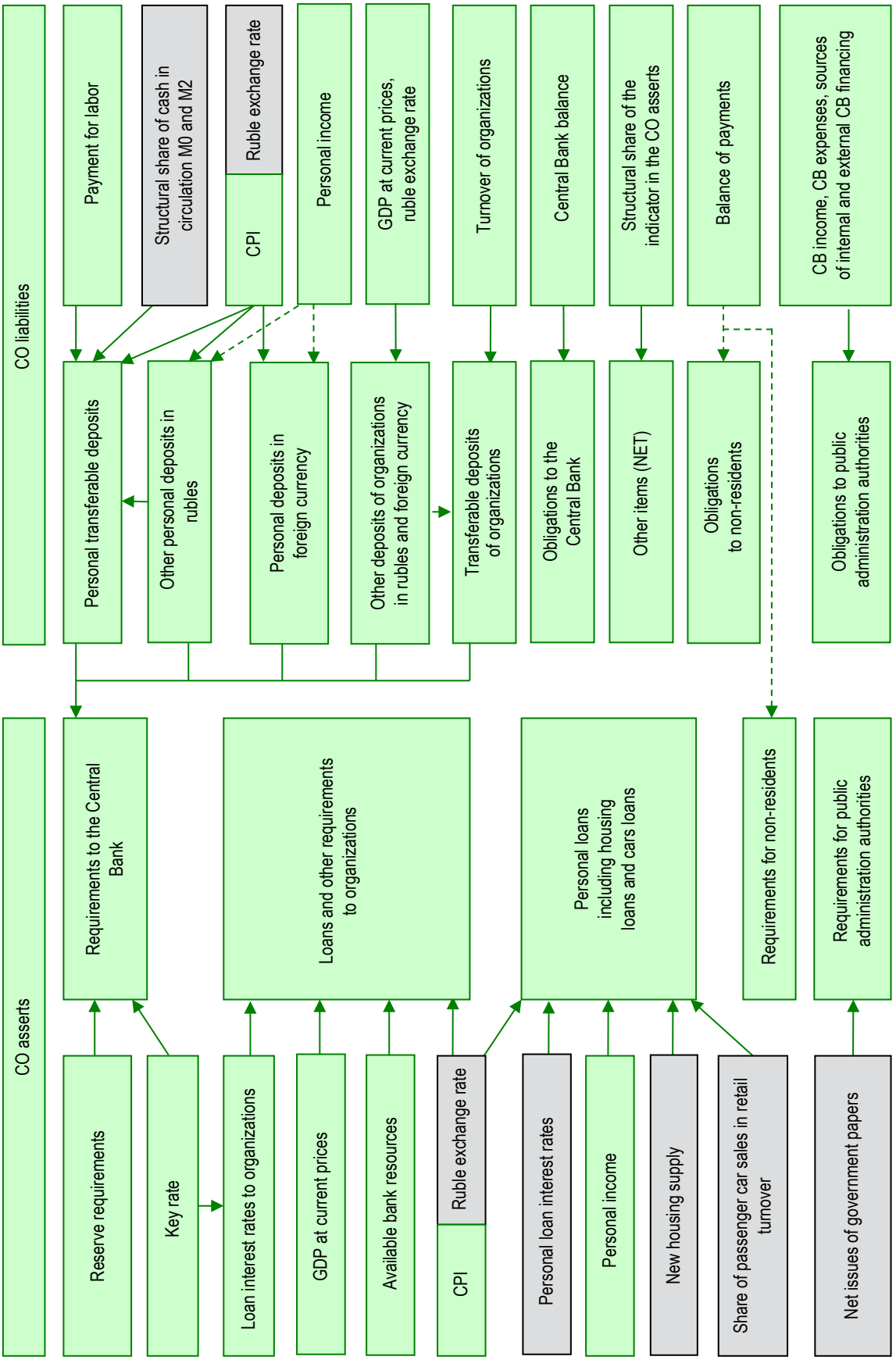
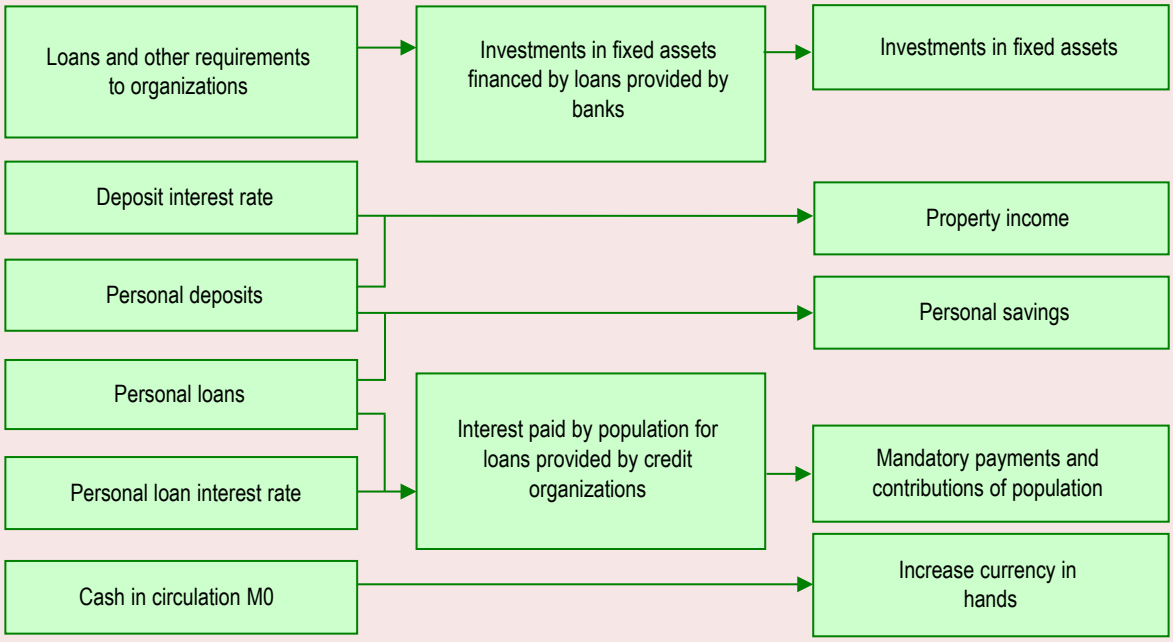


Figure 2. Scheme of calculation of balance sheet items of credit institutions

Source: own compilation.

Figure 3. Influence of monetary indicators on other variables of the model



Source: own compilation.

banks is a balancing item in conditions of equality of assets and liabilities of the Central Bank.

The scheme presented in *Figure 2* reflects the impact of various macro variables on monetary indicators in the framework of calculating the balance of credit institutions. Here, we separately highlight external variables of the monetary block, including exogenous model variables (gray blocks).

The influence of monetary variables on the forecast of macroeconomic dynamics is carried out through consumer and investment demand by embedding them into the equations of the elements of the balance of population income and expenditure and investments in fixed assets (*Fig. 3*). For instance, the increase in population deposits minus the increase in credit debt is an integral part of population savings, cash dynamics in circulation determines the increase in cash by currency in hands. The volume of accumulated credit debt, along with loan rates, allows estimating the volume of mandatory payments of the population in relation to the interest paid on loans. Accrued interest on deposits calculated from the volume of population deposits and the deposit rate level are used in modeling property income. Loans and other requirements to organizations are taken into account when calculating the investment volumes in fixed assets financed by loans provided by banks.

Budget block of the model

The described block of the model makes it possible to predict the revenues and expenditures of Russia's consolidated and federal budgets, the value of which determines public consumption volume and public investment amount in the economy, and also affects the amount of monetary income through the salaries of public sector workers and social transfers. In addition, the block implements the calculation of indicators of budgets of extra-budgetary funds.

The block diagram is as follows:

1) income indicators from basic taxes are calculated (divided into oil and gas and other), the total amount of budget revenues is estimated;

2) volumes of attraction and repayment of internal and external public debt, as well as the structure of consolidated budget expenditures (as elements of budget policy) are exogenously set;

3) indicators of consolidated budget expenditures are projected (through the balance sheet identity of expenditures = revenues + sources of deficit/surplus financing);

4) state consumption volume is calculated in constant and current prices, as well as the investment volumes at the expense of budgetary funds.

The main part of the budget revenues are tax revenues, so the main place in the budget block is occupied by modeling and forecasting of receipts for basic taxes.

At the same time, the model implements separate simulation of oil and gas (mineral extraction tax, export duties, additional income tax, and excise tax on oil refining) and non-oil and gas revenues. As part of the latter for taxes that have a basic tax rate (VAT, income tax, personal income tax, insurance premiums for compulsory social insurance), the income is calculated using econometric equations of the following type:

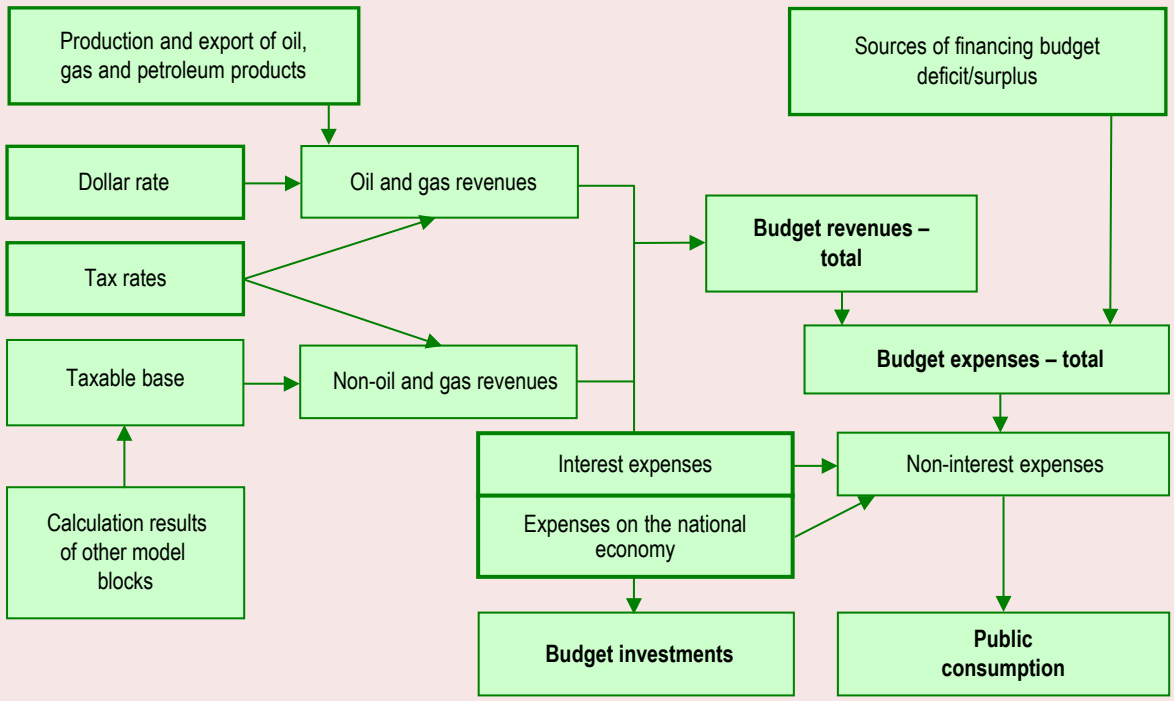
Amount of tax receipts = taxable base × main nominal rate × estimated level of collection (calculated by the regression equation).

For taxes with no single tax rate, such as excise taxes, the tax base is used as the main explanatory variable. In addition, where possible, exogenously set average dynamics of rates are applied (for example, for excise taxes on tobacco products and alcohol) (Savchishina, 2008).

Thus, the main task in modeling tax revenues is to determine the tax base as correctly as possible.

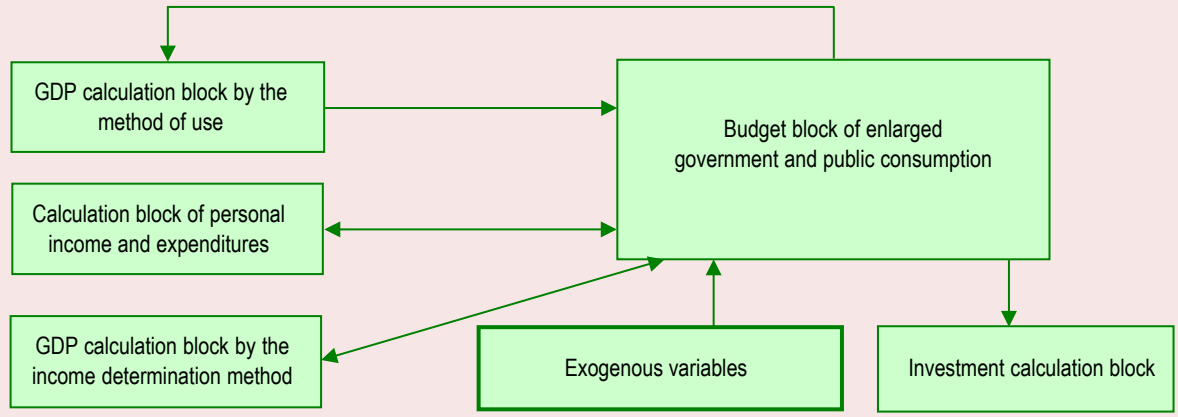
The main relationships within the fiscal block are reflected in Figures 4, 5 (exogenous parameters are marked with thickened frames).

Figure 4. Budget and state consumption block



Source: own compilation.

Figure 5. Relationships with other model blocks



Source: own compilation.

To determine the dynamics of exogenous parameters (in particular, sources of budget deficit financing), we use the relevant parameters of the Federal budget law (for the next three years), the explanatory note to which traditionally contains the main parameters of both regional budgets and budgets of extra-budgetary funds[3]. However, in conditions of high uncertainty, which is typical for crisis periods, the dynamics and structure of budget expenditures become decisive when balancing the forecast (Klepach, 2020). In this case, the research task is to determine, on the one hand, the amount of additional sources of deficit financing necessary to maintain general economic dynamics, and on the other hand, the amount of additional sources of deficit financing that is safe from the point of view of budgetary stability.

Results of forecast assessments

The current economic situation imposes increased requirements on the configuration of the budget system, the stability of which, due to the resulting restrictions, has decreased for objective reasons (Klepach, 2022). The need to fend off external challenges that arose in 2022 led to the formation of a deficit budget. 2023 will be even more difficult from the point of view of budget balance. Next, we will consider the basic forecast of economic development for the medium term, reflecting the authors' view.

Against the background of a likely decrease in budget revenues by 11% year-on-year in 2023 (including income tax – by 19%, VAT – by 2%, export duties – by 41%, mineral extraction tax – by 21%), even a drop in spending by 4% will require additional financing of a deficit of 4.3 trillion rubles, which is comparable to the situation of the "covid" year of 2020. In the medium term, even a minimal increase in spending (+5% in 2025 to the level of 2021 in nominal terms) against the background of low dynamics of economic recovery will lead to budget execution with a deficit of at least 2 trillion rubles annually until at least 2026–2027. At the same time, the state has the resources to finance such a deficit, primarily through the use of the liquid part of the National Wealth Fund (NWF) and the resumption of limited domestic borrowing (*Tab. 1*).

However, the budget will be unable to make a significant contribution to the economic dynamics while maintaining the current budget policy (including the resumption of the budget rule) after 2023. After a period of growth in public investment (+5% in 2022 and +2% in 2023 in real terms) and

[3] Federal law on the federal budget for 2022 and the planning period 2023–2024. Available at: www.minfin.ru

Table 1. Sources of financing the budget deficit (inertia scenario), trillion rubles

Sources of financing of the CB deficit	2022	2023	2024	2025
Deficit	-0.9	-4.3	-1.8	-2.0
Net issue of government papers	-1.2	2.0	2.0	2.0
Net external borrowing	-0.4	-0.3	-0.3	-0.3
Use of accumulated funds of the NWF	1.8	2.0	0	0
Other	0.7	0.6	0.1	0.3
Source: own compilation (https://ecfor.ru/publication/kvartalnyj-prognoz-ekonomiki-vypusk-55/).				

public consumption in the next two years in 2024–2025, their real dynamics is highly likely to be zero, and the contribution of public sector to the personal income growth (pensions and salaries of civil servants) will also decrease.

The tools of the QUMMIR model allow considering a number of alternative scenarios, the results of which can be used to justify changes in budget policy. In particular, two factors can be considered:

• increase in oil and gas budget revenues due to the weakening of the ruble with conservative spending dynamics;

• intensification of economic growth with easing of fiscal and monetary policy.

Calculations under the first scenario show that even a significant weakening of the ruble does not solve the problems of the budget system. For example, in the conditions of 2023, the weakening of the ruble to the level of 90 rubles/USD on average per year would allow for such an increase in oil and gas revenues which would lead to a deficit-free budget. The average annual rate of 82 rubles/USD will make it possible to execute a budget with a deficit of no more than 2 trillion rubles, for which there are enough internal loans to finance; it means that the preservation of the NWF volume will be ensured. However, with both variants of the weakening of the national currency, the general economic situation worsens. The dynamics of those elements of domestic demand directly financing by the state (state investments and state consumption) will be slightly lower than in the inertial scenario (by 0.8 and 0.1 percentage points, respectively) due to rising prices.

The greatest losses will be recorded for businesses and population (*Tab. 2*). Even with the real income growth, a reduction in imports against the

Table 2. Results of alternative scenarios for 2023

Macroeconomic results of 2023	Inertial scenario	Ruble weakening scenario	Scenario for saving budget expenditures
GDP, % to the previous year	-1.5	-1.5	-1.2
Household consumption, % to the previous year	-1.3	-3.2	-0.6
Investments, % to the previous year, including:	-1.3	-3.0	-1.0
state	+2.1	+1.3	+3.0
in fuel and energy sector	-1.3	-5.0	-1.3
other private investments	-1.9	-3.4	-1.8
Import, % to the previous year, including:	+1.3	-6.2	+1.7
consumer	-3.4	-18.5	-2.4
investment	+1.1	-9.5	+1.2
Consolidated budget revenues, trillion rubles	41.4	43.6	41.4
expenses	45.7	45.7	47.7
deficit	-4.3	-2.1	-6.2
Inflation, %	5.4	6.5	5.4
Source: own compilation.			

background of the appreciation of dollar will significantly reduce household consumption and investment (both in the fuel and energy sector and in other activities).

The results of the budget policy easing scenario look more positive. If the consolidated budget expenditures remain at the level of 2022 in 2023, it will be possible to carry out an increased indexation of pensions and the minimum wage (by 10% vs 6% in the inertial scenario), which will increase the dynamics of real population incomes (from +2.3% in the baseline scenario to +3%) and consumption, and after that – investments (however, in a much smaller volume). At the same time, we do not expect any significant acceleration of inflation in the conditions of a stable exchange rate. The total GDP growth in 2023–2025 will amount to 1.6 trillion rubles regarding the inertial scenario. Nevertheless, without the restoration of production chains disrupted by sanctions, short-term fiscal policy easing alone is not enough for truly active economic growth.

Now let us try assessing the impact of the parameters of the scenarios under consideration on financial indicators, in particular when the parameters of the ruble exchange rate change.

In the forecast for the inertial scenario, personal savings in the form of bank deposits in rubles increase by +3.9–4.5% of income annually in 2022–2025. Deposits of organizations are increasing by +2.9–2.7% of GDP in 2022–2023 and +1.6% of GDP in 2024–2025. This dynamics determines the growth rate of the M2 money supply at the level of +10.3% YoY in 2023, followed by a decrease to +8.3% YoY and +7.3% YoY in 2024–2025. The volume of money supply M2 to GDP at the same time increases from 50.6% at the beginning of 2022 to 60.9% by the end of 2025. Assuming the absence of operations on reserve assets and the preservation of the monetary gold volume, the role of lending to banks by the Central Bank in providing the economy with liquidity is gradually increasing. The volume of the Central Bank's requirements to banks in 2023–2025 is in the range of 6.5–9.7 trillion rubles and is comparable to the level of 2014–2015. Deposits of the government authorities in the Central Bank are declining in conditions of budget deficit, the monetary base in a broad definition is increasing at a rate of +13% – +5.4 YoY in 2023–2025 and by the end of the forecast period reaches half in the structure of the Central Bank's liabilities. Household lending is increasing at a rapid pace +11.2 – +13.9 % YoY in 2023–2025, which makes it possible to maintain consumer spending at the level of 78.2–81.2% of the total population income. The increase in the banks' requirements to organizations is in the range +7.8 – +8.8 % YoY in 2023–2025, while the investment volume in fixed assets financed by borrowed loans from banks is estimated at 2.1–2.3 trillion rubles annually.

In general, within the framework of the inertial scenario of the Russian economic development, there is a gradual recovery in the level of lending to the population and non-financial enterprises.

In the forecast for the alternative scenario with the weakening of the ruble in 2023, an important factor is the acceleration of price dynamics in comparison with the inertial option. The concomitant additional increase in rates has a restraining effect on household lending– the increase in debt in 2023 is reduced to +8.1% YoY. Personal savings, on the contrary, turn out to be higher in comparison with the inertial option – as a result, the share of consumer spending decreases to 76.8% of total income, and real household consumption decreases more intensively (-3.2%). The dynamics of requirements for organizations in this variant is slightly higher (+10.2% YoY), but at the same time, investments in fixed assets financed by loans provided by banks, while maintaining the nominal volume, are declining in real terms in 2023 at a high rate (-7.7 and -3.6%, respectively, according to the options) in conditions of an increase in the price level.

Based on the above calculations, we can conclude that in the current conditions in the Russian economy, a significant weakening of the ruble exchange rate no longer plays the same stabilizing role as in the previous two decades. The factor of maintaining the competitiveness of Russian exporters remains significant; however, in the conditions of external restrictions, serious changes are taking place here.

Conclusion

In conclusion, we can note that the use of complex econometric macroeconomic models remains one of the most effective tools for justifying regular economic policy, which, on the one hand, solves the problems of studying the mechanisms of forming economic dynamics at the macro level, and on the other hand, not only allows making complex calculations of economic dynamics, but also assessing the effectiveness of individual economic policy measures.

All of the above does not mean that econometric macro modeling is a universal way to justify decisions in the field of economic policy in the medium term. At the same time, given the description of key interactions in the economy and the use of existing data sets, it can become an important argument in the discussion about improving the effectiveness of macroeconomic policy.

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Russia in the Epicenter of Geopolitical Turbulence: The Hybrid War of Civilizations

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Abstract. The article discusses mechanisms that are put into action during the hybrid war of civilizations that has unfolded at the present time. For this purpose, the concepts of two antagonistic megacivilizations – the West and the Non-West – have been introduced. We reveal the essence and genesis of the First and Second civilizational failures within Western civilization, reconstruct the anatomy of destruction of the national model of Russia's social development after 1991 under the influence of the neocolonial governance system. We uncover and interpret the paradox of the lag in the development of the two megacivilizations, look into the genesis of the passionarity of the ethnos, and substantiate the primacy of geopolitical logic over economic logic. We provide an outlook of the current hybrid war between the West and the Non-West. The novelty of our approach consists in combining the knowledge of different sciences to explain social processes during the period of geopolitical turbulence. We look into philosophical phenomena (opposite dynamics of the material and spiritual spheres), cybernetic (full and partial cybernetic inversions), historical (birth of ethnic passionarity), political (hybrid wars), biological (neuroplasticity of the brain), cultural (cultural plasticity of civilization), economic (world currency, phenomenon of superprofits) factors. This made it possible to correlate objective and subjective factors in the confrontation between the two megacivilizations. The main conclusion of the study is that neither the West (USA) nor the Non-West (Russia) has clear advantages in the unfolding hybrid war of civilizations. The tactical superiority of the West is opposed to the strategic superiority of the Non-West; this situation does not allow us to make unambiguous predictions about the future winner.

Key words: geopolitical turbulence, world capital accumulation center, competition, war, world economic system.

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Introduction

In February 2022, with the launch of Russia's special military operation (SMO) in Ukraine, a de-globalization of the global geopolitical space (GGPS) began. Since then, Russia has been in the epicenter of geopolitical turbulence and has become the main actor in the Non-West coalition. As we noted earlier, the Russian Federation has very serious global advantages in this confrontation; they allow it to be considered as a possible future world capital accumulation center (WCAC) (Balatsky, 2014; Balatsky, 2022a; Balatsky, 2022b). At the same time, it is quite obvious that no objective geopolitical and economic prerequisites for a country to gain a leading position in the world can be implemented without some additional subjective organizational, managerial and cultural-historical conditions. In this regard, a natural question arises: does Russia have civilizational grounds for its transformation into a new WCAC? The Fourth (hybrid) World War, which began in 2014 and reached an explicit phase in 2022, led to a clear division of the world into two coalitions – "West" and "Non-West" – with the corresponding accumulation of huge resources for the unfolding struggle (Balatsky, 2022a; Balatsky, 2022b). The West coalition is quite monolithic and is represented by advanced countries, while the Non-West bloc consists mainly of developing states whose integration has not yet fully taken place. Although the West's technological advantage is undeniable, its resource potential is inferior to the Non-West coalition. In this regard, there is a global geopolitical intrigue concerning the winner in the current confrontation. In the article, we will try to objectively consider Russia's chances of a positive outcome in the unfolding hybrid war of civilizations. The novelty of our approach consists in the reconstruction of the geopolitical logic of previous and current events with the identification of their historical dominant; the disclosure of the topic is accompanied by the use of material from related sciences.

Megacivilizations West and Non-West: main features

Although the concepts of "West" and "Non-West" have already become widespread and well-known, there is no exact distinction between them. Although researchers have been dealing with the West – East opposition for a long time, let us point out the essential difference between the two concepts in order to avoid possible misunderstanding.

Today, two large communities, the West and the Non-West, represent megacivilizations that divide the world into two parts on a cultural basis. The concept of civilization, as considered by S. Huntington, is narrower, and it is based on people's religious and cultural identity; thus, he counts eight major civilizations and several "torn" (undefined) countries (Huntington, 2021). Accordingly, the unification of countries and peoples with different religious and cultural identities forms a larger community, a *megacivilization*. Since the Western megacivilization originated in Europe and developed in North America, identifying its member countries and peoples is determined by the extent to which they follow established traditions. Today Western civilization includes the USA, Canada, Australia, New Zealand and European countries; some states that did not originally belong to Western civilization can be considered as belonging to it since they are in the orbit of its interests and values: Israel, Singapore, South Korea, Japan, Jamaica, Puerto Rico, etc. Latin American countries also

belong to the West according to all indications, but most of them are in a state of hidden opposition to the United States; thus, they are rather part of a different coalition – the Non-West. As for the rest of the countries, we can state with confidence that they belong to the Non-West bloc. In addition to purely cultural traditions, the binary system of division of the GGPS assumes other oppositions that coincide with the main one: center/periphery, rich/poor countries, etc. (Huntington, 2021, p. 38).

The accepted understanding of the West and Non-West megacivilizations generally corresponds to the existing ideas and assumes the confrontation between the Western culture of rich peoples with advanced technologies and the rest of the world. The essence of the clash is the West's desire to align the institutional and cultural environment of the entire GGPS according to its own standards and in its own favor, while the Non-West is trying to hinder this process. Western countries have orientations toward certain economic and political regimes – liberal ideology and elective democracy. These regimes put many countries of the Non-West bloc, including Russia, China, Iran, India and other states, at a disadvantage. Thus, the initial goal of the West is to "clean up" unfriendly economic and political regimes in order to preserve its privileged position in the GGPS.

The West/Non-West confrontation has a geopolitical dimension. For example, large countries with an unfavorable climate and terrain – Russia, China, India, etc. – cannot afford an elected democracy with a lot of political checks and balances like in the United States. That is why Vladimir Lenin put forward the political structure of the USSR as an institutional alternative based on the principle of democratic centralism – elective democracy in the regions with the strongest central government. Today this principle has been effectively implemented in China and gives impressive results. If Non-Western countries abandon a strong central government, they will face a collapse of their statehood as such; this is why they show such a staunch opposition to Western pressure.

Since the West is personified by the U.S., and the Non-West – by Russia, in the future we will consider this pair of countries to illustrate all the issues raised.

The West/Non-West civilizational confrontation: Natural vs Artificial, Humanism vs Transhumanism

Currently, the social boundary between the West and the Non-West is equivalent to the dichotomy of Artificial vs Natural or, to use modern terminology, Humanism vs Transhumanism. Today the West is breaking away from the traditional understanding of man, expanding it and going beyond it in its concepts. That is why the main manifestation of this process is the *gender revolution*, the essence of which lies in the denial of such traditional concepts as family, status of father and mother, and the binary gender system; promotion of same-sex marriage, etc. Thus, it is assumed that an individual is initially imperfect, and any of their elements, up to gender, can be "corrected". This approach is opposed by more conservative circles of the population from Non-Western countries (and from Western countries, too), where such interference with human nature is considered unacceptable or, at least, undesirable.

The current Fourth World War is a clash between the West and the Non-West with the corresponding opposition in values. While the West provides humanity with endless opportunities for human transformation, its enhancement and, eventually, change into something else, perhaps more powerful, the Non-West wants to preserve the human principle in each individual and improve the world within such a global limitation. This is equivalent to the confrontation of "inhuman, but great" vs "limited, but human". At the same time, the Western model assumes a "universal" subject – without pronounced parameters of gender, nationality, denomination, marital status, etc. In other words, a person becomes an abstract being to whom traditional biological and social oppositions such as man/woman, mother/father, Christian/Muslim/Buddhist/Jew, Italian/Chinese/Russian/Arab, etc. are no longer applicable. In the Non-Western model, the subject, on the contrary, receives

their "legitimate" individual characteristics, for example, a man, Russian, Orthodox, father of two children, etc. This is a fundamental difference that each person decides to the best of their understanding of the world and their preferences. The active minority in Western countries chooses the former; the majority in Non-Western countries chooses the latter.

The social confrontation between the Western and Non-Western models is equivalent to the dichotomy of Artificial vs Natural. However, in addition to social tensions, the Western model has other civilizational flaws. For example, from a philosophical point of view, the fundamental property of the world is its bipolarity and dialectic. It is the presence of two opposites that is the source of evolution and all progressive changes; eliminating the binary world automatically entails stagnation and regression. The rejection of gender binary jeopardizes the principle of naturalness that was present in all ancient Eastern and later Western philosophical teachings. The two fundamental principles of philosophy have traditionally been the *principle of unity* (being and non-being, nature and man) and the principle of naturalness (dualism, dialectic, polarity, structurality). Moreover, as L.A. Petrushenko rightly notes, "the history of the relationship of the principle of naturalness with the principle of unity ... is the prehistory of the relationship of the principle of development with the principle of substance" (Petrushenko, 2020, p. 68). Thus, transhumanism with its inherent rejection of gender binary means the denial of both the development of civilization itself and the source of its self-movement, because the world is self-moving and self-active due to its unity and dialectic (Petrushenko, 2020, p. 68).

Along with abandoning the natural binary in gender issues, the West ended up trapped in insurmountable contradictions in all spheres of life, when there began the complete denial of religion, history, morality, law, and science. For example, exuberant dancing in American churches and the benevolent attitude of the Roman Catholic Church toward same-sex marriage is tantamount to a complete denial of all religious dogmas. The unilateral struggle for the rights of the non-white population led to the denial of American history, which was expressed in the demolition of monuments of the Founding Fathers of the United States during the 2020 presidential election campaign, the creation of historical films with nonwhite actors as characters belonging to representatives of the "white nation", etc. The ban on discriminatory statements about transgender and bisexual leads to the ban on the activities of feminists who have traditionally defended the rights of women, which do not exist in the world of gender diversity; this, in turn, negates the traditional system of law; the 2022 seizure of Russia's accounts and foreign exchange reserves, accounts and property of Russia's citizens and companies abroad and the ban on Russian ships visiting international ports are equivalent to the elimination of the system of international law, the sacred right of private property, if not the Law at all. Large-scale dissemination of deliberately false information on foreign and domestic policy issues in the media means the collapse of the morality on which the Western megacivilization based its existence. By proclaiming gender diversity, the West provokes a global conflict with science, which still claims the opposite. By turning its back on the works of Russian writers and composers, the West cancels out its own cultural achievements, of which Russian culture is an integral part. Thus, Western civilization at this stage of development denies itself and its own cultural baggage.

These obvious social deviations of the West within itself make its development model extremely unattractive for the rest of the countries and peoples of the world; this fact once again emphasizes civilizational separation of the two worlds; the confrontation between the natural and man-made causes a split within the countries of the West – both in the USA and in Europe.

The emerging orientation of the West toward the construction of artificial worlds and artificial man will hereafter be called the *First civilizational failure* within the Western megacivilization.

The main mistake of the West

In 2007, Zbigniew Brzeziński published his program book, in which he analyzed mistakes of the American administration for 15 years after 1991, when the United States became the undisputed world hegemon (Brzeziński, 2007). During that period, America got its *first chance* to become a real world leader, but, according to Brzeziński, missed it. The fall of the USSR allowed the United States to pursue a linear foreign policy of pushing through its interests and decisions, regardless of the opinion of the international community. In fact, since 1991, diplomacy as a phenomenon of international relations has been eliminated, because the U.S. administration no longer showed readiness to *negotiate* and even *talk* to anyone at all. Such a reversal in politics led to a series of military clashes. The first of them was the Persian Gulf War for the liberation of Kuwait in 1990–1991; subsequently, this undertaking was continued in 1998, and then in 2003–2011 and in 2014. The next incident is connected with the U.S. peacekeeping operation in Somalia in 1992–1995, first in the form of Operation Revival of Hope, and then Operation Continuation of Hope. The third conflict took place during the war in Yugoslavia – first in the form of Operation Deliberate Force in 1995 during the bombing of Bosnian Serbs, and then Operation Allied Force or Noble Anvil during the bombing of Serbia in the Kosovo War. Another military incident is Operation Infinite Reach, during which the U.S. launched cruise missile strikes against Al-Qaeda bases in Afghanistan and Sudan in 1998. The fifth act is related to U.S. military measures in response to the terrorist attacks of September 11, 2001 in the form of Operation Enduring Freedom in Afghanistan in 2001–2014.

Such a purely strong-arm strategy and interference in the internal affairs of various states caused an increase in anti-American sentiment around the world, which undermined the authority of the United States and allowed Brzeziński to talk about the country's missed first chance to ensure its global leadership. However, in his opinion, America had a *second chance* since 2008 for the next 15 years, which should be implemented at all costs, because it will no longer have a *third chance* (Brzeziński, 2007, p. 215). And here the politician makes an unequivocal warning: "Nothing could be worse for America, and eventually the world, than if American policy were universally viewed as arrogantly imperial in a postimperial age, mired in a colonial relapse in a postcolonial time, selfishly indifferent in the face of unprecedented global interdependence, and culturally self-righteous in a religiously diverse world" (Brzeziński, 2007, p. 215).

Exactly 15 years have passed since the publication of Brzeziński's book, and time has shown that America missed its second chance. Over the years, the United States has launched another series of military conflicts. This is a five-day war in Georgia in 2008 between Georgia on the one hand and South Ossetia, Abkhazia and Russia on the other; the Georgian operation against South Ossetia was called "Clean Field" and was developed in advance by Georgia jointly with the United States, while the Georgian armed forces were trained in close cooperation with NATO. Another incident is the 2011 Libyan Civil War, also known as the First Civil War which was inspired and supported by the United States, including through the participation of a coalition of NATO member states. A similar situation took place in the preparation of the Civil War in Syria in 2011, in which the United States provided military assistance to anti-government forces. The year 2014 witnessed the first conflict between Russia and Ukraine, which was triggered by the desire of the Ukrainian leadership to join NATO and which ended with the accession of Crimea to the Russian Federation. In 2022, with the direct support of the U.S. administration, a new conflict arose between Russia and Ukraine in the form of the SMO. Thus, America spent the 2008–2022 period in its typical style of forcefully pushing through its interests in all parts of the world, contrary to the interests of other countries. Today, the United States is opposed by almost all countries that claim political sovereignty.

The above allows us to say that the main mistake of the West represented by its flagship – the United States – is a categorical unwillingness to take into account the interests of other countries and the specifics of their own political processes. Thus, America found itself in a state of war against everyone, which puts it in an extremely unfavorable position from a geopolitical point of view. The pronounced political egocentrism of the United States will hereafter be called the *Second civilizational failure* within the Western megacivilization.

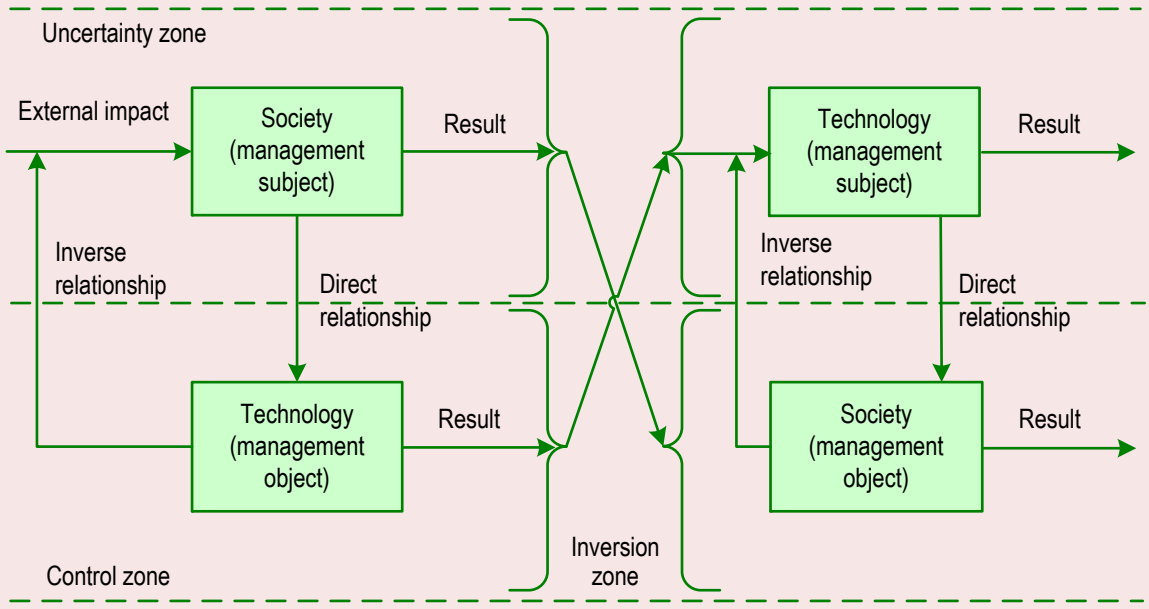
Phenomenon of complete cybernetic inversion

Above, we have considered two civilizational failures of Western civilization, which make it very vulnerable in the conditions of the hybrid war that has begun. However, for a better understanding, let us reveal their genesis, essence and occurrence mechanism.

Let us start with the First civilizational failure, for which two issues are relevant. First: Why was it Western civilization that turned out to be an advocate of Transhumanism and the Artificial World? Second: why has this trend not affected the Non-West to the same extent?

The answers to these questions are based on the fact of the technological leadership of the West. It was Western capitalism that gave rise to the phenomena of economic growth and permanent technological progress that had not previously existed in the history of mankind. It was the capitalism of the West that created all modern technologies and all the existing culture within which modern humanity lives. However, such a situation is fraught with a well-defined danger, which has long been studied in philosophy and cybernetics: humanity as a subject of creativity and management gave rise to technological progress as an object of creation and management; but humanity was unable to cope with the scale of the phenomenon, underwent a systemic inversion and became its hostage and toy (Stoler, 1974). The described situation assumes that the subject and the object of control in the cybernetic system change places, as well as direct communication and feedback (*Fig. 1*).

Figure 1. Complete technological inversion "Society – Technology"



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In the 20th century, this philosophical and managerial problem became the topic of futurological discussions about whether a computer and artificial intelligence can get out of man's control. The current stage of the evolution of mankind convincingly shows that technology has really turned into a self-sufficient phenomenon that forces man and society to diligently adapt to its logic. The possibilities of technology and the ultimate rationalization of life gave rise to the ideology of Transhumanism and the need for a "human derivative" (Dugin, 2010, p. 11). We shall call the emergence of such a social phenomenon a *complete cybernetic inversion* (CCI), since there is a complete rearrangement of the places of two subsystems – the controlled and the controlling.

It is not surprising that the West, having let the genie of technological progress out of the bottle, was the first to suffer from it. One has always been aware of the seriousness of the civilizational challenge posed by technological progress. For example, back in 1934, Konstantin Tsiolkovsky made a shrewd warning: "Slow progress with a possible limitation of suffering and violence is better than fast-paced progress accompanied by great agony" (Tsiolkovsky, 2017, p. 378). However, technological progress, among other things, entails active institutional reforms, in relation to which English writer Robert Louis Stevenson, back in 1896 when dwelling upon the depopulation of the Polynesian natives said the following: "...the problem seems to me to stand thus: – Where there have been fewest changes, important or unimportant, salutary or hurtful, there the race survives. Where there have been most, important or unimportant, salutary or hurtful, there it perishes" (Stevenson, 2005, p. 45). The modern explanation of this effect is that radical institutional reforms and rapid technological progress lead to the destruction of human capital in all its manifestations – devaluation of education, professional skills and practical experience, reduced motivation, depressive states, stress, general health deterioration, etc. (Balatsky, 2021). This circumstance allowed V.M. Polterovich to view institutional reforms as being similar to technological changes, geographical discoveries, wars and natural disasters (Polterovich, 2014, p. 169). Back in 1943, Joseph Schumpeter, while being an advocate of economic progress, introduced the concept of "creative destruction" that is generated by any innovation – technological and organizational. "Creative destruction", in his opinion, "is the very essence of capitalism ..., it illustrates ... the process of economic mutation" and "continuously revolutionizes the economic structure from within, destroying the old structure and creating a new one" (Schumpeter, 2008, p. 461).

The only way to mitigate these painful effects is to limit the pace of technological and institutional progress. However, in the context of global competition, it is not possible: lagging behind geopolitical rivals in the economic aspect may result in the death of the country and people concerned. The lack of alternative to this choice ultimately gives rise to the phenomenon of CCI.

Currently, the CCI phenomenon is especially dramatic due to the stage at which humanity is now. For example, according to K. Schwab, today we are on the eve of the so-called Fourth Industrial Revolution (IR4) (Schwab, 2018, p. 48), while other researchers believe that it has already begun in 2000 (Xu et al., 2018). According to modern ideas, the First Industrial Revolution (IR1) was aimed at replacing the most difficult and primitive types of physical labor (for example, hammer work, manual handling of heavy things, etc.) and led to the *primary displacement of physical labor*, while the Second Industrial Revolution (IR2) gave rise to a *mass reduction in physical labor*, leaving only the lightest manual operations that require attention and professional skill (watch assembly, assembly line maintenance, etc.). The Third Industrial Revolution (IR3) launched the *primary displacement of mental labor* (computers took over simple calculations, collection, sorting, processing and storage of data), while IR4 will result in its *mass displacement* (due to the creation of complex digital systems and algorithms) (Balatsky, 2019). Consequently, in the 21st century, neither the muscular strength nor the human mind will be valuable, because they

are to be replaced by technical devices. Moreover, labor itself is losing its former significance in all its manifestations. At one time, F. Engels stated: "Labor is the source of all wealth, the political economists assert. And it really is the source – next to nature, which supplies it with the material that it converts into wealth. But it is even infinitely more than this. It is the prime basic condition for all human existence, and this to such an extent that, in a sense, we have to say that labor created man himself" (Engels, 2017, p. 558). However, now any work becomes routine. This is the *main civilizational challenge of our time*, the challenge of the technogenic civilization that the West has built.

The logical consequence of this challenge is depreciation of an individual and their natural properties. Suffice it to recall how the emergence and development of photography gradually almost completely eliminated painting as an area of art; computer technologies and training programs led to the depreciation of chess competitions; chemicals (doping) became the main factor in sports achievements, and Internet technology and electronic archives substituted traditional libraries and book depositories, as well as the work of their staff. And while IR1 and IR2 left people with a vast territory to which they could retreat, the sphere of highly skilled labor, at the mature stage of IR4, the displaced knowledge workers (university professors, lawyers, doctors, accountants, financiers, economists, managers, etc.) have nowhere to migrate. Technologies of artificial insemination, surrogate motherhood, cloning, and genome correction open up new opportunities for hybrid human evolution, elimination of family problems, relations between man and woman, etc.

Thus, the logic of technological development led to the devaluation of human and their life, giving rise to the phenomenon of CCI and the First civilizational failure. It is not surprising that the Western World, having become the architect of an Artificial civilization, was the first to distance itself from its natural origin; the more conservative communities of the Non-West, although affected by the influence of progress, are more actively resisting the danger of the complete annihilation of Natural Man.

Phenomenon of partial cybernetic inversion

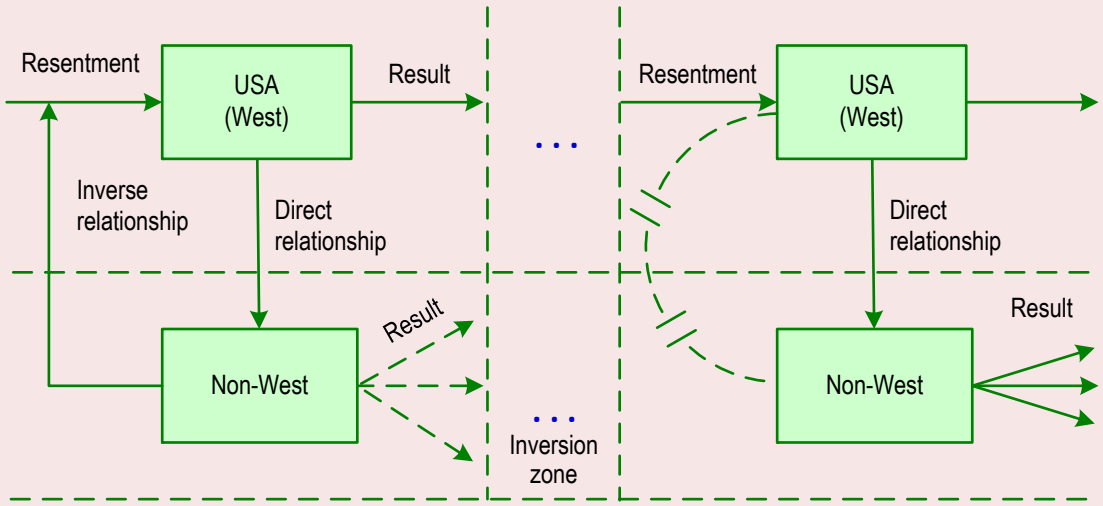
Now let us consider the genesis of the Second civilizational failure within Western megacivilization, which generates the main mistake of the West and consists in its categorical unwillingness to take into account the interests of other countries and its unpreparedness to enter into direct conflict with them. This phenomenon also has a cybernetic interpretation.

Proceeding from the fact that the West, represented by the United States, still acts as control center of the world economic system, its unwillingness to take into account the interests of the participants in this system means nothing more than a break in feedback in the corresponding cybernetic system. The United States deliberately ignores information about the life and activities of other states and peoples and thereby falls into an *informational geopolitical vacuum*. In fact, they cease to understand and anticipate the behavior of participants of the GGPS and thereby become exposed to all those risks that they themselves generate with their rash actions. Quite obviously, in such a situation, the West (USA) first becomes ineffective in managing the Non-West and then ceases to fulfill the mission of coordinator of world events altogether. Ultimately, it will face an unforeseen and extremely undesirable situation, which it will no longer be able to eliminate. It is possible that such undesirable events for the United States will be repeated until the country completely loses world hegemony. This will be followed by a full reformatting of the GGPS with the accompanying change of the WCAC.

As we have already mentioned, the Second civilizational failure is equivalent to the break of feedback in the corresponding cybernetic system, hence its partial destruction, and therefore this phenomenon itself will be called *partial cybernetic inversion* (PCI), when the two subsystems are in relatively autonomous mode (*Fig. 2*).

The reason for the emergence of the PCI is the monopoly position of the United States and its

Figure 2. Partial cybernetic inversion "West – Non-West"



Source: own compilation.

traditional and long-standing power, which allowed it to ignore their competitors. The military, intellectual and financial primacy of the U.S. for about 35–40 years was so overwhelming that it lulled the vigilance of the American administration. This led to a dramatic decline in the capacity of the country's top leadership, including its presidents.

In relation to Russia, the PCI is also manifested in the U.S. political circles disregarding the accumulated knowledge and historical experience of interaction between the West and Russia. In this field, the United States has made several mistakes that are worth mentioning.

First, when instigating the conflict in Ukraine, the U.S. ignored the fact that throughout Russia's history it was not Russia that acted as an aggressor toward the West, but vice versa. This is especially strange when we consider that British historian A. Toynbee wrote about it in detail 80 years ago. He noted: "The West, they will say, is the arch-aggressor of the modern era, and everyone will have their own example of Western aggression. The Russians will recall how their lands were occupied by Western armies in 1941, 1915, 1812, 1709 and 1610" (Toynbee, 2011, p. 252). Moreover, he recalls that up to the 13th century, relations between Russia and the West were very successful. However, during the Mongol invasion Russia weakened and the Western neighbors took advantage of it by annexing Western Russian lands in Belarus and Ukraine; Russia managed to return those lands only in 1945 (Toynbee, 2011, p. 254).

Second, Russia has always provided an effective response to all military and technological challenges of the West. For example, Toynbee notes that the acts of aggression against Russia in 1610 (from Poland), 1709 (Sweden), 1812 (France), 1915 and 1941 (Germany) were successfully repelled; an adequate response was also given to the technological challenge of 1945 (the U.S. atomic bombing of Japan) in 1949. Despite these facts, the United States orchestrated a clash between Russia and Ukraine in 2014, which ended with the accession of Crimea to the Russian Federation and marked a new round of the arms race. The provocation on the part of the West resulted in Russia's developing the Kinzhal hypersonic aviation missile system, which was adopted in 2017, and the Poseidon unmanned underwater vehicle equipped with a nuclear power plant, commissioned in 2018. After these events, the tenseness of the situation in the world has reached its peak.

Third, overly persistent attempts by the United States to introduce a democratic political regime in Russia after 1991 led to the exact opposite result – an unprecedented strengthening of the central government in the country during Vladimir Putin's presidential terms. And this is after Toynbee shrewdly noted that since the 14th century, "autocracy and centralism have been the dominant of all ruling regimes in Russia" (Toynbee, 2011, p. 254). Moreover, Toynbee provided an absolutely accurate assessment of the reasons for this state of affairs: "Probably, this Russian–Moscow tradition was as unpleasant to the Russians themselves as to their neighbors; however, unfortunately, the Russians learned to tolerate it, partly out of habit, but also because, without any doubt, they considered it less evil, rather than the prospect of being conquered by aggressive neighbors" (Toynbee, 2011, p. 254).

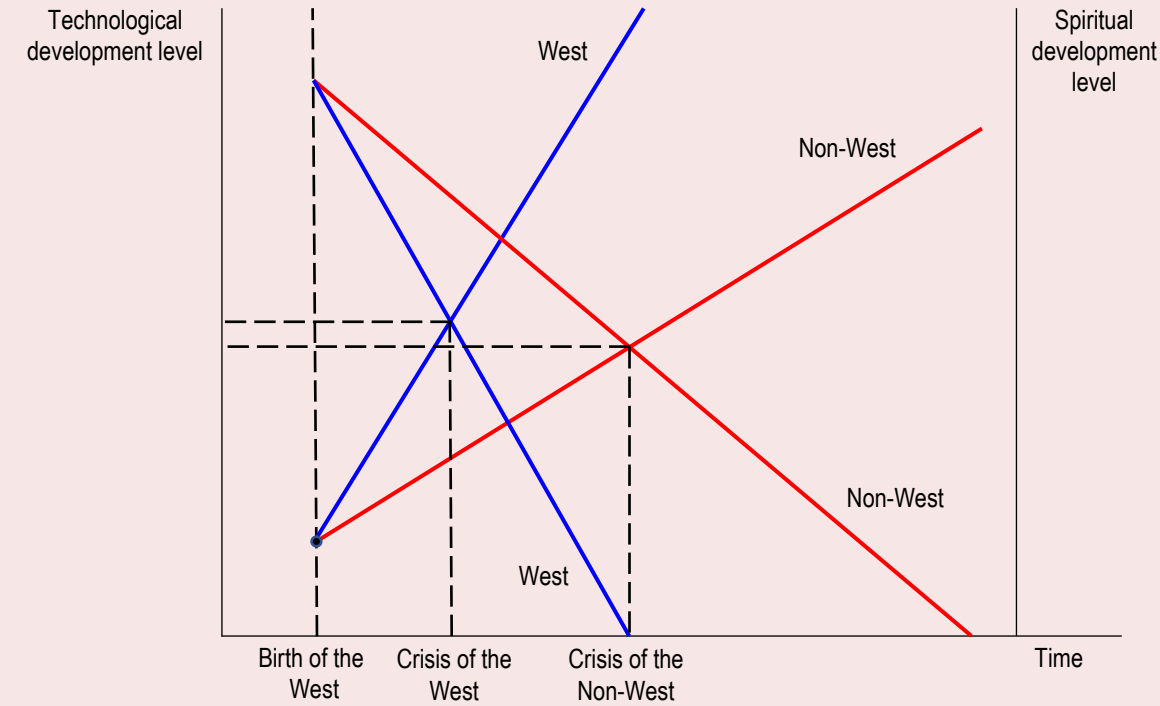
Fourth, the United States got involved in an active confrontation with Russia during the collapse of its own liberal democratic ideology. Since 1945, the clash of the West with the rest of the world has shifted from the technological to the spiritual sphere (Toynbee, 2011, p. 261). The victory of the West over Soviet communism in 1991 exposed a similar confrontation with communist China and the Guardians of the Islamic Revolution of Iran. Apparently, the sympathies of the majority of the world's population, including in Western countries, lean toward the spiritual attitudes of the Non-West.

Thus, the illusion of unlimited power and permissiveness led the United States to the paralysis of its analytical segment of the management system and actions resulting either in the defeat of the West or the death of the whole world, including the West itself.

The lag paradox

To understand the general balance of forces in the West/Non-West hybrid war, it is necessary to consider its two dimensions – technological and spiritual. To do this, let us look at an extremely simplified, but very representative scheme in *Figure 3*.

Figure 3. The lag paradox



Source: own compilation.

Both megacivilizations, the West and the Non-West, have their own level of technological and spiritual development, which is reflected respectively on the left and right axes of Figure 3. For simplicity, let us assume that at the beginning of time, the West and the East were at about the same level of technological development and at the same spiritual level. The main characteristic and advantage of the Western world is its accelerated technological development compared to the rest of the world (in Figure 3 this is reflected by two continuous increasing straight lines, where the line for the Western world has a greater angle of inclination). However, at the same time, the West has degraded spiritually much faster (in Figure 3, this is reflected by two dotted descending lines, where the line for the Western world also has a greater slope relative to the timeline). We see that the intersection point of the two curves for the West corresponds to an earlier time period compared to the intersection point of the curves for the Non-West. The intersection points themselves can be interpreted as a crisis of Western and Non-Western civilizations, respectively, when the material principle begins to prevail over the spiritual one[1].

According to this representation of civilizational progress it turns out that the lagging megacivilization of the Non-West is the one that arrives to a total spiritual crisis later than its competitor, the West[2]. Thus, we observe a kind of lag paradox, when a more advanced civilization finds itself in a state of spiritual crisis and disintegration earlier, while the lagging world gains a temporary advantage.

The considered paradox is based on the idea that modern world has not developed spiritually over time, but has degraded. René Guénon, a French philosopher, author of works on metaphysics, traditionalism and symbolism, is considered an outstanding advocate of this position. Such statements about the dynamics of the spiritual essence of humanity can be confirmed only by indirect data, but the whole course of world history and especially the last 100 years clearly show the validity of the Guénon doctrine, which allows it to be used as a working hypothesis[3].

Strictly speaking, the lag paradox is a kind of metaphysical model of human civilization that requires at least a brief explanation. For example, the very existence of two lines of development – spiritual and technological (material) – is associated with an opposition that Aldous Huxley characterizes as "contemplation/action" (Huxley, 2018, p. 465); in Guénon's terminology, this opposition is "speculation/action" (Guénon, 2021, p. 111). Depending on the prevalence of one or another pole, either a predominantly active human nature or a predominantly contemplative personality is formed. All the most ancient spiritual traditions postulate that the goal of human life is contemplation (i.e., direct and intuitive comprehension of God, the Absolute, Brahman, etc.), and the means to achieve the goal is action (transformation of the world and

[1] Figure 3 shows the process of overlapping spiritual and technological trends in the development of the two megacivilizations. However, the units of measurement of the two processes do not coincide, and therefore the intersection of the corresponding curves can only have a qualitative interpretation, illustrating only the very fact of the dominance of one or another side of social dynamics. Nevertheless, this is quite enough for the problem under consideration.

[2] It is easy to see that, depending on the angle of inclination of the corresponding curves, the Non-West may not only come to a crisis later, as compared to the West, but also at a higher level of spiritual and material development, which in itself means a less pronounced crisis. More generally, we can say that the preservation of humanity requires a radical reversal of the curve of spiritual development – from decreasing to increasing, preferably in both megacivilizations. To the Non-West, this illusory possibility is at least theoretically preserved; then the West clearly does not have time to revise its basic spiritual attitudes.

[3] An example of digitizing moral and spiritual degradation can be found in an approach of Edward Glaeser to identify the seven deadly sins of humanity: greed, envy, laziness, gluttony, lust, pride and anger. For example, the increase in the phenomenon of gluttony can be assessed through the proportion of obese people or through the proportion of people who systematically practice religious fasting. The growth of pride and narcissism can be assessed through sociological measurements of people's self-esteem; an alternative option is to measure the frequency of the use of the pronoun "I" in various cases in texts of popular songs over different periods (Palacios-Huerta I. (Ed.). (2016). *Cherez 100 let: vedushchie ekonomisty predskazyvayut budushchee* [In 100 Years: Leading Economists Predict the Future]. Moscow: Publishing House of the Gaidar Institute. P. 132). Thus, even the most subtle matters can be quite adequately digitized through indirect measurements and the use of proxy variables.

oneself); in Western teachings, the opposite is true: the goal is action, and the means is contemplation (in the lowest form – discursive thinking) (Huxley, 2018, p. 465). The doctrine of contemplation generates *spiritual (abstract) values of a holistic type* (truth, creativity, knowledge, beauty, love, etc.), and the doctrine of action generates *selfish material (concrete) interests* (household comfort, profit margin, retention of power, etc.). The above makes the diagram in Figure 3 more understandable. Accordingly, the moment when technological progress rather than spiritual values becomes the highest meaning of the development of civilization, indicates the onset of spiritual crisis.

The First and Second civilizational failures in the functioning of Western megacivilization are manifestations and indirect evidence of the lag paradox. Indeed, the technocracy of the West already denies the culture and history of mankind, considering them to be obsolete phenomena, and thereby removes the spiritual basis of man (Dugin, 2010, p. 12). We agree with I.R. Shafarevich who notes that the principle of the technological civilization of the West "consists in the gradual displacement of natural elements by technology" (Shafarevich, 2003, p. 366). In a more radical formulation, "the goal of Western progress is to destroy nature and replace it with artificial nature-technology" (Shafarevich, 2003, p. 366). If we follow Oswald Spengler's logic, then "civilization is the very extreme and artificial states that can be realized by the highest kind of people" (Spengler, 2009, p. 43); the most important sign of the decline of Western civilization is the extinction of spiritual creativity. The fact that Raphael and Mozart, Cervantes and Goethe, Shakespeare and Dickens have already remained in the distant past of the West confirms this thesis. However, Shafarevich develops it by talking about two stages in the development of the Western world – the early, associated with the creation of science, and the late, within which technology is created. And while science discovers the laws of nature, and technology uses the laws of nature that are already known, the early stage of the existence of the West is based on spiritual comprehension of the world, and the late one is based on practical applications of spiritual achievements (Shafarevich, 2003, p. 421). Of course, today there are already many additional signs of the spiritual degradation of the West, and there is no need for us to dwell upon them in detail.

The development of events around the SMO during 2022 also provides additional arguments in favor of a more noticeable moral decay of the West, which has gone too far in its political intrigues and does not stop even before instigating the leadership of Ukraine to bomb nuclear power plants and helping it to create a "dirty bomb" with radioactive stuffing[4].

The lag paradox is important for understanding the emerging situation on the battlefield of the current hybrid war. In this regard, it is appropriate to recall Toynbee's idea that Western and Non-Western civilizations use both material and spiritual tools. The latter is the worldview of the Non-West, which can outweigh the material tools of the West (Toynbee, 2011, p. 258). For example, since 1917, the idea of communism has been the greatest danger to the West.

We should add the fact that a person's spirituality is naturally manifested in their material *self-restraint* and increased demands on themselves, whereas the philosophy of action, on the contrary, provokes increased claims to the outside world in the individual's own favor, and also to material *expansion*. In practice, this means that a more spiritual individual is prone to professional perfectionism, is capable of greater concentration and being more efficient in work, producing higher-quality artifacts; whereas a purely material orientation of an individual often results in the production of flawed items, scamped work, and idleness. It is hardly necessary to prove that people's spiritual qualities themselves are already a huge advantage of civilization when it collides with a geopolitical opponent. It is the great spirituality of the people, ultimately, that manifests itself at the

[4] See, for example: https://aif.ru/politics/v_mid_rf_dopustili_sodeystvie_zapada_v_sozdanii_ukrainoy_gryaznoy_bomby

birth of passionarity, which will be discussed in more detail below.

Another important feature that shows spiritual degradation of society is the endless bustle of individuals, accompanied by "metaphysical anxiety" (Guénon, 2020, p. 21), which underlies most modern diseases – from cancer to mental disorders and dementia. In this regard, we can say that the West is a society of sick people. This circumstance cannot but provoke protest, a typical example of which is found in the viewpoint of the British intelligence officer G. Blake, who defected to the USSR: "...I've always hated competition between people. To get pleasure from it seems to me something humiliating and unworthy. It is necessary to do something well for oneself, and not in order to surpass or outshine another... For the same reasons I have never been attracted to business. I hate the idea of taking part in a rat race, where you either succeed or you will be thrown into a landfill like garbage, where a person is so caught up in making money that there is no time for anything else, even for the pleasure of spending this money" (Blake, 2006, p. 136). Then Blake delivers the final verdict regarding the individualism of the West: "When you compare yourself to others, you always become bitter or narcissistic, because there is someone better or someone worse nearby" (Blake, 2006, p. 137). In other words, a lifestyle with more spirituality will always be the center of attraction for huge masses of people.

At the end of this section, we note that the lag paradox discussed above is an extremely simplified model of the ongoing civilizational shifts. In reality, the ascending line of technological progress and the descending line of the level of people's spiritual development can break in any variety of ways – not only by stabilizing the situation, but by temporarily reversing the trend. However, at large time intervals, the directions of general trends are preserved.

Destruction of the national model of Russia's social evolution; the anatomy of Neocolonialism

Russia has approached the open phase of the Fourth Hybrid War with the West with a colossal volume of various problems. In this regard, one should find out whether the Russian Federation is capable of acting as a full-fledged participant in the war and whether it can count on winning. Thus, let us consider four global social problems of Russia, which have been finally exposed by 2022.

Problem number one: political autism of the Russian population. After 1991, the country faced an extremely negative effect of initial conditions dating back to the Soviet times. Thus, in the USSR, the ideological and political education of young people in schools and universities was based on dogmas and was conducted rather primitively; moreover, political life in the country itself was so inert and artificial that resulted in the fact that school and university graduates almost completely rejected politics as an area of their interest. The aversion of young and middle-aged people to politics lay at the heart of the indifferent attitude of the Soviet population toward the collapse of the USSR. People either did not understand what was happening, or even supported the fall of the communist regime, not realizing that the entire statehood in general was collapsing with it. After 1991, the political consciousness of all the former peoples of the USSR was generally paralyzed by the need to survive in new conditions. So far, there have been no radical changes; Russians do not have a sense of belonging to one people; there is no understanding that the country is in danger again; petty everyday problems still outweigh people's political consciousness.

Problem number two: total de-professionalization and de-qualification of the country's cadres. After 1991 Russia experienced an unprecedented degradation of the national economy. All high-tech industries were closed or reduced to the limit. This resulted in a lack of demand for science, developments and, ultimately, high-quality education. Professional knowledge, skills and experience gradually "evaporated" due to the absence of demand. In fact, the preservation of professionalism and skill in any field has become a marginal strategy of the few, instead of being a nationwide idea, which it used to be in the USSR. Today in Russia, almost all industries are staffed

with lay people who do not have specialized education and work experience and therefore are forced to master various skills on their own, which in most cases leads to outdated and unproductive amateur activity.

Problem number three: absence of the adequate political elite. After 1991, power, including top positions in government and big business, was taken by those who completely denied the main principle of the political elite – Service to the Fatherland. Even the very concept of Fatherland for most of these people has lost its meaning, because they moved their money, real estate and family members abroad. In Russia, representatives of the authorities and large companies have no values except for the opportunity to amass wealth and subsequently export it to more prosperous countries. This syndrome of rats fleeing a sinking ship has been manifested in all strata of the Russian population.

Problem number four: the absence of a state ideology in Russia. Paragraph 1 of Article 13 of the Constitution of the Russian Federation states: "Ideological diversity shall be recognized in the Russian Federation"[5]. The recognition of ideological diversity led to the absence of ideology in general; therefore the population found itself without an elementary spiritual basis, without an understanding of prospects and a unifying principle. In the conditions of the SMO, this problem revealed itself to the fullest extent. Mass evasion of mobilization and the flight of conscripts from the country are particular signs of the ideological vacuum in which the Russian population exists nowadays.

These four problems are enough to destroy the national model of Russia's development. In this regard, let us recall Lee Kuan Yew's formula for Singapore's development: "The country's success = Brilliant management + Total personnel perfectionism" (Lee, 2018). These conditions are equivalent to the presence of high professionalism in personnel and the most responsible political elite, which Russia has lacked for the last 31 years. Moreover, given the absence of ideology and a sense of unity among the people, we can say that as it launched the SMO, it had no basis for victory. However, in this regard, reasonable questions arise: how this state of affairs has developed and whether it can be corrected.

As a rule, such obvious institutional failures rarely occur on their own; they are man-made. For Russia, they are a natural consequence of neocolonialism, the system of external governance established after 1991 (Balatsky, 2022a). The actions of the network of Western emissaries and the puppet government complied with the following scenario.

The current RF Constitution was adopted in 1993 and the aforementioned Paragraph 1 of Article 13 was specially introduced into it. After the collapse of communism, Russia was no longer given a chance to preserve the old ideology or build a new one. Moreover, at that moment there were no objective conditions for the development of a new ideological course; in the future, it remained only to preserve this paragraph in the Constitution, thereby making any attempts to develop a state ideology illegal. At the same time, the principle formulated by Zygmunt Bauman (Bauman, 2008, p. 40) was brought into action. In the modern interpretation, Bauman's principle looks like this: opportunities divide people, while the lack of opportunities unites them (Balatsky, 2011, p. 136). The entire era of Russia's existence since 1991, especially since the beginning of the 21st century, was characterized by a general contradiction: Russian citizens were gradually living better and better, while the country was sliding into an abyss – to the final loss of technological sovereignty (Balatsky, 2022a, p. 56). This contradiction was also man-made: oil and gas rents were "smeared" across the entire population of the country, providing people with a very decent standard of living; thus, there emerged a tendency toward disunity of the population. Russian citizens purchased apartments and houses, went on trips and vacations abroad, bought modern imported motor vehicles, while domestic production was gradually deteriorating, causing the loss of

[5] See: http://duma.gov.ru/legislative/documents/constitution/

technological sovereignty. In the conditions of the SMO, the problems of disunity of the people and the absence of strategically significant industries have been completely exposed. Today, the gigantic Russian political opposition, which has moved to other countries and is conducting anti-government propaganda from there, as well as the considerable amount of the population embittered by the deterioration of life after the start of the SMO, is a typical example of the man-made implementation of the Bauman principle in the absence of state ideology.

The disunity of the people was reinforced by the disavowal of the country's history and the aberration of the Russian language. For example, already in the late USSR, Joseph Stalin, Nikita Khrushchev and partly Vladimir Lenin were partially demonized, and after 1991 they were subjected to full-scale falsification. As a result, almost the entire Soviet period was devoted to a kind of historical anathema, which undermined the connection of the people with their own history. Currently, the debunking of the positive deeds of earlier historical figures, including Peter the Great, is in full swing. Thus, the process of denigrating the history of the Russian state gradually goes deep into the centuries, so that the people are deprived of their roots and the subject of historical pride for their country. Not only the media, but also scientific conferences, textbooks and monographs are filled with new false interpretations of historical facts. In parallel, the unified state exam campaign and the reform of the Russian language, aimed at introducing formal rules that have never existed before, have led to the fact that today almost the whole country speaks incorrectly, making unthinkable accents in words that previously did not cause any discrepancies. The new rules are imposed on school students without any alternative and are the basis for passing the exam. Even the voice robot in Yandex navigator pronounces certain Russian words with incorrect stress. Finally, the West, which "took offence" at Russia because of the SMO in Ukraine, stooped so low as to reject even the great literary and musical works of representatives of Russian culture.

These measures to undermine the integrity of the Russian people were accompanied by two more "special operations": undermining the professionalism of the population and alienating the political elite from its country of origin. To ensure the success of the former, not only the knowledge-intensive economic sector was destroyed, but also a *mechanism of negative selection* was set up, when not the best but the worst representatives of the people were appointed to all leadership positions in politics and economics. This ensured that no real political and economic problems of the country would be solved; at the same time, such a situation suppressed the natural desire of people for professional excellence. Moreover, we should note that the mechanism of negative selection can only be *artificial*, because in natural conditions, the very presence of large-scale problems leads to the fact that the top government posts bocome occupied by competent people. In Russia, this did not happen, which once again testifies that social degradation processes are instigated from the outside. And, finally, the logical conclusion of the neocolonial policy is the alienation of political and economic elites from their country of origin. This was achieved by Russia's international openness, when its citizens could freely move their capital abroad; the instability of the Russian regime against the background of the reliability of Western countries predetermined the unambiguous choice made by the elites. The currently unfolding campaign to "punish" (arrest of accounts, seizure of real estate, refusal of visas, etc.) representatives of Russian elites for the actions of the Russian leadership that are undesirable for the West once again confirms the man-made nature of the policy pursued against Russia in the previous period.

We should note that the degradation of the population and elites in Russia has by no means reached its limit; rather, it has further impressive prospects. We find it appropriate to recall the results of Universe 25, an experiment conducted by John Calhoun in 1968–1972 on the example of a mouse population (Calhoun, 1973): the creation of an artificial Utopia for animals, in which food, territory

and building material for nesting were unlimited, led to the complete depopulation of the group of mice selected for the experiment. The result of this work was "death squared": extinction of a population occurs in two steps – first the rupture of *social ties* between individuals, and then their social autism and indifference due to the loss of the *meaning* of life (Calhoun, 1973). It is this algorithm that is being implemented today by the puppet regimes of the West in relation to countries and peoples subject to weakening and destruction.

Currently, in Russia, the SMO contributes to overcoming all these syndromes, but the question is whether a radical change in the situation is possible in this direction in the conditions of the active phase of the hybrid war with the West.

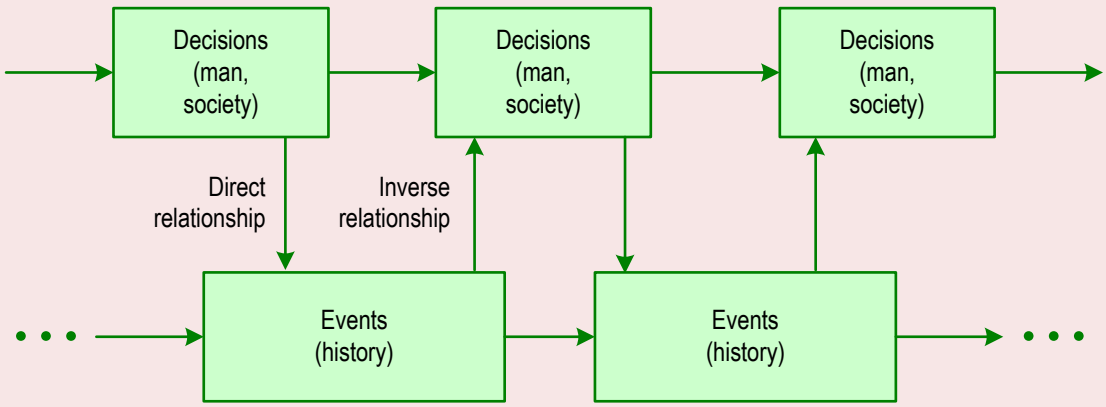
Cognitive cycle "Decisions – Events"

When studying historical dynamics, one should take into account the key mechanisms of transformation of social systems; let us consider one of such mechanisms in this section.

In modern neuroscience, the *principle of neuroplasticity of the brain*, introduced into science by Jerzy Konorski, is well known and consists in the ability of the brain to change under the influence of human experience, including for example, transferring the functions for which the damaged areas of the brain were responsible to other parts of the brain (Goleman, 2005). At the societal level, this has its equivalent in the *principle of cultural plasticity of civilization*, which assumes the ability of the social system to adjust the decisions made by its leaders depending on the circumstances.

The principle of cultural plasticity of society is responsible for the evolution of peoples and countries. For example, in the absence of this principle it would be impossible to explain how the German culture of the 20th century could give rise to fascism and Nazism with all the ensuing consequences. It is equally problematic to explain such a phenomenon as the transformation of Singapore from a littered small territory into the most advanced dwarf state in just half a century. The principle of cultural plasticity is based on the *cognitive cycle "Decisions – Events"*, which consists in the fact that society (an individual) produces certain decisions that generate certain new events that are taken into account in the next round of decision-making; and so on indefinitely (*Fig. 4*). The conjugacy of the cognitive process of people's comprehension of reality and their actions aimed to change this reality forms a "laced" scheme of history described by George Soros (Soros, 1996). This cycle demonstrates the inextricable connection between mental processes and the material environment.

Figure 4. Cognitive cycle "Decisions – Events"



Source: own compilation.

The significance of the cognitive cycle "Decisions – Events" is that it removes the predetermination of any outcome in the geopolitical confrontation of different forces. According to this principle, not only people *produce* events, but events also *shape* people. This question is closely related to the well-known problem of the role of personality in history. However, G.V. Plekhanov, who comprehensively examined this question, only outlined the answer, pointing out that certain historical conditions are required for the realization of an individual's potential (Plekhanov, 2013). Such an answer requires a *static* cross-section of the situation under consideration: the conditions either exist or do not. At the same time, the cognitive cycle "Decisions – Events" gives us a more complete *dynamic* picture and suggests that even in the absence of initial conditions for realizing the potential of a particular outstanding personality, they can eventually be created. Moreover, a series of events can form the desired conditions, which themselves will generate and demand the personality required to implement certain decisions. The most impressive illustration of how this scheme works can be the fact of the repeatability of scientific discoveries and developments: if there is a request for a corresponding discovery (development) and there are conditions for performing the necessary procedures, then there emerges not one person, but many people who are able to satisfy the need.

The above clarification is important for understanding the course and consequences of the ongoing SMO and the entire global hybrid war. During the eight months of hostilities in Ukraine, one could observe the extreme indecision and inconsistency of the Russian leadership in conducting them. The policy of these months was based on the "One step forward – two steps back" principle. However, the very course of the operation and its results at different stages gradually led to a change in the nature of management decisions on the part of the Russian authorities. Currently, there is a great consistency in the actions of the RF Armed Forces. However, the main conclusion from what has been said is that an initially generated event can lead to completely unpredictable consequences. For example, if it is carried out for a sufficiently long time, it can bring new political elite to power, generate a new ideology and qualitatively different management decisions.

Structural model of an evolutionary leap

The balance of forces in the GGPS alone does not make it possible to foresee any events, and even more so the outcome of the resulting clash of megacivilizations. The result of such conflicts largely depends on the range of subjective factors that either allow or do not allow the objective potential of civilization to be implemented. To determine this group of factors, L.N. Gumilev introduced a very successful concept, passionarity of an ethnic group, which means the amount of vital energy available in the ethnic system; in turn, the *passionarity* of the ethnos is manifested in the work it performs that takes the form of historical events (Gumilev, 2016, p. 283). Using Arthur Schopenhauer's terminology, we can say that the historical work of an ethnos (civilization) is crystallized in the totality of its *deeds* (geographical discoveries, wars of conquest and defense, acts of self-sacrifice, etc.), guided by great hearts, and *creations* (sculptures and paintings, musical works of composers, books of philosophers and writers, discoveries of scientists, etc.), requiring a great head (Schopenhauer, 2011, p. 86). This makes it possible to understand the magnitude of the ethnic group's *passionarity tension*, i.e. its specific passionarity (Gumilev, 2016, p. 283).

We agree with Gumilev that passionarity is based on the concept of an *ethnic field*, i.e. certain energy vibrations that permeate all representatives of a particular ethnic group (Gumilev, 2016, p. 317). However, he saw the source of explosions (leaps) of the people's passionarity in planetary-cosmic, purely natural processes: solar radiation, tectonic movements of the Earth's crust, seismological activity, electromagnetic storms, etc. Such an idea is deeply erroneous and can serve as an example of primitive reductionism, when social and spiritual phenomena are reduced to physical and chemical reactions.

A. Toynbee explained the evolutionary turns of civilizations much more subtly and insightfully, introducing the "Challenge – Response" model into consideration, rightly believing that any significant historical phenomenon is a reaction to an existential challenge from the outside world (Toynbee, 2011). Indeed, only extraordinary events stimulate the unification of large groups of people and cause their concerted actions. In this regard L. Gumilev was in solidarity with A. Toynbee: "A genuine connection [between peoples and cultures] is a spiritual connection, not a generic one, not a natural one, not a social one, and it is achieved only in the face of "absurd situations" and "last questions" when people communicate on an existential level" (Gumilev, 2016, pp. 373–374). However, the response of an ethnic group, even ensuring its simple self-preservation, does not in itself lead to social evolution and the progress of civilization. Nassim Taleb, who clarified the mechanism of evolutionary turn, drew attention to this circumstance. According to his understanding, social systems have the ability to improve themselves (increase their functionality relative to the initial state) under the influence of adverse circumstances. This property is based on the mechanism of *hypercompensation (hyperreaction)*, when the system more than compensates for the damage it suffered due to the initial stress (Taleb, 2014, pp. 73–75). The presence of such a property allows social systems to evolve by releasing their hidden reserves. Somewhat later, the mechanism of hypercompensation, including the main phases of its course, was revealed in literature (Balatsky, 2015, p. 119); let us now clarify these earlier results.

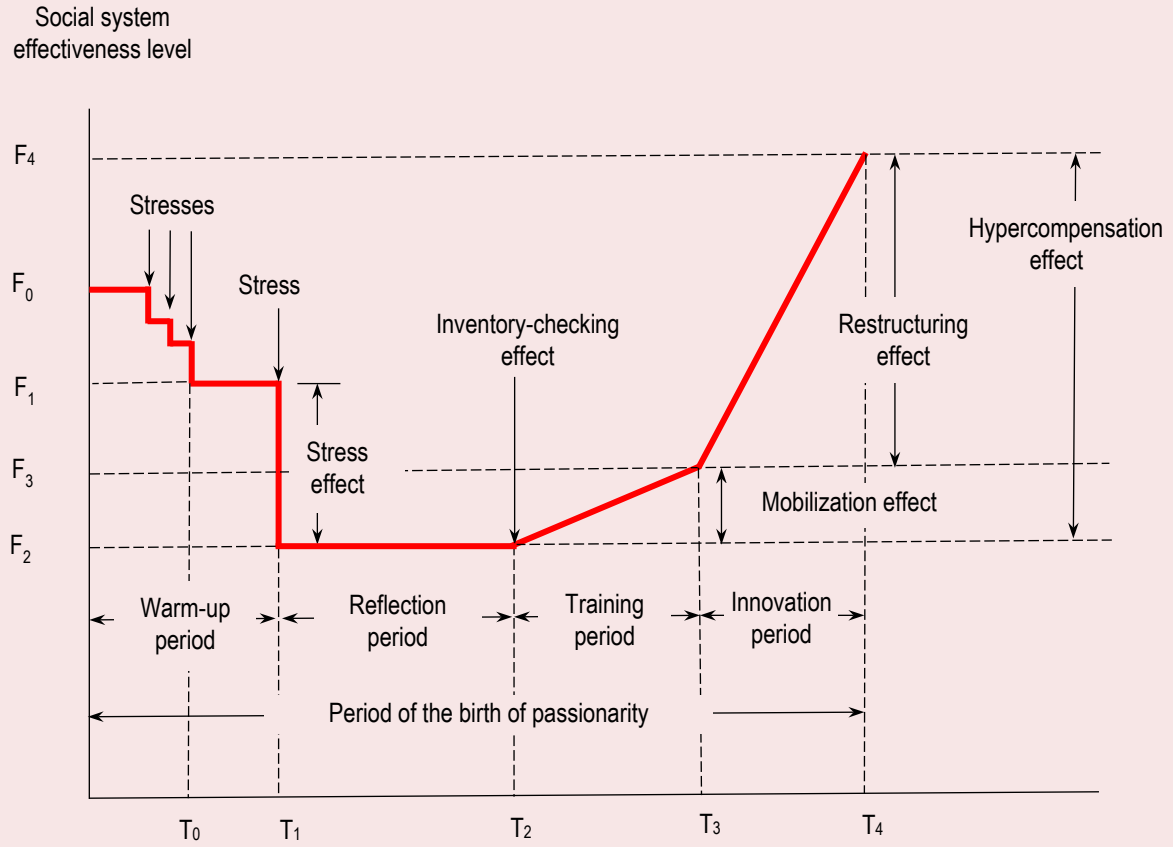
The above helps to synthesize all available knowledge to reveal the mechanism of the birth of the passionarity of an ethnic group (state). Let us consider its schematic representation (*Fig. 5*), which we will call a *structural model of an evolutionary leap*. To do this, we will break the whole process into several stages.

At the first stage, which forms the *warm-up period*, stressors (challenges) emerge consistently, which reduce the functionality of the system and cause primary problems. According to our logic, the one-act process of emergence of stress (challenge) does not always lead to the emergence of a hypercompensation mechanism. In many cases, the system needs a "warm-up" and a shock shake, so that all segments of the population become aware of the problem that has arisen. A typical example of such a warming up of the Russian people is the Patriotic War of 1812, when Napoleon Bonaparte was able to not only reach Moscow with his army, but also take it, whereas after he barely managed to leave Russia with the insignificant remnants of the army. A similar situation took place during the Second World War, when Adolf Hitler and his army reached Moscow and Leningrad fairly quickly, but after that a new stage of confrontation began with the preponderance of the Soviet armed forces and the subsequent defeat of Germany. Thus, the birth of the passionarity of an ethnic group is a dynamic process, stretched over time and implemented sequentially over several historical periods, including as a result of a *cascade of external challenges*. As a rule, among a series of stresses, the one that turns out to be the most painful appears and acts as the "last straw that broke the camel's back" (in Fig. 5 this is illustrated by the conditions $F_0 > F_1$; $F_1 > F_2$).

At the second stage, which forms the *period of reflection*, there emerges an *inventory-checking effect*, when the possibilities of the social system, its shortcomings and hidden reserves undergo total reconsideration. At this very stage of self-knowledge the society and its management system form the vector of all further structural transformations intended to neutralize the problems that have arisen (condition: $dF_2/dT = 0$).

At the third stage, which forms the *training period*, the *mobilization effect* is launched, when all the resources of the system are focused on strictly defined, vital areas. At the same time, the system undergoes structural cleaning so as to eliminate unnecessary, harmful or questionable elements

Figure 5. Structural model of an evolutionary leap



Source: own compilation.

and projects; this, in turn, contributes to a more rational redistribution of resources (the effect of $F_3 > F_2$ is achieved). In practice, this stage is associated with the change of leadership elites at all levels, the dominance of the principle of professionalism in all spheres, and the elimination of ideological opposition.

The fourth stage, which forms the *period of innovation*, provides the *effect of restructuring* the social system on the basis of a new organizational model. At this stage, as a rule, completely new solutions are generated for the government; besides, new management and organizational structures are built so as to effectively address the tasks set. This large-scale restructuring of the entire system makes it possible to radically increase its efficiency and achieve results that previously seemed unattainable. Thus, the functionality of the system turns out to be greater than in all previous time periods, including the moments of primary challenges (stresses) (provision of conditions $F_4 > F_0 > F_1 > F_3 > F_2$).

Taken together, the above effects promote a hypercompensation mechanism and thereby launch the birth ("explosion") of the passionarity of the people.

In conclusion, we should at least mention three points in the formation of passionarity. First, the foci of passionarity are dynamic. As the WCAC moves in time and space, so the centers of passionarity move around the planet. There are many examples proving the correlation between the centers of world capitalism and the passionarity-related activity of their peoples. Second, passionarity can be both *positive* (sacrifice, courage,

creativity, ability to overcome hardships, etc.) and *negative* (cruelty to the enemy, ideological intransigence, egocentrism, pride, etc.). Both components of passionarity go hand in hand and add drama to historical clashes. Third, passionarity is formed due to two phenomena: an increase in the *efficiency output* of the system and an upward shift of the boundary of its *potential*. In other words, both the *potential capabilities* of the system and the *efficiency of their use* are growing.

The structural model of the evolutionary leap that we have considered serves as an analytical basis for the study of the West/Non-West confrontation. This introduces a dynamic aspect to the analysis, because the initial power landscape does not guarantee a particular course of events, but, on the contrary, creates prerequisites for changing the initial disposition.

Primacy of geopolitical logic, the red lines, and two eternal clans

The cognitive cycle "Decisions – Events" considered in the previous sections and the structural model of the evolutionary leap shed light on the fact that the subjective factor, being woven into the logic of objective events, is also largely predetermined. However, at the current stage of geopolitical turbulence, there is another group of factors that reinforces the conclusion we have drawn.

For brevity, let us call these additional factors geopolitical and dwell upon them in more detail. The fact is that the geopolitical logic operating with *existential entities* during the change of the WCAC becomes *decisive* and subordinates macro- and microeconomic policy, diplomacy and military strategy. For example, when the very existence of the United States as the hegemon in the GGPS is at stake, then no moral, humanistic and other considerations are of great importance. The situation is similar for Russia, which reacted to the 2014 provocations of NATO (U.S.) penetration into the territory of Ukraine; the result of Russia's response was the accession of Crimea to the Russian Federation.

In this case, we are talking about the so-called *red lines*, which cannot be crossed. Red lines are understood as certain conditions of peaceful coexistence, and their violation is tantamount to a declaration of war. For example, the prospects of removing Russia from Sevastopol and the permission to deploy NATO (U.S.) military bases there were perceived by Russia's top leadership in 2014 as an unacceptable event, which triggered the events leading to the accession of Crimea to the RF. In turn, the Ukrainian authorities reacted to the loss of Crimea by imposing a water blockade: they cut the supply of water from the Dnieper through the North Crimean Canal that covered 85% of the peninsula's fresh water needs[6]. No subsequent measures for the construction of reservoirs on the territory of Crimea could solve the problem that resulted in a humanitarian catastrophe of soil salinization, equated by the Russian government to the genocide of the republic's population. Thus, Ukraine shifted the territorial conflict to a geopolitical dimension, which necessitated an invasion of the Zaporozhye Oblast to unblock and take control of the North Crimean Canal. Ukraine's preparation of a strike on the Donbass, followed by an offensive on Crimea, only strengthened Russia's intentions; all this resulted in the SMO of 2022.

The entry of a geopolitical rival into the territory that belonged to Russia in the recent past is the red line beyond which there actually begins the disintegration of the state; no government can put up with such a situation. We can say that the red lines negate even the restrictions imposed on the country by the neocolonial system of external governance.

The latter requires clarification because of an apparent logical contradiction between the country's dependence on external governance and independence in decisions concerning red lines. The fact is that in any sufficiently large

[6] See: https://www.pnp.ru/social/pochemu-oon-zakryvaet-glaza-na-vodnuyu-blokadu-kryma.html

state claiming political independence, there are always two political clans – a nationally oriented power bloc and a cosmopolitan-minded economic alliance. The former includes senior officials of the country's law enforcement agencies, primarily the Armed Forces, and the latter includes heads of major companies and economic departments. The power bloc (siloviki) is inherently conservative and nationally oriented, because its task is to preserve and protect the state; otherwise, with the collapse of the state, its entire power bloc would disappear. However, the security forces cannot and should not develop the economy, without which the country does not exist. This mission is intended to be carried out by big business and economic departments (the liberals), which are inherently oriented toward foreign markets and trade expansion, and are interested in the country's international openness; otherwise, business restricts itself, shrinks and degrades. In a sovereign country, a balance is maintained between these two political clans. However, during the period of geopolitical turbulence, when geopolitical logic becomes dominant, the political weight of the security forces increases. This manifests itself in the security forces controlling the red lines, crossing which is tantamount to declaring war and transferring political power into the hands of the military.

The above mechanics of the interaction between the two political clans helps us to understand the events of recent years in the GGPS. Thus, in 2014 the West's complete control over Russia in the sphere of economy and culture "stumbled" upon the red line in Crimea; as a result, the power bloc became more active contrary to the interests of the economic bloc. Such a preponderance led to the undermining of the system of neocolonialism in Russia. In 2022, this incident was repeated, the security forces further strengthened their influence, and the comprador elite found themselves in an ambiguous position. The further course of events will determine which political group will eventually prevail.

Something very similar, but less obvious, is happening in China in 2022, where the aggravation of the situation in Taiwan has also become a red line for China's security forces. China considers Taiwan as its integral part, and the final separation of its island part is tantamount to denying the integrity and capacity of Chinese civilization and the collapse of the former economic model of mainland China. The conflict between China and the United States over Taiwan in 2022 has already led to the strengthening of the country's power bloc and Xi Jinping's positions; it was manifested in the reassignments to the highest posts of the state at the 20th Congress of the CPC.

Thus, the red lines of geopolitics act as the last restrictions in the loss of political sovereignty by the countries. And that is why the logic of red lines promotes the collapse of the neocolonial system of U.S. governance. This phenomenon can be called the *primacy of geopolitical logic over economic logic*.

However, it would be a mistake to think that geopolitical factors are reduced only to red line markers. Over the past 400 years, the role of the geopolitical factor has been increasing. For example, city-states (Genoa and Venice) could still be at the center of the First Cycle of Capital Accumulation, whereas the second cycle required a full-fledged state. At the same time, a country that had not yet fully won its national independence (Holland) could become a WCAC during the second cycle, whereas this was no longer acceptable during the third cycle. While in the course of the third cycle a relatively small European country (Great Britain) could lead the world in the presence of even larger powers (Spain, France and Germany), the fourth cycle brought into the arena the largest capitalist state of the time (USA). Today, the geopolitical logic of the transformation of the world system requires that Russia should become a WCAC, since it is largest country in the world and the country that is richest in natural resources in the capitalist world. It is possible to violate this logic only by splitting the Russian Federation into several parts and thereby

carry out a fundamental geopolitical reformatting of the GGPS. Thus, geopolitical logic urges the West and Russia to answer an existential question: to be or not to be. This circumstance largely explains mutual intransigence of the West and Russia.

Prospects of the hybrid war

Everything discussed earlier allows us to come close to understanding the current hybrid war, its present and future course. At the same time, as we have shown, Russia turned out at the epicenter, having approached this event while being extremely poorly prepared. At first glance, Russia seems to have no chance of winning in the confrontation that has started; but this is not the case, and we will prove it below.

The fact is that the First civilizational failure of the West is a problem in itself, because most people, even within the West, do not accept the new technogenic ideology. In this regard, all Western countries are divided into two parts – supporters of natural life, the natural principle in man and national culture and supporters of transhumanism and cosmopolitanism. It is no coincidence that now, for the first time in its history, the differences between the Republican and Democratic parties of the United States have become not only significant, but also fundamentally insurmountable. The countries of Europe are also split into two camps, whose positions are increasingly crystallizing around the attitude toward Russia.

The second civilizational failure of the West introduces an additional split within this alliance, when part of the Western states turn away from the general anti-Russian line due to the disagreements and contradictions that have arisen. For example, Hungary from the very beginning adhered to the strategy of cooperation with Russia and distancing itself from Ukraine. A further split was outlined after the explosions at Nord Stream-1 and Nord Stream-2, when Europe was completely cut off from hydrocarbon supplies from Russia and became fully dependent on the United States. Taking advantage of the situation, Washington set prices for liquefied natural gas for Europe four times higher than for their own industry[7]; the German chemical corporation BASF decided to curtail business activity and reduce the number of jobs when European gas prices were six times higher than their level in the United States[8]. However, in addition, America has begun to vigorously promote the Inflation Reduction Act, which implies tax cuts and energy benefits for companies investing in its territory. In addition, the bill legitimizes the "Buy American" agenda in relation to the electric car market. The United States not only carries out monopolistic inflating of gas prices for Europe, but also redirects European business and capital to its territory. It is not surprising that in such circumstances, the authorities of France and Germany began negotiations on retaliatory measures that could ignite a trade war between the two most important representatives of the West – the United States and Europe. Thus, eight months after the start of the SMO, there outlined a split in the Collective West, and its unity turned out not so strong.

Explosions at the gas pipelines and the rising gas prices require at least a brief comment. Thus, the breakdown of gas pipelines, which, as some believe, had been inspired by the United States and carried out by the United Kingdom[9], made America a monopolist in the liquefied gas market in Europe. This allowed the United States to raise prices dramatically in order to ensure its super profits. Even if we assume that gas prices in the U.S. are at the cost price level, then their 4-fold excess provides American exporters with a profit margin of 300%, and in the case of a 6-fold increase – 500%. If we

[7] See: https://rus-bel.online/novosti/economica/platit-za-gaz-v-4-raza-bolshe-makron-udivilsya-tsenam-amerikanskih-postavshhikov/

[8] See: https://inosmi.ru/20221028/sholts-257300349.html

[9] According to an official statement, the Foreign Intelligence Service of the Russian Federation has proof indicating a Western trace in the organization and implementation of these terrorist acts on pipelines. See: https://rg.ru/2022/10/01/razvedka-v-kurse.html

consider a more realistic hypothesis, according to which the level of American prices is twice as high as the cost price, then the estimates of profit margins will rise to 600 and 1,000%, respectively. It is not surprising that for the sake of such a profit, the U.S. is ready to sacrifice political partnership with Europe and pretend not to hear the arguments of not only rivals, but also partners.

Today there are already other cases of dubious cooperation within the West. For example, according to official information, NATO members provided Ukrainian wounded soldiers with preserved blood that after examination by Ukrainian doctors was found to be HIV and hepatitis-infected[10]. Thus, assistance to Ukraine is carried out according to the principle of maximum economy, even if it directly contradicts basic medical standards.

Consequently, the unity of the West is just a political cliché, and in its absence, Russia's chances of a successful confrontation increase. Moreover, time will play into Russia's hands: the disintegration of the Western coalition will continue and the Non-Western alliance will be gaining strength.

But no matter how the two civilizational failures have affected the West, this still cannot compensate for the deplorable state of Russia after 31 years of neocolonial degradation. However, here lies the intrigue: the balance of forces may fundamentally change if there emerges the passionarity of the ethnos in the Russian Federation. The logic of military confrontation can bring other elites to power, generate the demand for professionalism, produce a capable ideology and ensure the unity of the people. But this effect is not applicable to the West. It is due to the fact that it is the West that takes an active position and produces global challenges aimed at Russia, which is forced to respond to these challenges; the West itself is in hothouse conditions, and their violation in extreme cases will only lead to an "uprising of the masses", which is already beginning to manifest itself; the Second civilizational failure may result in the Western elite ignoring this internal challenge as well. In other words, there is an *asymmetry in the functioning of A. Toynbee's* "Challenge – Response" model. And this asymmetry works in favor of Russia.

The realism of the birth of passionarity is confirmed by numerous historical analogies. For example, in 1917, when the country was losing the First World War, when its government was ruling incompetently for many years and the country was under pressure from foreign capital, there emerged a political force represented by the Bolshevik Party and its leader Vladimir Lenin so as to preserve and subsequently modernize and strengthen a new type of state – the USSR. By 2000, the Russian Federation under the leadership of Boris Yeltsin was on the brink of another collapse, but successor Vladimir Putin and his team managed to keep the situation under control. Napoleon's invasion of the Russian Empire in 1812 was not being repulsed for a long time; it had to take quite a while for all the mechanisms of the structural model of the evolutionary leap to start working in full force. Nevertheless, it eventually happened. A similar situation occurred during the 1941–1945 war: initially, the Soviet troops were losing one battle after the other, but in four years the country went through a complete transformation when the economy, the defense complex, and the armed forces of the USSR unconditionally surpassed the potential of Germany. We can say that it took at least three years for the full manifestation of the passionarity impulse, but it ultimately did emerge. During this time, there appeared previously unknown military leaders, engineers, reconnaissance operatives, etc., who used their talent to contribute to an almost impossible victory[11]. It can be that in 2–3 years after the start of the SMO Russia will be able to neutralize its "low start" and turn into a state with effective government.

[10] See: https://lenta.ru/news/2022/11/03/natokrovvsu/

[11] The logic of the course of a long war is revealed quite well in the popular work: https://zavtra.ru/blogs/ocherk_o_vojnah_za_prostranstvo_vojnah_aresa_evolyutciya_i_razvitie

Paradoxical as it may sound, the war of attrition works in favor of Russia rather than the West. The fact is that the United States is already beginning to overexert its forces in several directions. The maturing China – Taiwan conflict may at any moment radically weaken the United States not only by an armed clash, but also by severing economic ties, which is already underway. There are no guarantees that the unification of North Korea and South Korea will not begin during the period of geopolitical turbulence. All these events will sooner or later lead to the weakening of the US dollar as a world currency, which will be a rapid and large-scale collapse for the United States. To illustrate the consequences of such an event, we will perform some calculations, like those performed by Yu.I. Mukhin (Mukhin, 2022, p. 45).

Currently, the status of the U.S. dollar allows the issuing country to print the corresponding banknotes and use them to purchase real values supplied from abroad. This possibility rests on the international consensus regarding the recognition of the U.S. as the hegemon of the GGPS. Then the profitability of the operation of issuing dollars into international circulation is determined by the ratio of their face value and cost. According to available data, the cost of 1-dollar and 2-dollar bills is about 5 cents; the cost of 5-, 10-, 25- and 50-dollar bills is 10–11 cents, 100-dollar bill – 12.5 cents; alternative sources provide approximately the same figures[12]. Then the profit margin of issuing a 1-dollar bill will be 1900% (i.e. [(100-5)/5]100%=1900%), and a 100-dollar bill – 79900% (i.e. [(10000-12.5)/12.5]100%=79900%). Thus, the using of dollars for the purchase of goods from outside provides the American state with the profitability of the operation from two to 80 thousand percent per year. Even if we take into account all the reservations and limitations of the calculations carried out, the final profit margin is still tremendous. Granted, this profitability is not total for the American economy, but the presence of a sufficiently large amount of dollar money intended for foreign economic needs increases the efficiency of U.S. business up to a level that is beyond the dreams of businesses in other countries. These fabulous figures are the basis of the equally incredible political power of the United States. Accordingly, as soon as the established emission process is disrupted, the U.S. power will begin to collapse rapidly. Moreover, analysts at the American edition of Fox Business have already suspected Russia and China of working on the creation of a new gold-backed currency that can, if not completely replace, then significantly displace the U.S. dollar as the world reserve currency[13].

To illustrate the balance of power in the modern GGPS, let us consider how many countries currently have true political sovereignty. Taking into account all possible reservations, we can argue that today there are only a few countries in the world that are independent of the direct dictate of the United States. These are North Korea, Iran, Afghanistan and, with some reservations, Turkey and Belarus. Russia is trying to win its sovereignty through militarily means, while China is trying to win it peacefully[14]. India is also carrying out the final political balancing act to defend its independence; Pakistan has been fighting for the same thing for many decades with varying success. If their attempts do succeed (and this is more than likely), then the American hegemony will collapse, and with it its monopoly on world economic markets and the phenomenon of superprofits. The further course of events will already be in favor of the Non-Western coalition.

[12] See: https://na-zapade.ru/zametki/usa/kakova-realnaya-sebestoimost-u-dollara-ssha-iz-chego-ih-delajut/; https://www.icpress.ru/news/19835/

[13] See: https://ruposters.ru/news/31-10-2022/nachali-podozrevat-kitai-rossiyu-razrabotke-novoi-obespechennoi-zolotom-valyuti

[14] It is noteworthy that the "filter" of international economic sanctions can serve as a kind of criterion for political sovereignty. For example, Iran and North Korea are record holders for the duration of sanctions against them. Afghanistan was directly at war with the United States on its territory. Belarus has already come under sanctions, and previously it was constantly limited in economic activity. Russia has become a record holder in terms of the scale of the sanctions imposed on it. Finally, selective economic sanctions are already being imposed on China today.

Thus, the clash of West and Non-West megacivilizations has begun, and its outcome remains essentially open. Any predictions about the result of the strategic confrontation will be ridiculous and groundless. Each side has a chance.

Conclusion

We have discussed major social mechanisms involved in the geopolitical confrontation of megacivilizations and the hybrid war between them. However, even knowing and understanding the workings of these mechanisms and the laws operating in the GGPS, we cannot make a reasonable verdict about who the future of our world belongs to. We agree with Slavoj Žižek who argued that the movement of capital is behind the entire progress and all the catastrophes in real life (Žižek, 2012, p.189). In turn, Nassim Taleb introduced a successful metaphor in the form of a so-called *event generator* (Taleb, 2009), which "feeds" the social system with new phenomena, processes and events, giving it the necessary complexity and diversity. It is the circulation of capital and the underlying logic that ensure the operation of the notorious event generator and act as an inexhaustible fuel for the endless transformation of the social system (Balatsky, 2013).

Having analyzed the confrontation between the West and the Non-West, we did not consider their ideologies, social order and way of life. It is the ideological foundations and their verbal reflections that determine the potential of the corresponding state, people, civilization and megacivilization. We agree with V.A. Volkonsky who said that "... words are deeds as well. ... a large number of correct words usually increases the likelihood of the general development of ethical systems of communities and all mankind" (Volkonsky, 2021, p. 43). Conversely, a large number of incorrect words increase the likelihood of a general degradation of civilization. From this viewpoint, the West is losing ground, generating more and more dubious theses, slogans and values into the information space; this does not speak in its favor. In Russia, on the contrary, there are more and more people who speak the right words. It takes only to hear those right words. If this does not happen, then Russia will shamefully lose the current civilizational confrontation and will leave the scene of the GGPS. In this regard, one should remember that history knows no "if" and no mercy: a state that had every reason to turn into a new center of the world and missed its chance has no right to exist and is not worthy of pity.

I would like to emphasize that the content of this article should not be considered as a string of strict scientific statements, but as a system-wide description of a set of mechanisms and effects that are most significant for understanding the modern historical situation. At the same time, such a description can significantly help in the development of a general political and economic strategy of the state.

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Russian Economy under Tough External Sanctions: Problems, Risks and Opportunities

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Abstract. The article examines key issues related to the current economic crisis in Russia caused by large-scale sanctions imposed by Western countries. We analyze main trends that have developed in the Russian economy after the introduction of the sanctions. We provide findings of a questionnaire survey of representatives of Russian enterprises, showing the reaction of domestic producers to the crisis phenomena of 2022. Having analyzed official statistics, sectoral and corporate information, we identify growth points that have emerged in the Russian economy under new conditions and describe main reasons for these "success stories". We assess major risks and threats related to the development of the Russian economy in the medium and long term and propose methods to deal with them. We show that under dramatic foreign policy pressure on Russia, it is necessary to significantly expand the scope of mobilization (planning) tools. These mechanisms should provide a prompt solution to such structural problems as the full-fledged revival of key economic sectors, infrastructure development, elimination of regional imbalances, etc. Increasing the role of mobilization tools should be ensured by expanding public investment, strengthening protectionism in foreign trade policy, introducing elements of indicative planning and currency control; at the same time, the key function of market mechanisms should be preserved. We argue that Russia's economy could make a powerful breakthrough in the modern context. This point is justified, on the one hand, by analogy with the situation in the late 1990s (a powerful breakthrough of the Russian economy immediately after the abandonment of inadequate macrofinancial policy), on the other hand, by the

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survey data of RAS Institute of Economic Forecasting on a sufficiently high modernization activity of Russian enterprises at the present time.

Key words: anti-Russian sanctions, risks and threats, adaptation to the crisis, anti-crisis policy, questionnaire business survey, economic growth potential.

Introduction

After February 2022, Russia faced a sharp tightening of geopolitical and foreign economic conditions. This tightening includes increasing military and political pressure on Russia and the introduction of large-scale economic sanctions aimed at causing serious damage to the Russian state budget, business and the population. Of course, this development creates significant additional threats to the internal political and social stability in the country. In addition, severe external pressure leads to serious economic problems and risks of both short- and long-term nature. At the same time, due to the departure of many foreign suppliers from Russia, domestic manufacturers are getting new opportunities for the development by occupying the released market niches. However, Russian producers will be able to fully use this potential for development only if they receive active support from the state and implement a high-quality macroeconomic policy.

Brief theoretical overview

Macroeconomic theory characterizes the conditions in which Russia fell in 2022 as an external shock (Mankiw, 1994). As a rule, a macroeconomic shock is understood as a sharp change in the conditions in which a particular national economy operates. At the same time, we can argue that there is no generally accepted scientific definition for a macroeconomic shock. Different theorists describe and interpret this phenomenon in different ways (Samuelson, Nordhaus, 1993; L'vova, 2015; Mirkin, 2020; Mikheeva, 2021). Nevertheless, it is possible to identify some common characteristics of macroeconomic shocks used by most researchers.

First, a macroeconomic shock is a large-scale event that has a significant impact on the entire national economy.

Second, a macroeconomic shock is an event that proceeds quickly, radically changing the overall situation in a few weeks or months.

Third, macroeconomic shocks are characterized by a sudden arrival. Even if one of the shocks is cyclical and occurs periodically, the exact timing of its return can almost never be predicted. In addition, there are unique shocks caused by a rare combination of circumstances. Nassim Nicholas Taleb called such shocks "black swans" (Taleb, 2007).

Fourth, most researchers (although not all) believe that a shock is a phenomenon external to the national economy, which has nothing or almost nothing to do with events inside it.

Fifth, an external macroeconomic shock can be caused by both economic events (for example, large-scale global financial crises or spikes in world prices for key goods) and non-economic events (pandemics, major natural and man-made disasters, geopolitical cataclysms, technological breakthroughs, etc.)

Studying the impact of shocks, the economic theory pays considerable attention to the processes of adaptation within the national economy. To analyze the processes of adaptation to shocks, for example, models based on the hypothesis of market equilibrium are used: the Solow – Swan model (Solow, 1956; Swan, 1956), the Ramsey – Kass – Koopmans model (Koopmans, 1963; Cass, 1965). These models consider under what conditions the economy, thrown out of balance by the macroeconomic shock, can come to a new point of equilibrium. Such conditions are, for example, a change in the rate of accumulation or the rate of government spending. It is worth noting that for all their advantages, these models are

rather theoretical in nature and are not suitable for making practical decisions. They practically do not reflect the structural, technological, institutional, cultural, geographical and other features of national economies. In addition, these models assume perfect competition, full availability of information for all economic agents, instantaneous movement of resources in space, absence of institutional barriers, the same motives for all economic agents and other ideal conditions that are absent in real economic life. At the same time, some general ideas, such as the need to reduce taxes or increase government spending by increasing public debt during the crisis period, are fully confirmed by these models.

Methodological approaches

Since in this case Russia is faced with a poorly predictable economic shock of the "black swan" type, the classical theoretical approaches to the study of shocks and recommendations based on these approaches can be used for analysis only partially. The adaptation of national economies to such unique shocks is usually much more difficult than to cyclical shocks, the possible effects of which have already been considered more or less both in theory and in practice. The study of unique shocks requires special attention to the features of the behavior of households, enterprises, regional authorities, municipalities and other economic agents, since in atypical conditions their reaction determines the dynamics of production, consumption, accumulation and other socio-economic processes almost more than the ratio of macroeconomic indicators (Yaremenko, 1999). In this regard, economic and sociological surveys, in particular, questionnaire surveys of enterprises and households, in-depth interviews with business representatives, etc., are of particular value. In addition, when studying the reaction of the economy to atypical shocks, it is important to analyze industry and regional statistics, as well as corporate reporting, which allows catching the structural shifts taking place, identify the most problematic economic sectors and noting potential points of recovery post-crisis growth.

Analysis of the economic situation in Russia after imposing sanctions

The questionnaire business survey data, conducted by the Institute of Economic Forecasting of the Russian Academy of Sciences in April – May 2022[1], fully confirmed the official statistics and showed that the shock caused by sanctions led to large-scale crisis processes affecting almost all spheres of the Russian economy. According to the survey in the spring of 2022, 59.2% of Russian enterprises have already suffered from sanctions. Representatives of another 22.3% of enterprises at this moment assumed that organizations have not yet been affected by sanctions, but may suffer in the future (*Tab. 1*).

Among the most acute problems caused by sanctions, respondents most often referred to difficulties in obtaining imported raw materials and components, as well as the need to replace them (67.4% of responses); rising prices within the country (62%); growing general uncertainty in the Russian economy (44.2%); rising import prices (40.3%); falling effective demand within Russia (38.8%); loan appreciation (32.6%; *Tab. 2*).

Table 1. Distribution of answers to the question "Has your company suffered from sanctions related to the situation in Ukraine?" (sum of answers = 100%), %

Period	Yes	No	No, but it may suffer in the future
April – May 2022	59.2	18.5	22.3
Source: (Kuvalin, et al., 2022).			

[1] There were interviewed 189 enterprises from 47 Russia's regions.

Immediately after the aggravation of the geopolitical situation, serious problems arose in the financial sphere. The official exchange rate of the national currency began rapidly falling, reaching a peak value of 120 rubles/USD on March 11, 2022 (*Fig. 1*). At the same time, consumer prices for the month of March alone, according to Rosstat, increased in Russia by 7.61% (*Fig. 2*).

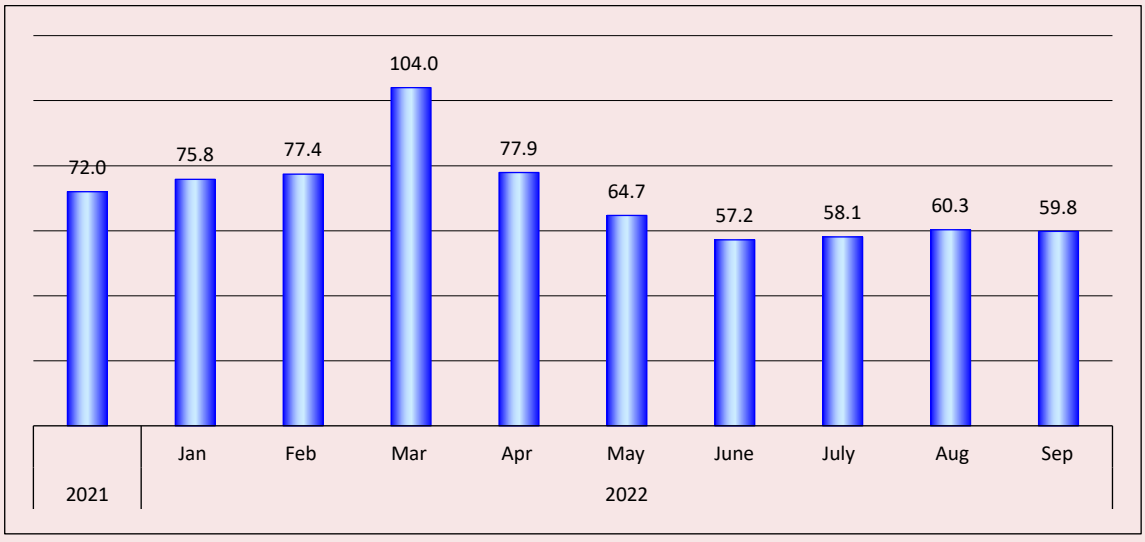
Despite the extreme severity of the problems that have arisen, we can argue that the Russian economy and the Russian economic authorities (represented by the Government of the Russian Federation and the Bank of Russia) have generally coped with the short-term threats that were generated by Western sanctions. The authorities managed to stop the inflationary surge in the economy fairly quickly, prevent a bank panic accompanied by a sharp outflow of deposits and massive non-payments on loans, ensure the smooth operation of the national payment system and return the ruble exchange rate to the pre-crisis level with a margin (in January 15, 2022 the official

Table 2. Distribution of answers to the question "What problems related to economic sanctions against Russia are most acute for your company?" (sum of answers > 100%), %

	Difficulties in obtaining imported raw materials and components, the need for their replacement	Serious increase in the cost of imports	Reducing export opportunities for our products	Decline in effective demand within Russia	Rising prices in the country	Higher interest rates	Difficulties in attracting foreign investors	Restrictions in import of technology and the slowdown of technological modernization	Increased overall economic uncertainty	Other
April – May 2022	67.4	40.3	17.1	38.8	62.0	32.6	1.6	22.5	44.2	3.1

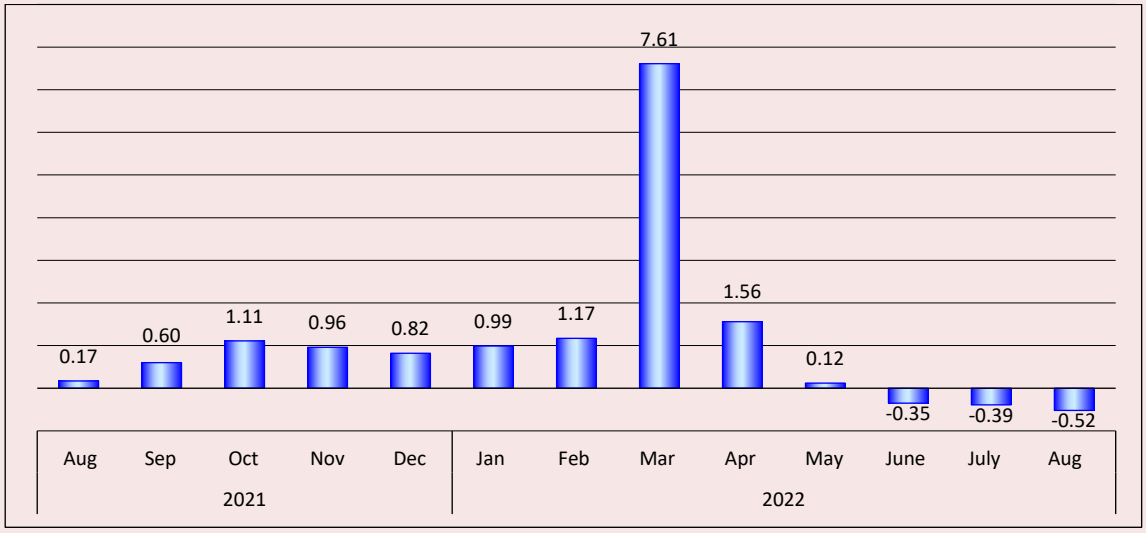
Source: (Kuvalin, et al., 2022).

Figure 1. Average monthly exchange rate of the ruble against the U.S. dollar in 2022



Source: The Bank of Russia data. Available at: https://cbr.ru/currency_base/dynamics/ (accessed: November 1, 2022).

Figure 2. Inflation rate (consumer price index) in Russia by month



Source: Data of FSSS of Russia. Available at: https://rosstat.gov.ru/statistics/price (accessed: November 1, 2022).

exchange rate of the Bank of Russia was 75 rubles/USD, while by October 29, 2022 it decreased to 61.5 rubles/USD[2]).

In the summer of 2022, the economic situation in the country continued stabilizing. Analysts note that, judging by direct and indirect data, already in July – August 2022, there was a recovery growth in the Russian industry and investment sector. In particular, according to the estimates of the Center for Macroeconomic Analysis and Short-term Forecasting (CMASF), in July 2022 industrial production increased by 1.0% compared to the previous month, in August – by 0.5%, in September – by 1.7% (seasonality eliminated). At the same time, the value of the investment activity index calculated by the CMASF increased in August 2022 to 99.4% compared to 95.3% in June (Belousov et al., 2022a; Belousov et al., 2022b). In addition, the situation on the labor market and in the sphere of the population's income began improving. According to Rosstat, the unemployment rate in the country decreased from 4.2% in January March 2022 to 3.9% in May – July 2022[3]. The amount of real wages decreased in April 2022 by 7.7% compared to the previous month, but in July 2022, due to deflationary processes, it increased by 3.1% compared to June (Belousov et al., 2022a).

At the industry level, events in 2022 developed in different ways. Some economic activities have suffered greatly from the sanctions. For example, according to Rosstat, the production of passenger cars for 8 months of 2022 decreased by two-thirds compared to the same period in 2021. Over the same period, the production of washing machines and refrigerators has declined by more than 40%[4]. These production failures were primarily due to a sharp reduction in the supply of components from unfriendly countries.

However, in general, there are few failed industries in the Russian economy. The number of industries that managed minimal losses or even benefited from the current development of events turned out to be much larger. The winning sectors of the Russian economy can be divided into three main categories.

[2] The Bank of Russia. Available at: https://cbr.ru/currency_base/dynamics/ (accessed: October 1, 2022).

[3] FSSS of Russia. Available at: https://rosstat.gov.ru/labour_force (accessed: October 1, 2022).

[4] FSSS of Russia. Available at: https://gks.ru/bgd/regl/b22_01/Main.htm (accessed: November 1, 2022).

First, these are export-oriented industries that have benefited from the jump in world prices for raw materials. For example, physical coal production in the first 8 months of 2022 decreased by 2.5%, but it did not create any problems for the industry, since from January to September 2022, prices on international coal markets more than doubled[5]. The situation in the gas industry was similar. Although natural gas production decreased by 10.4% in the first 8 months of 2022, and gas exports to non-CIS countries fell by about a third, the profits of Russian gas companies Gazprom and NovaTek, thanks to a sharp increase in the cost of exports, were tens of percent higher than in 2021[6]. And in such key economic activities for Russia as crude oil production and primary aluminum production, in 2022, not only world prices increased, but also physical output volumes – by 3.1 and 14%, respectively[7]. Also in 2022, the production volume of mineral fertilizers, vegetable oils and a number of other products exported in large quantities to foreign countries increased (*Tab. 3*). At the same time, if Western countries refused to purchase Russian products under sanctions, domestic exporters tried to switch to the markets of other countries. For example, in August 2022, Russian coal exports to China[8] and India[9] increased by 40–60% compared to August 2021. Despite the fact that new buyers have to provide significant discounts, the overall increase in world energy prices still makes such exports rather profitable.

Second, in 2022, the industries that managed to increase supplies to the Russian market won due to the departure of many foreign suppliers from Russia. These import substitution processes have caused output growth in a number of sub-sectors of mechanical engineering, food and pharmaceutical industries, agriculture, IT, tourism, etc.

Third, there has been a significant increase in production in industries related to the production of defense products. But for obvious reasons, it is not reflected in public statistics.

Table 3. Enclaves of growth in the Russian economy

Industry	Issue for January–August 2022 compared to January–August 2021, %
Growth due to exports	
Coal mining, physical volume	97.5
Coal sales volume at current prices	187.1
Oil and natural gas production, physical volume	102.2
Volume of oil and gas sales at current prices	143.1
Production of coke and petroleum products, physical volume	99.3
Sales volume of coke and petroleum products at current prices	120.4
Food production, physical volume	100.2
Volume of food sales at current prices	120.3
Production of chemicals and chemical products, physical volume	97.0
Volume of sales of chemicals and chemical products at current prices	131.0
Primary aluminum production, physical volume	114.0
Vegetable oils and their unrefined fractions, physical volume	118.0

[5] Available at: https://www.finanz.ru/birzhevyye-tovary/ugol-cena (accessed: November 1, 2022).
[6] Obukhova E. (2022). Missed the kick, but resisted. *Expert*, 37(1266), 12–18.09.
[7] FSSS of Russia. Available at: https://gks.ru/bgd/regl/b22_01/Main.htm (accessed: November 1, 2022).
[8] Available at: https://www.rbc.ru/newspaper/2022/09/21/6329c3709a79474445b1456f (accessed: November 1, 2022).
[9] Available at: https://www.forbes.ru/biznes/476983-eksport-ugla-v-aziu-posle-embargo-es-ne-vyros-a-upal-cto-budet-dal-se (accessed: November 1, 2022).

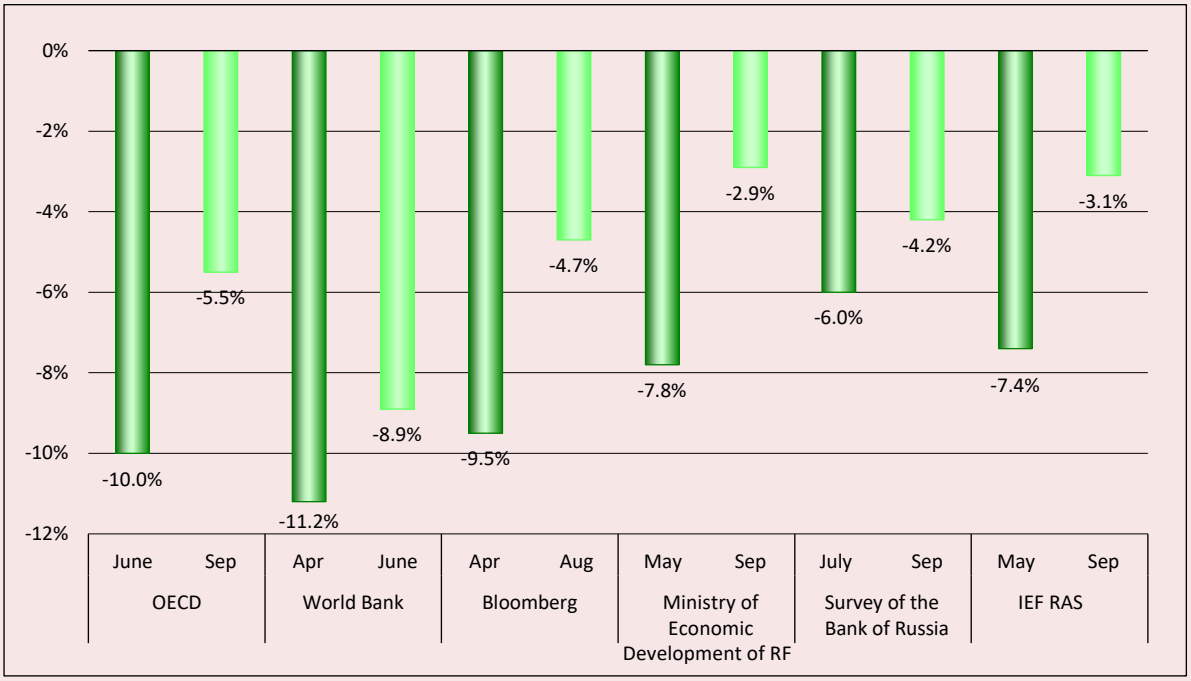
End of Table 3

Industry	Issue for January–August 2022 compared to January–August 2021, %
Growth in the domestic market, including due to import substitution	
Production of machinery and equipment not included in other groupings	106.7
Production of medicines and materials used for medical purposes	122.7
Milk, except raw	103.3
Cheeses	103.1
Manufacture of computers, electronic and optical products	104.8
Plastic pipes, tubes, hoses and their fittings	113.2
Refractory cements, mortars, concretes and similar compositions not included in other groupings	107.6
Casing pipes, tubing and drill pipes used for drilling oil or gas wells, seamless steel	110.5
Ball or roller bearings	107.7
Agricultural products	104.6
Commissioning of residential buildings, million m^2 of the total area of residential premises	133.3
Volume of paid tourist services	133.3
Source: data of FSSS of Russia. Available at: https://gks.ru/bgd/regl/b22_01/Main.htm (accessed: November 1, 2022).	

Thus, currently, it is already possible to talk about points and even entire enclaves of growth, which in the medium term may become the locomotives of the post-crisis development of the Russian economy.

This outcome has led to a significant improvement in the forecast estimates for Russian GDP by the end of 2022, prepared over the previous months by various analytical organizations (*Fig. 3*).

Figure 3. Forecast estimates for Russian GDP by the end of 2022



Set of information from official websites of notified organizations.

Table 4. Distribution of answers to the question "What consequences for your company do you expect as a result of imposing economic sanctions against Russia?" (sum of answers = 100%), %

Period	No special effects are expected	Negative	Both negative and positive	Positive	It is hard to say yet
April – May 2022	5.40	38.00	32.60	2.30	21.70

Source: (Kuvalin et al., 2022).

In turn, we are even more optimistic and assume that if the speed and scale of adaptation of the Russian economy to the sanctions shock continue, the decline in Russian GDP by the end of 2022 will not exceed 1–2%.

We should particularly note that representatives of many Russian enterprises already assumed in the spring of 2022 that the crisis generated by the sanctions creates not only problems, but also opportunities. In particular, only 38% of respondents who took part in the IEF RAS survey in April – May 2022 considered that the crisis would lead exclusively to negative effects for their enterprises. At the same time, 32.6% believed that the effects would be both negative and positive; 2.3% expected only positive effects, and another 5.4% believed that there would be no special effects at all (*Tab. 4*). As further events have shown, the hopes of some Russian enterprises for positive changes during the crisis have largely been justified.

Risks and threats to the Russian economy and ways to overcome them

In general, the successful resolution of current problems and relatively mild nature of the crisis in 2022 do not cancel out the risks and threats that the Russian economy will face in the medium and long term. Sanctions against Russia, apparently, have been imposed for a long time. Sanctions in the field of high technologies may be particularly painful, since countries unfriendly to Russia in a number of cases monopolistically control access to the best technological solutions that determine the efficiency and competitiveness of the entire economic sectors. In addition, countries of the Euro-Atlantic block exercise strict control over the global banking system and its payment circuit, which allows them to seriously complicate Russia's financial relations with neutral and friendly countries.

In addition, the current favorable price situation for Russian exporters on the world raw materials markets may significantly change for the worse if the slowdown in the Chinese economy continues. So far, it is mainly related to temporary quarantine measures against the next coronavirus waves[10], but it is not very clear how long China will continue these actions.

In the long term, Russia should also solve very complex problems related to the need to overcome the technological gap from developed countries and provide new production facilities with advanced technologies. At the same time, it should be borne in mind that previously imported high-tech machines and equipment will gradually fail. In past years, the replacement of retiring high-quality equipment and the introduction of new technologies could be ensured by imports from countries that have now joined the sanctions (although earlier the supply of the most advanced technologies from them to Russia was quite deliberately limited). But in the foreseeable future, such a method of technological modernization can be considered at best as secondary.

[10] Available at: https://ria.ru/20220927/kitay-1819680135.html (accessed: October 1, 2022).

In this regard, in the near future Russia will definitely need to solve a number of medium- and long-term tasks related to the necessity to mitigate the negative effects of the sanctions. Among the key tasks of this kind are the following.

• *Reorientation of export supplies to countries that do not support the embargo on Russian products.*

In this case, we are talking primarily about the export of natural gas, petroleum products, and coal. The volume of alternative demand for these resources can be considered unlimited. Given the size of the economies of China, India and other countries that agree to buy Russian products, we can argue that they are ready to accept not only all of our current energy exports, but also almost any additional volumes. However, rapid expansion of export supplies in alternative directions is hindered by infrastructure restrictions. The current capacity of Russian pipelines, railways, ports and border crossings is insufficient to transfer the released export resources to other countries. The solution of this task requires the modernization and construction of a new network infrastructure in the Far East, in the Caspian and Black Sea basins, in the North of Russia, as well as on the borders with Central Asia. In addition, the volume and flexibility of gas exports can be increased through the large-scale construction of gas liquefaction plants and gas tankers.

• *Establishing alternative channels for receiving imported products from unfriendly countries.*

Since unfriendly states have grossly violated market principles and norms of international trade, Russia has the right and should import the types of products necessary for the country, bypassing existing sanctions. It is no secret that many companies from unfriendly countries do not share the positions of their governments and are ready to supply their products to Russia even in the current conditions. However, in order not to create difficulties for trading partners, new supply channels through third countries are needed, using combined logistics, property and financial schemes including the so-called parallel import. As the experience of the Soviet period, as well as China, Iran and other countries shows, such alternative import channels make it possible to cover at least part of the need for key types of products.

• *Creation of new technologies for mutual settlements and withdrawal of payment chains from the control of unfriendly countries.*

Digitalization of the global financial system has greatly increased the ability to control the flow of funds between countries. At the same time, most modern technologies that provide cross-border settlements through SWIFT, VISA, Mastercard, etc. payment systems are monopolized by states unfriendly to Russia. The main financial control centers are also located in these countries. This state of affairs allows them to apply the so-called secondary sanctions quite effectively and impose them on countries and companies that conduct mutual trade with Russia, conducting mutual settlements through the above-mentioned systems, therefore, it is necessary to create and put into operation alternative payment systems in our country as soon as possible, independent of unfriendly countries. And although this is a very difficult task, there are several ways to solve it at once.

First, alternative international systems can be based on technological solutions used by the Russian Financial Messaging System of the Bank of Russia (SPFS), the Faster Payments System (SBP), and the system "Mir". Given the high technological level of these payment systems, it is quite possible to hope for the connection of participants from other countries to them.

Second, it is possible to create two-way payment systems in national currencies. Such important Russia's trading partners as Iran and Turkey have

already expressed interest in creating such systems. However, the main disadvantage of such bilateral systems is likely to be difficulties in eliminating trade imbalances. It is unlikely that a country that has earned a surplus in bilateral trade will willingly accept as its cover not the strongest currency of its partner.

This problem is solved somewhat more simply in bilateral trade relations with China. On the one hand, Russia uses the Chinese yuan to form its gold and foreign exchange reserves, accounting for 17% of their volume at the beginning of 2022[11]. On the other hand, third countries also agree to accept payments in yuan in some cases, which allows using the Chinese currency to cover trade imbalances.

Third, it is possible to create a new international payment system using artificial monetary units functionally similar to the transferable ruble in the Comecon or ECU in the European Union before 1998. Iran, for example, took the initiative of this kind in relation to the Shanghai Cooperation Organization[12]. In this case, the main difficulty will be to find many partner countries at once and lengthy negotiations at the initial stage.

Fourth, it is possible to apply barter transactions in bilateral relations at agreed prices and with the use of periodic clearing offsets. But this method, unfortunately, involves very significant transaction costs and is suitable only for servicing large-scale, stable and homogeneous trade flows.

It seems that due to the complexity of the current circumstances, each of the listed options or their combinations should be tested at this stage.

• *Replacement of high-tech machines, equipment, components, spare parts and raw materials previously supplied from countries that supported sanctions against Russia.*

In part, this task can be solved by reorienting to imports from friendly or neutral countries. According to some expert estimates, by now up to 60% of blocked imports from unfriendly states have been replaced by supplies from countries that are more loyal to Russia. However, the latter produce far from everything that Russian manufacturers need. The technological level of products from these countries also does not always reach the level of Western manufacturers.

A more reliable way to ensure long-term technological independence and reduce the lag behind the most developed countries is to establish own production of key types of products (machine-building, electrical and electronic, chemical, pharmaceutical, etc.), whose supplies to Russia are blocked by unfriendly countries. But for these purposes, accelerated development of domestic fundamental and applied science, a full-fledged revival of design and design (engineering), engineering education and many other segments necessary for the formation of a competitive high-tech sector in relation to the leading countries of the world will be required. Theoretically, this task can be solved, but the experience of the previous 30 years shows that until now the Russian state has been engaged in the development of high technologies little and inefficiently, and Russian business was not very interested in all this.

In addition, investment projects in the field of high technologies should have access to cheap credit, and state-owned ones should be focused on high-tech goods and services of Russian production. We should pay particular attention to the transfer of high technologies from the military-industrial complex to the civilian sector. To this end, defense enterprises, within the framework of a purposeful state policy, should (in addition to fulfilling their main tasks) integrate into technological chains for the production of non-military products (Yaremenko, Rassadin, 1993; Frolov et al., 2017).

[11] Available at: https://www.rbc.ru/economics/11/04/2022/62543f679a7947e285c71eb0 (accessed: November 1, 2022).

[12] Manukov S. (2022).). Tehran has offered Russia, China and India a new currency for mutual settlements. *Expert*, June 3. Available at: https://expert.ru/2022/06/3/novaya-valyuta/ (accessed: November 1, 2022).

• *Large-scale implementation of mobilization economy mechanisms aimed at solving problems related to improving the country's defense capability and economic security, as well as overcoming complex structural problems.*

The actions listed above for the deep restructuring of the Russian economy require a large-scale redistribution of resources between sectors and regions of the country. Moreover, taking into account the extremely unfavorable geopolitical situation, this maneuver with resources should be carried out in a very short time. As the world and Russian economic history shows, in the conditions of military operations and foreign policy pressure, market mechanisms for the targeted redistribution of resources do not work very effectively (Sapir, 2022; Yaremenko, 1997; Yaremenko, 2015). In such situations, they should be complemented by powerful mobilization (planning) tools – significant budget investments in the development of key industries and infrastructure; directive planning in the military-industrial complex and indicative planning in the rest of the economy; protectionism in foreign trade; quotas for supplies to Russian and foreign markets, elements of currency control, etc.

At the same time, the expansion of the functioning sphere of mobilization tools should not lead to the oppression of market mechanisms. On the contrary, market mechanisms should be used as widely as possible to increase the effectiveness of mobilization methods, including in the process of maintaining macro-financial and budgetary stability, in determining fair prices in the markets, in stimulating investments, in order to strengthen labor motivation, etc. In other words, Russia in the future should remain a country with the market economy, but at the same time using mobilization mechanisms in order to force the solution of structural problems in difficult geopolitical circumstances.

The views of representatives of Russian enterprises on the desirable measures of support from the state largely confirm the above theses. In particular, in April – May 2022, respondents believed that the way out of the sanctions crisis requires the following measures of support from the state: limiting the growth of prices for fuel, energy and transport services (55.8% of responses); reducing the tax burden for producers (52.7%); subsidies to producers who have established the production of import-substituting products (42.6%); increase in demand in the economy due to the growth of public procurement; payment of subsidies to the population, etc. (39.5%); sharp expansion of the sphere of concessional lending (38.8%; *Tab. 5*).

Table 5. Distribution of answers to the question "What measures to counter economic sanctions, in your opinion, should the Russian authorities take?" (sum of answers > 100%), %

Period	Reduce tax burden of manufacturers	Reduce tax burden of the population	Support the demand in the economy (due to the growth of public procurement, payment of subsidies to the population, etc.)	Limit the increase in prices for fuel, energy, transport services	Reduce the level of bureaucratic burden (checks, reports, certificates, etc.)	Strengthen the fight against corruption	Dramatically expand the scope of concessional lending	Launch large infrastructure and industrial projects at the expense of the state budget	Financially support enterprises that have established the production of import-substituting products	Create alternative payment systems for servicing import and export transactions	Other
April – May 2022	52.70	18.60	39.50	55.80	45.70	23.30	38.80	35.70	42.60	25.60	4.70

Source: (Kuvalin, et al., 2022).

Prospects for the development of the Russian economy in modern conditions

Despite all the difficulties that the Russian economy is currently facing, in our opinion, it is able not only to resist them, but also to make a powerful leap forward in the near future. Analogies from the relatively recent economic history of Russia help to make such an assumption.

To a certain extent, the current situation in the Russian economy resembles the situation that developed at the end of 1998.

On the one hand, by that time Russia had been conducting an inadequate and therefore very unsuccessful macroeconomic policy for quite a long period (1992–1998). Within the framework of this policy, formal macrofinancial stabilization was considered the primary goal, and the needs of the real economic sector and the population were considered secondary and largely ignored. As a result, Russia could not get out of the spiral of economic decline.

On the other hand, in the Russian economy of that period there was a gradual adaptation to new conditions, the development of new management and production technologies, the search for new sales markets, etc. Enterprises, regions and municipalities, households (population) tried to find and in many cases found options for reasonable economic solutions, and not so much thanks to, as in spite of the then macroeconomic policy. We can confidently argue that these economic entities at that time understood the mechanisms, limitations and opportunities of the market economy better than the federal authorities.

Therefore, when the new composition of the federal government under the leadership of E.M. Primakov abandoned the most inadequate measures of macroeconomic policy, it quickly became clear that the Russian economy was ready for growth (Samokhvalov, 2018; Piskulov, Khasbulatov, 2019). The rapid growth of production in the country began literally two months after the termination of such dubious actions as supporting an inflated ruble exchange rate, maintaining a financial pyramid of government securities, non-fulfillment by the state of budget obligations to enterprises and the population in order to reduce the money supply, etc.

If we look at the period from 2009 to 2022 from this point of view, then events in it are developing in much the same way. All this time, a strict macro-financial policy has been carried out in the country, focused on reducing inflation by monetary means and restraining the development of the real sector. At the same time, this overwhelming economic activity policy was accompanied by very active modernization activities at the level of enterprises, regions and households.

Table 6. Distribution of answers to the question "What measures are your company taking to counteract the "sanctions" crisis?" (sum of answers > 100%), %

Period	The search for new suppliers abroad was started	The search for new suppliers in Russia was started	Investment costs were reduced	Staff costs were reduced (dismissal, salary cuts, social package, etc.)	The production of some types of products was discontinued	The production of new types of products was started	The search for new sales markets was started	Actions were initiated to rebuild production for the future (repairs, modernization, etc.)	Other
April – May 2022 г.	36.1	69.7	36.9	11.5	14.8	21.3	31.1	14.8	3.3
Source: (Kuvalin, et al., 2022).									

In particular, even with the sharp complication of the situation caused by sanctions, many Russian enterprises are not just trying to survive, but are actively looking for opportunities for further development. This circumstance once again has confirmed the high adaptive abilities of Russian enterprises, which invariably manifest themselves during economic crises. For example, as a survey by the IEF RAS showed, even in conditions of extremely high uncertainty in April – May 2022, 69.7% of domestic enterprises have already started searching for new suppliers in Russia, and another 36.1% conducted such a search abroad. At the same time, 31.1% of respondents were looking for new sales markets, 21.3% started producing new types of products, and 14.8% launched restructuring and modernization of production (*Tab. 6*).

In addition, we should take into account that large-scale military operations, such as those in which Russia is currently participating, are always accompanied by accelerated development of high-tech industries. And this circumstance can also help Russia cope with sanctions faster, lengthen value chains, and provide a new economic breakthrough.

Questionnaire business surveys, as well as studying the situation in various sectors of the economy and regions confirm that at the moment there are significant economic enclaves in the country, which are either already growing rapidly or are clearly capable of rapid growth in the near future. As we have already noted, such enclaves can be seen in many export-oriented industries, in terms of subsectors of mechanical engineering and chemical industry, agricultural sector, nonferrous metallurgy, timber industry, agriculture, food and pharmaceutical industry, IT, tourism, etc.

Thus, we can assume that the emancipation of Russian producers by ending the monetary "drought" and increasing the availability of credit, some reduction in the tax burden, reducing the bureaucratic burden and increasing government orders can again provide a serious breakthrough of the Russian economy, which is most likely ready for rapid growth now.

In our opinion, the overall growth potential in the Russian economy is such that the growth rates of GDP and industrial production in the country can reach 4–5% per year and even higher, and for at least several years.

Conclusion

The main conclusions from the analysis of the current economic situation in Russia are as follows:

1. Large-scale sanctions by unfriendly countries have created great difficulties for the Russian economy and caused a serious crisis in it.

2. The current economic crisis in Russia is of a nonstandard nature and therefore the response measures to it in many ways should also be nonstandard.

3. In general, the Russian authorities have coped with the crisis phenomena of a short-term nature, preventing serious disruptions in the work of the national financial and banking system and keeping the ruble exchange rate under reliable control.

4. The Russian economy, represented by enterprises, households and regions, has also confirmed its high adaptive abilities, very quickly starting an active search for anticrisis solutions.

5. However, the relatively mild passage of the crisis in 2022 does not save the Russian economy from very serious medium- and long-term threats related to sanctions. The fight against these threats requires the continuation of an active economic policy.

6. On the one hand, as part of the fight against sanctions, Russia should make significant efforts to build a new architecture of its international trade and economic ties including the creation of new transport corridors, new payment systems, etc.

On the other hand, a mandatory element of the anti-crisis state policy should be the use of mobilization (planning) mechanisms including a significant increase in public investment in the

development of key industries and infrastructure, expansion of volumes and areas of support for households, enterprises and regions, strengthening of protectionism in foreign trade, elements of currency control, etc.

7. Currently, Russia has a good chance not only to withstand the sanctions pressure of unfriendly countries, but also to make an economic leap forward in the coming years, raising the GDP growth rate to 4–5% per year and above.

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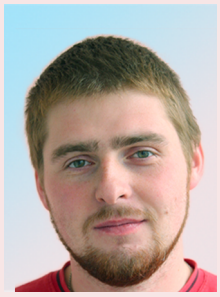
Defining Sectoral Priorities of the Region's Structural Transformation by Searching for Promising Economic Specializations



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Abstract. Global crises and foreign trade restrictions imposed on the Russian economy slow down its growth, affecting export-oriented regions to a great extent. Retaliatory economic measures, including those aimed to promote structural transformation of the economy, require its key directions to be defined. We attempt to determine priorities of the structural transformation of the Vologda Oblast economy by searching for promising types of economic activity. For this purpose, we study theoretical foundations of the search for priorities of sectoral development, elaborate and test a methodological approach to the search for promising branches of regional economic specialization, and identify areas of development for potential growth points. Using the materials of the Vologda Oblast, we make a list of activities whose development is promising from the point of view of long-term economic growth and identify potential opportunities for their introduction into the region's economy. Scientific novelty of our work consists in the development and testing of our own tools for finding priorities for the structural transformation of the regional economy based on identifying promising economic specializations. The information base includes works of Russian and foreign researchers in the field of industrial and spatial development, data from state statistics, the Federal Institute of Industrial Property, scientific electronic library eLIBRARY.ru and regional input-output tables for the Vologda Oblast. The findings of the work can be used in the management of the region's sectoral and spatial development and in research on the issues under consideration.

Key words: region, specialization, structural transformation, promising economic activities, value chains.

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Introduction

The new coronavirus pandemic and the 2022 geopolitical crisis and the resulting sanctions pressure on the Russian economy have significantly slowed the pace of national economic development. According to the World Bank, Russia's gross domestic product (GDP) is expected to decline by 4.5% in 2022[1].

Due to broad foreign trade restrictions on the part of unfriendly countries, the slowdown of economic dynamics in export-oriented regions will be particularly strong. The Vologda Oblast is among the regions that have felt the impact of the sanctions. In addition to personal prohibitions against the owner of the key enterprise of the Vologda Oblast, PJSC "Severstal" A. Mordashov, the EU countries restricted the import of Vologda steel, the supplies of which to Europe accounted for about one third of all revenues. The company is looking for alternative sales channels to other consumers, but this may be delayed due to logistical constraints[2]. The second largest manufacturing plant in the Vologda Oblast, Apatit JSC (the main activity is the production of fertilizers) is also under a number of restrictions, but this time by the Russian government, in particular,

[1] The World Bank has improved its forecast for Russia's GDP decline in 2022 from 8.9% to 4.5%. Available at: https://www.interfax.ru/business/866281.

[2] Sanctions hit the steel. Available at: https://www.kommersant.ru/doc/5238819

quotas on the export of mineral fertilizers. On the background of rising prices for commodities used for steel and fertilizer manufacturing (in particular, for coal and gas) and the strengthening of the ruble, Vologda exporting enterprises are losing profits, which has a negative impact on their activities in both the short and long term.

All this substantiates the relevance of structural reforms in the economy of the region. The need for structural reorganization of the Russian economy has been repeatedly stated by E. Nabiullina[3], A. Kudrin[4], M. Mishustin[5]. The resources allocated to adapt to the new conditions are enormous: as A. Siluanov states, the Russian government has allocated about 8 trillion rubles to support the economy[6]. The funds are aimed at stimulating domestic consumer demand, compensating for the damage to industries that have fallen under restrictions, developing import substitution, and supporting small and medium-sized businesses. Researchers have already stated before about the necessity to support the structural transformation of the regional economy. Thus, the main directions of structural transformation of the regional economy include the stimulation of production modernization (Lukin, Uskova, 2018), domestic consumer demand (Zemskova, Koloskov, 2017), and increase in the fixed capital accumulation rate (Ivanter, 2017). Spatial aspects of structural transformation (Kolesnikov, Tolstoguzov, 2016), changes in the labor market and their relationship with economic growth (Edinak, Shirov, 2021), and transformational mechanisms of national economic systems (Shirov, 2018) are considered.

The availability of management tools and financial and resource support raises the question – in what direction should structural transformations be implemented? The Strategy for spatial development of the Russian Federation until 2025 defines the list of promising types of economic activity for every region. As N.N. Mikheeva notes, solving the issues of regional development and distribution of productive forces within the framework of the above strategic planning document will become one of the most important public policy issues, while there are problems of scientific and methodological support for the implementation of this strategy, including the definition of promising economic specializations (Mikheeva, 2018). Researchers from the Institute of Economics and Industrial Engineering, Siberian Branch of the Russian Academy of Sciences note that the justification of promising economic specializations should be based primarily on the competitive advantages of the region, which are not reflected in the current version of the strategy (Kolomak et al., 2018). Other works also contain some criticism of the provisions of this strategy. Thus, the existing list of industries (precisely industries, not specific types of economic activity), firstly, is very numerous, and secondly, it is rather vague (Ivanov, Buchwald, 2019). In this regard, it is important to identify a capacious list of narrow market niches for sectoral diversification of regional economies based on their competitive advantages.

In view of all the above, we formulated the research purpose, which is to determine the priorities of the structural transformation of the Vologda Oblast economy in conditions of external

[3] "To revise approaches to regulation in such a way that, without accumulating excessive risks, banks could continue lending, to support the structural transformation of the economy". Nabiullina predicted difficult times for Russians and companies. Available at: https://lenta.ru/news/2022/05/26/hard/

[4] "Russian economy will be rebuilding for a year and a half or two years: during this time GDP will decline, and then it will shift to growth...". Kudrin estimated the period of economic restructuring in Russia at 1.5–2 years. Available at: https://www.vedomosti.ru/economics/news/2022/05/23/923180-kudrin-perestroiki

[5] "...the decisions taken give business the most powerful tools for adapting to new conditions, to the structural transformation of the economy...". The Cabinet of Ministers forms a position on measures under increasing pressure from the collective West. Available at: https://tass.ru/politika/14748983

[6] Siluanov announced the allocation of 8 trillion rubles to support the economy. Available at: https://www.rbc.ru/rbcfreenews/6290c78c9a79473a2a20018f

turbulence on the basis of the search for promising economic activities. This required solving such tasks as considering the theoretical foundations of the search for industry development priorities, forming and approbating of the methodological approach to the search for promising industries of regional economic specialization, and designing the development directions of potential points of growth. The information base of the research was the works of Russian and foreign scholars in the field of industry and spatial development, and the data of state statistics, the Federal Institute of Industrial Property, scientific electronic library "eLIBRARY.ru" and regional input-output tables in the Vologda Oblast.

Review of theoretical and methodological approaches to determining the current and future specialization of the regional economy

In international and Russian practice, there are various indicators and methods of calculation used to determine the current specialization of regions. Among the most popular is the localization coefficient, also known as the Hoover – Balass coefficient, or the Hoover specialization index. Among the related methods for identifying the sectoral diversity and geographical distribution of industries in the regions numerous indices are used – the Gini, the Hachman, the Krugman, the Hallett, the Lilien, the Ellison and Glaeser concentration indices, etc. The main methods for identifying existing regional specializations found in the Russian literature include coefficients of sector development depth, inter-district marketability, per capita production, Herfindahl – Hirschman index, and localization coefficient (Kutsenko, Eferin, 2019).

Determination of promising economic specialization is a more complex procedure, which is difficult to carry out using only mathematical methods. The review of modern studies on this topic highlighted a number of theoretical and methodological approaches, the implementation of which allows us to find types of activities and market niches, contributing to the intensification of economic growth, transformation of technological chains, and formation of a new national economic structure.

One of the first such approaches was the search for complementary industries based on proximity. The point of departure could be the concept of spatial proximity, which originated in the works of von Thünen (Thünen, 1926) as a study of the distance role from the central city in the location of various types of economic activity and developed in the works of M. Porter, the classic of cluster economics (Porter, 2000). Further research led to the identification of other types of proximity (social, institutional, organizational and cognitive). The above types of proximity were organically combined into one approach using a mathematical apparatus, authored by R. Boschma (Boschma, 2005).

Boschma's model easily compares the weights of different factors in the formation of spatial interactions in different areas. For example, one of the works of the Dutch school (Boschma et al., 2014) proved mathematically that for the formation of joint projects of different firms in the industry of computer games the greatest importance is their belonging to the same concern, and specialization in games of the same type, which is more important than the location of firms in one city. In fact, network effects here replace agglomeration effects, and organizational factors replace geographic factors. The very ease of parameterizing forms of proximity is also attractive: thus, in the presented work institutional proximity in each pair of firms was defined as belonging to the same state (therefore, to the same legal field), cognitive – as belonging to the same sub-sector (production of games of the same type), organizational – as belonging to the same holding, social – as presence/absence of joint projects in the past, and finally, spatial proximity was measured by distance between the headquarters of firms in kilometers.

Further evolution of the concepts of proximity and the development of the innovation economy led to the emergence of technological proximity. Technological proximity refers to the relationship between industries based on established production characteristics and allows to quantify which new industries would be better developed based on the existing technological portfolio of the region (Hidalgo et al., 2007). One of the mathematical methods used to identify promising activities within the concept of technological proximity is the index calculation of comparative advantage. This coefficient is the ratio of the export share of products of a certain type in the total exports of a country to the same type of products in the world exports (Hausmann, Hidalgo, 2011; Rastvortseva, Amanalieva, 2020).

Another concept with potential for the "economy of the future" development is the approach to defining "smart" specialization, developed by the Expert Group "Knowledge for Growth" of the Department for Technology and Innovation of the European Commission in 2005[7]. "Smart" specialization as a means of economic development involves the following goals:

– the emergence and development of new activities with innovation potential;

– diversification of regional economies and, consequently, expansion of production opportunities;

– formation of a diversified system consisting of scientific and production networks and clusters[8].

The algorithm for finding a "smart" specialization at the regional level is revealed in successive steps:

– analyzing the region's innovation potential;

– defining the process and managing the transformation of the economy based on smart specialization;

– developing a common vision of the "economy of the future";

– setting priorities of economic development;

– defining an action plan with a consistent set of policies;

– monitoring and assessment[9].

The main difference of the "smart" specialization from the already existing specialization is that it does not select individual industries (types of economic activity, TEA) as certain "points", but defines a set of TEA in relation to regional competences as a "space of choice". We can say that the "smart" specialization of the region is a fuzzy, and blurred core of regional knowledge and skills, around which other branches of the regional economy are grouped. This is the "field" where the process of stimulating regional economic development and synchronization of actions of different players takes place.

However, there is no integrated method that provides a solution to the question of identifying the "smart" specialization of any of the regions. It is always a combination of a data set that is likely to provide a suitable basis for the smart specialization identification process, this is why a broad multiplication of this approach is quite difficult (Kotov, 2020).

When using any method, it is important to position accurately the regional economy in international and interregional value chains and to identify certain key regional assets. The analysis of existing theoretical and methodological approaches to identifying promising types of economic activity allows us to name a number of key provisions on which the methodology of searching for directions of structural transformation should be based.

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

[7] Knowledge for Growth Prospects for science, technology and innovation. Selected papers from Research Commissioner Janez Potočnik's Expert Group, 2009.

[8] What is smart specialization. Smart Specialisation Platform, 2018.

[9] McCann P., Ortega-Argilés R. (2013). Smart Specialization, Regional Growth and Applications to European Union Cohesion Policy.

"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. Another cornerstone should be the innovative economic activity types in the context of existing industries and potential technological niches.

Individual examples of the implementation of methods of searching for promising specialization with a substantiated mathematical and statistical apparatus we can be found in such works as authorial models of Russian and Belarusian researchers, developed by request of the Ministries of Economic Development of Russia and Belarus respectively, as well as works of the "Russian Cluster Observatory" Center under the leadership of E.S. Kutsenko.

The methodology of A.V. Kotov and co-authors (Kotov et al., 2019) is based on the construction of a regional competence matrix. For this purpose, the authors calculate a number of indicators assessing the efficiency of current industry specialization, innovation potential, and patent and publication security in the context of a wide list of economic activities. The advantages of this methodological approach include a detailed sectoral nomenclature of the study, accessibility and easy interpretation of the used statistical data, and comprehensiveness of the regional competence analysis.

The methodology of Belarusian researchers has some similarities with the previous one (Berchenko, Mishin, 2018). Thus, at the initial stage, a list of industries, which are the current specializations of the territories, is formed by the method of multi-criteria decision analysis using the calculation of concentration coefficients. Then by expert way on a number of criteria (prospects of specialization areas; investment attractiveness; potential for clustering; availability of human resources; level of innovativeness) the rating scores of economic activities types were formed. Among the positive aspects of the methodology we should note the possibility assessment of clustering economic activities types, taking into account their multiplicity, and the analysis of investment and human resource potential. The main disadvantage, in our opinion, is the need to attract experts for the second stage of the analysis, which, due to its volume, significantly reduces objectivity.

The methodology examined in the works of E.S. Kutsenko and co-authors (Kutsenko, Eferin, 2019) is based on the approaches of the European Cluster Observatory, which, in turn, use the Porter model. This toolkit is applied to determine the industries of specialization and the prospects for their development by distributing points according to four indicators (level of specialization, size, productivity and dynamics). In order to classify an industry to regional specialization, the territory must simultaneously be in the top 80% of regions by size (S) and the presence of a "star" by the level of specialization (location quotient, LQ). In our opinion, the methodology is rather aimed at determining the existing specializations, but the introduction of the restriction, cutting off insignificant specializations, is one of the advantages of the named methodological approach.

Studies on structural transformation, including regional economies, repeatedly indicate the need to develop value chains (Kryukov et al., 2021; Ilyin et al., 2021), in this connection our position is that the multiplicity of development of promising specializations must be taken into account. In addition, current conditions of economic activity in Russia point to the need to develop import-substituting activities[10]. The described provisions, the small number of scientific works on the development of methodological tools to identify promising specializations, and the interest of the government in this scientific direction[11] provide an opportunity to expand this research field, taking into account global trends in economic science and practice, and the already existing author's toolkit.

[10] Putin instructed Russian companies to occupy the niches of the foreign companies that have left Russia. Available at: https://www.rbc.ru/politics/21/09/2022/632b10a69a7947aaaff35edb

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

Research methods

The theoretical foundations analysis, the study of the available information base on a wide list of types of economic activity (TEA), the development of regional inter-branch balances and conditions of economic activity changed under the influence of the geopolitical crisis, allowed to form our own approach to the definition of promising types of economic activity.

Based on the approach of A.V. Kotov and co-authors, as a part of the significant components of the assessment in the framework of the proposed methodological approach we analyzed the following aspects:

– effectiveness of industry specialization;
– market potential;
– innovation activity;
– availability of patents and publications relevant to the TEA.

The choice of these components in the methodology of A.V. Kotov et al. is due, on the one hand, to their direct connection with the processes of modern scientific and technological development of Russia, on the other hand, with the possibilities of information support for analysis and evaluation of promising specialization based on the system of representative indicators. In addition, our approach considers the needs for technological sovereignty of the economy and the need to transform the existing VC. For this purpose, indicators of value chain fragmentation[12] and the assessment of the region's import substitution capabilities are used. The novelty of the approach also lies in the use of regional input-output tables as one of the data sources.

The list of indicators for assessing the prospects of TEA is presented in *Table 1*.

Table 1. Indicators used in calculations in determining the prospective economic specialization of the region

Indicator	Calculation
Effectiveness of industry specialization	
Labor productivity of TEA in the region	$C_1 = \left(\frac{V_{it}^{reg}}{L_{it}^{reg}} : \frac{\sum_{i=n} V_{it}^{reg}}{\sum_{i=n} L_{it}^{reg}}\right) * \left(\frac{GRP_{nt}^{reg}}{L_{nt}^{reg}} : \frac{GRP_{t}^{reg}}{L_{nt}^{reg}}\right)$
Labor productivity of TEA in the macroregion	$C_2 = \left(\frac{V_{it}^{reg}}{L_{it}^{reg}} : \frac{V_{it}^{mreg}}{L_{it}^{mreg}}\right)$
Labor productivity of TEA in the country	$C_3 = \left(\frac{V_{it}^{reg}}{L_{it}^{reg}} : \frac{V_{it}^{RF}}{L_{it}^{RF}}\right)$
Effectiveness of labor productivity in the industry as a whole in the country	$C_4 = C_1 * \left(\frac{GRP_{t}^{reg}}{L_{t}^{reg}} : \frac{GRP_{t}^{RF}}{L_{t}^{RF}}\right)$

[12] To analyze the functioning of VCs, two indicators are used that characterize the degree of fragmentation of production and allow for a comprehensive assessment of the level of interaction of enterprises in the supply chains and sales of products. The first of them – the length of the production chain (D) – reflects the weighted average number of production stages consistently involved in the production of a particular product or service. The higher the value of D, the greater the share of intermediate products in the resources consumed, the more complex the intermediate links in the supply of resources with technologically related industries. The minimum value of D is assumed when production does not require any intermediate goods, which may indicate a low level of development of production cooperation in the supply chain. The second indicator – the length of the sales chain (U) – records the weighted average number of production stages that products go through after their production before reaching the end consumer. The higher the value of U, the greater the share of intermediate products in gross output, the more complex the intermediate links with technologically related industries in the sale of products. The indicator U takes the value 1 when all manufactured products are directed to final consumption. This situation characterizes the low level of development of production cooperation in the sales chain (Fally, 2012).

End of Table 1

Indicator	Calculation
Market potential	
The importance of TEA in the country	$C_5 = \frac{V_{it}^{reg}}{V_{it}^{RF}} * 100\%$
Significance of TEA in the region	$C_6 = \frac{V_{it}^{reg}}{GRP_t^{reg}} * 100\%$
Growth rate of TEA in the region	$C_7 = \sqrt[3]{\frac{V_{i(t-2)}^{reg}}{V_{i(t-3)}^{reg}} * \frac{V_{i(t-1)}^{reg}}{V_{i(t-2)}^{reg}} * \frac{V_{it}^{reg}}{V_{i(t-1)}^{reg}}} * 100\%$
Multiplicity of industry development	$C_8 = D_i$ $C_9 = U_i$
The region's need for import substitution of TEA products	$C_{10} = \frac{I_{it}^{reg}}{V_{it}^{reg}} * 100\%$
Innovation activity	
Share of the region's R&D expenditures in the volume of the country's TEA	$C_{11} = (\frac{R_{i(t-2)}^{reg}}{R_{i(t-2)}^{RF}} : \frac{R_{t-2}^{reg}}{R_{t-2}^{RF}} + \frac{R_{i(t-1)}^{reg}}{R_{i(t-1)}^{RF}} : \frac{R_{t-1}^{reg}}{R_{t-1}^{RF}} + \frac{R_{it}^{reg}}{R_{it}^{RF}} : \frac{R_t^{reg}}{R_t^{RF}})/3$
Share of shipped goods, works performed, and services provided by the innovative nature of the region's TEA in the volume of the country's TEA	$C_{12} = (\frac{N_{i(t-2)}^{reg}}{N_{i(t-2)}^{RF}} + \frac{N_{i(t-1)}^{reg}}{N_{i(t-1)}^{RF}} + \frac{N_{it}^{reg}}{N_{it}^{RF}})/3$
The share of expenditures on technological innovation (TI) in the region's TEA in the volume of the country's TEA	$C_{13} = (\frac{CTI_{i(t-2)}^{reg}}{CTI_{i(t-2)}^{RF}} + \frac{CTI_{i(t-1)}^{reg}}{CTI_{i(t-1)}^{RF}} + \frac{CTI_{it}^{reg}}{CTI_{it}^{RF}})/3$
Ratio of the proportion of innovative goods, works performed and services provided in the region and in the country	$C_{14} = (\frac{\varepsilon_{i(t-2)}^{reg}}{\varepsilon_{i(t-2)}^{RF}} + \frac{\varepsilon_{i(t-1)}^{reg}}{\varepsilon_{i(t-1)}^{RF}} + \frac{\varepsilon_{it}^{reg}}{\varepsilon_{it}^{RF}})/3$
Share of R&D financing at the expense of the business sector in the total amount of financial resources	$C_{15} = \frac{S_{i(t-2)}^{reg} + S_{i(t-1)}^{reg} + S_{it}^{reg}}{3}$
Patent and publication security	
Patent activity	$C_{16} = \frac{Pat_i}{\sum_{k=1}^{6} Pat_i}$
Publication activity	$C_{17} = \frac{Pub_i}{\sum_{k=1}^{6} Pub_i}$

Legend:
V_{it}^{reg} – the volume of own-produced goods shipped, works performed and services provided by own forces for the i-th TEA in the region for t year; L_{it}^{reg} – the average number of people employed in the i-th TEA in the region in t year; GRP_{nt}^{reg} – the gross value added in the aggregate industry n in year t; V_{it}^{mreg} – the volume of shipped goods of own production, work and services performed by own forces on the i-th TEA in the macroregion for the year t; L_{it}^{mreg} – the average number of people employed in the i-th TEA in the macroregion in year t; V_{it}^{RF} – the volume of own-produced goods shipped, works performed and services provided by own forces for the i-th TEA in the Russian Federation for t year; L_{it}^{RF} – the average number of people employed in the i-th TEA in the Russian Federation in t year; L_t^{reg} – the average number of people employed in the region in year t; GRP_t^{RF} – total gross regional product of the regions of the Russian Federation in t year; L_t^{RF} – the average number of people employed in the Russian Federation in t year; V_{it}^{RF} – the volume of own-produced goods shipped, works performed and services provided by own forces for the i-th TEA in the country for t year; GRP_t^{reg} – regional gross domestic product; D_i – production chain length; U_i – the length of the sales chain (for details see: Lukin, 2022); I_{it}^{reg} – volume of imports of goods, works, services for the i-th TEA; R_{it}^{reg} – amount of domestic R&D expenditures on the i-th TEA of the region in t year; R_{it}^{RF} – amount of domestic R&D expenditures on the i-th TEA of the country in year t; N_{it}^{reg} – the volume of own-produced goods shipped, performed work and services of innovative nature in the i-th TEA of the region in the year t; N_{it}^{RF} – the volume of own-produced goods shipped, works performed and services of innovative nature in the i-th TEA of the country in the year t; CTI_{it}^{reg} – the share of TI costs in the total volume of goods, works, services for the i-th TEA of the region in the year t; CTI_{it}^{RF} – the share of TI costs in the total volume of goods, works, services for the i-th TEA of the country in year t; ε_{it}^{reg} – share of innovative goods, works, services in the i-th TEA of the region in the year t; ε_{it}^{RF} – the share of innovative goods in the total volume of goods, works, services in the i-th TEA of the country in the year t; S_{it}^{reg} – share of R&D funding from the entrepreneurial sector in year t; Pat_k – number of patents for the i-th TEA of the country; Pub_k – number of publications on the i-th TEA of the country.

Source: own compilation.

After calculating the relevant indicators, they are assigned a point score according to the intervals presented in *Table 2*. The scores are determined on the basis of expert opinion.

The resulting indicator for the selection of promising economic activities of the region is an integral score, based on the points assigned to all the indicators used to evaluate the above four areas:

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

где PC_i^{reg} – value of the integral assessment of the potential of the promising specialization (PC) of the i-th TEA in the region;

ESS_i^{reg} – value of the point assessment of the potential for promising specialization of the i-th TEA according to the criteria block "Effectiveness of sectoral specialization" (ESS);

MP_i^{reg} – the value of the point assessment of the potential of promising specialization of the i-th TEA according to the block of criteria "Market potential" (MP);

IA_i^{reg} – value of the point assessment of the potential of the promising specialization of the i-th TEA on the block of criteria "Innovative activity" (IA);

PPS_i^{reg} – value of the point assessment of the potential for promising specialization of the i-th TEA according to the block of criteria "Patent and publication security" (PPS).

The methodological approach was approbated on the materials of the Vologda Oblast by 235 types of economic activity. The main sources of information are Rosstat data (EMISS (Unified Interagency Information and Statistical System), statistical data showcase, statistics of regional bodies), Rospatent, website eLIBRARY.ru, and our input-output tables for the Vologda Oblast.

Table 2. Scoring of indicators for identifying promising specializations

Criteria	Procedure for assigning points	Criteria	Procedure for assigning points
C1	C1≥1,2 – 1 point 1.2>C1≥0.8 – 0.5 points C1<0.8 – 0 points	C9	C9≥2.5 – 2 points 2.5>C9≥2 – 1 point 2>C9≥1.5 – 0.5 points C9<1.5 – 0 points
C2	C2≥1,2 – 1 point 1.2>C2≥0.8 – 0.5 points C2<0.8 – 0 points	C10	C10<0.5 – 2 points 0.5<C10<1 – 1 point C10≥1 – 0 points
C3	C3≥1,2 – 1 point 1.2>C3≥0.8 – 0.5 points C3<0.8 – 0 points	C11	C11≥5 – 1 point C11<5 – 0 points
C4	C4≥2 – 2 points 2>C≥1.2 – 1 point 1.2≤C4≥0.8 – 0.5 points C4<0.8 – 0 points	C12	C12≥1 – 1 point C12<1 – 0 points
C5	C5≥5 – 1 point 5>C5≥1 – 0.5 points C5<1 – 0 points	C13	C13≥2 – 2 points 2>C13>1 - 1 point C13<1 – 0 points
C6	C6≥10 – 1 point 10>C6≥5 – 0.5 points C6<5 – 0 points	C14	C14≥1 – 1 point C14<1 – 0 points
C7	C7≥120 – 1 point 120>C7≥110 – 0.5 points C7<110 – 0 points	C15	C15≥1 – 1 point C15<1 – 0 points
C8	C8≥2.5 – 2 points 2.5>C8≥2 – 1 point 2>C8≥1.5 – 0.5 points C8<1.5 – 0 points	C16	C16≥0.1 – C16*10 points C16<0.1 – 0 points
		C17	C17≥0.1 – C17*10 points C17<0.1 – 0 points

Source: own compilation according to Kotov et al., 2019, and expert estimates.

Research results

According to the Atlas of Economic Specialization of Russian Regions (Atlas..., 2021), the Vologda Oblast specializes in metals and metal processing industry, agricultural services and fertilizer production, forest industry and manufacture of wood products. These conclusions are confirmed and supplemented by other researchers. Thus, food industry, mechanical engineering, and tourism should be added to the already named TEA (Leonidova, Sidorov, 2019; Rumyantsev, Leonidova, 2020). The results of calculations of point assessments according to the described methodology on the materials of the Vologda Oblast for 2020 are presented in *Table 3*.

Table 3. Point assessments of promising economic specializations of the Vologda Oblast

Industry	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	Total
Production of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms	1	1	1	2	1	1	2	2	2	0	0	0	0	0	0	2.1	2.8	17.9
Production of machinery and equipment for agriculture and forestry	1	1	1	2	0.5	0	2	2	1	2	0	0	0	0	1	3	1.3	17.8
Production of other food products	1	1	1	2	0	0	2	2	0	0	0	0	0	0	1	2.2	2.6	14.8
Production of other steel products by primary processing	1	0.5	1	1	1	0	2	2	2	0	0	0	0	0	1	0.6	1.9	14
Production of cellulose, wood pulp, paper and cardboard	1	0.5	1	1	0.5	0	2	2	2	0	0	0	0	1	1	1.0	0.9	13.9
Production of abrasive and non-metallic mineral products	1	1	1	1	0.5	0	2	2	2	0	0	0	0	0	1	0	0	11.5
Installation of industrial machinery and equipment	1	1	1	2	0.5	0	2	1	2	0	0	0	0	0	1	0	0	11.5
Production of basic precious metals and other non-ferrous metals	1	0	0	2	0	0	2	2	2	1	0	0	0	0	1	0	0	11
Sawing and planing of wood	0	0.5	1	0	1	0	2	2	2	0	0	0	0	1	1	0	0	10.5
Production of concrete, cement and gypsum products	0	0	0.5	0	0	0	2	2	2	0	0	0	2	1	1	0	0	10.5

Source: own compilation.

According to the results of testing our methodology, the following types of economic activity were recognized as potential base points for the formation of a promising specialization of the region (*Fig. 1*):

– sawing and planing wood;

– production of products from concrete, cement and gypsum;

– production of abrasive and non-metallic mineral products, not included in other groups;

– installation of industrial machinery and equipment;

– production of basic precious metals and other non-ferrous metals, production of nuclear fuel;

– production of other steel products by primary processing;

– production of cellulose, wood pulp, paper and cardboard;

– production of other food products;

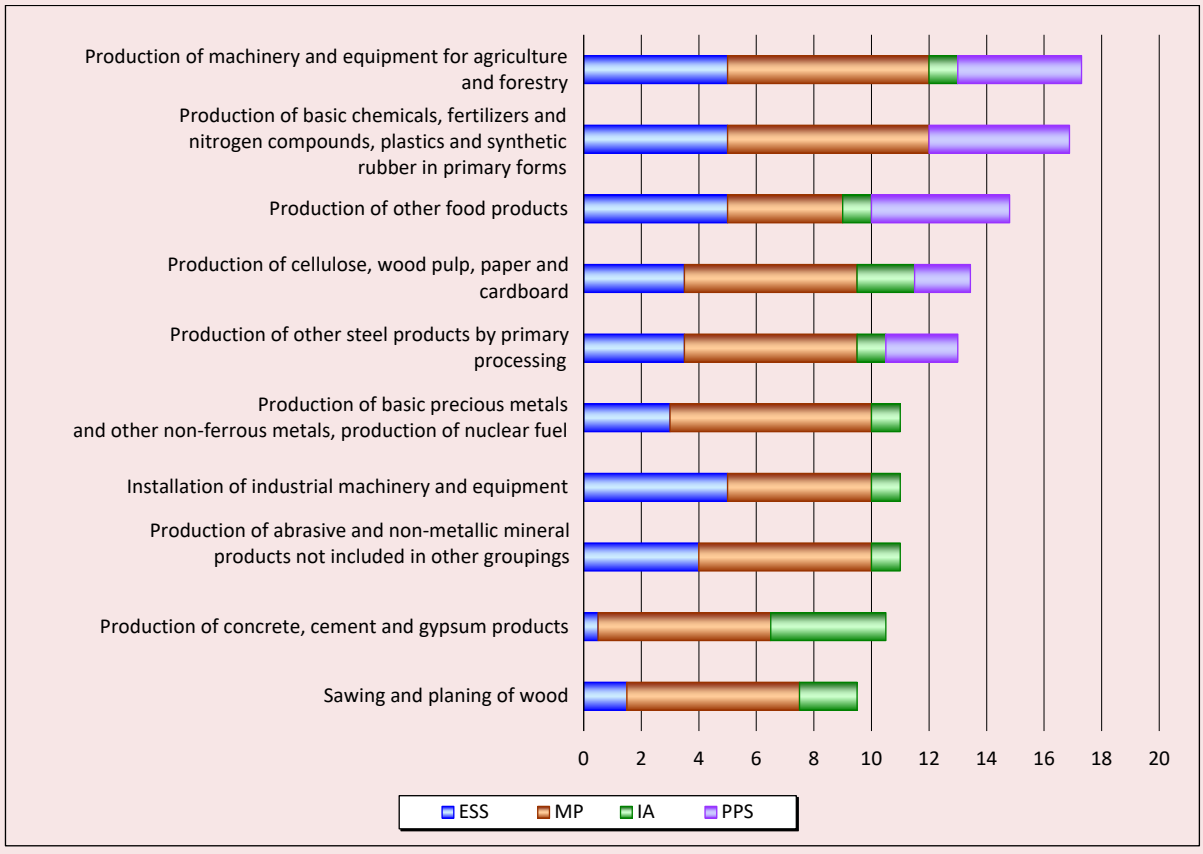
– production of basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms;

– production of machinery and equipment for agriculture and forestry.

The formation of the promising specialization profile of the Vologda Oblast allows to combine types of economic activities to achieve a synergistic effect of their interaction and to search for potential market niches of production.

The existing sectoral specialization of the Vologda Oblast in agriculture, production of timber products and tourism allows to combine the following types of economic activity into conditional chains (*Fig. 2–4*).

Figure 1. Results of integral assessments of the Vologda Oblast TEA potential

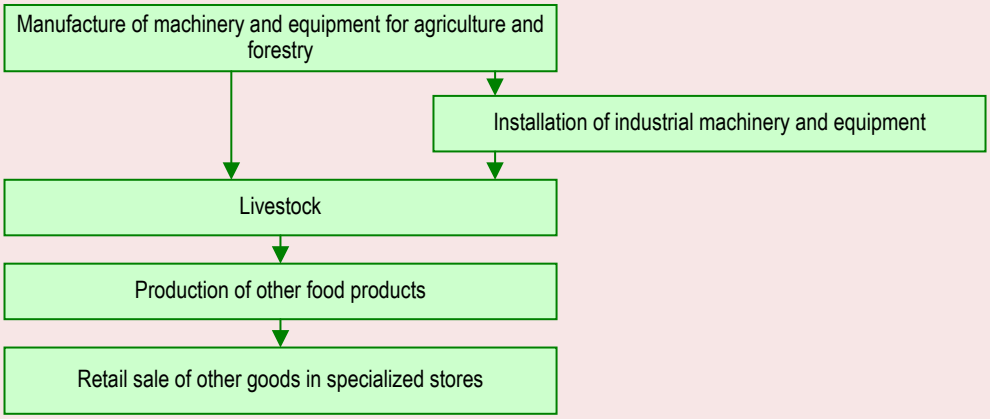


Source: own compilation.

The existing types of industry specialization need to update the material and technical base due to its significant wear. In the context of the termination of import supplies of mechanical engineering products, the development of own production of machinery and equipment for agriculture, among other things, solves the problems of technological sovereignty of the regional economy.

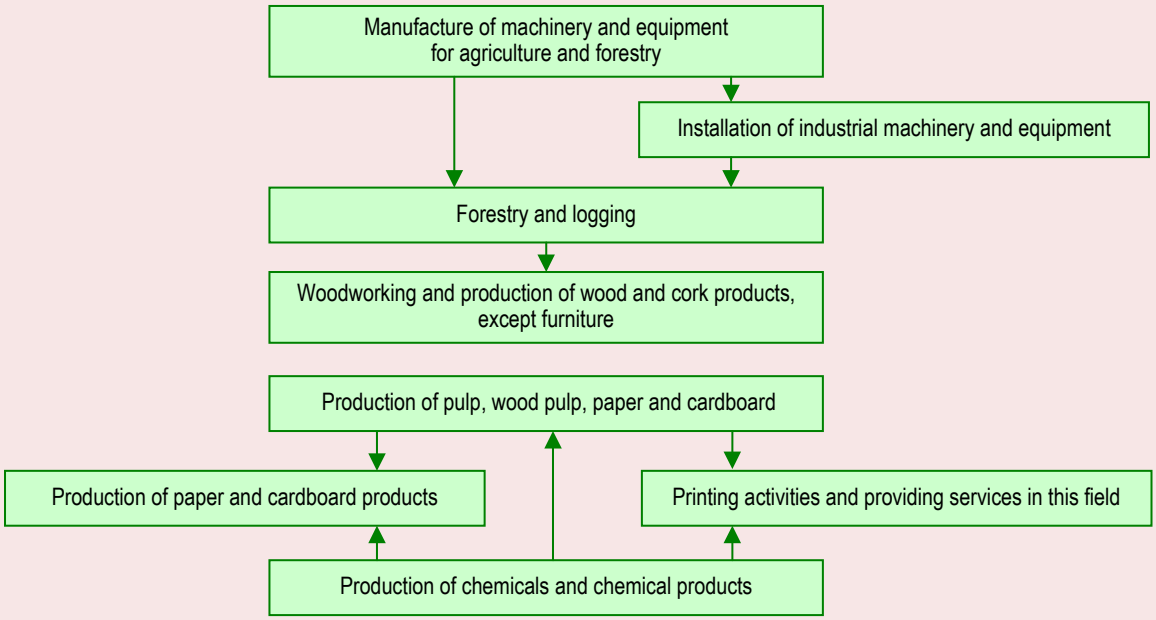
The analysis of patent activity allows us to note the opportunities for expanding the range of other food products produced. For example, specialists of the Vologda State Dairy Academy named after N.V. Vereshchagin have developed technologies for the production of various types of sports nutrition from the products of livestock breeding. Both in the Vologda Oblast and in the Northwestern Federal

Figure 2. Embedding regional priorities of promising specialization into existing economic activities (using livestock breeding as an example)



Source: own compilation.

Figure 3. Integration of regional priorities of promising specialization in the existing economic activities (on the example of the timber industry complex)



Source: own compilation.

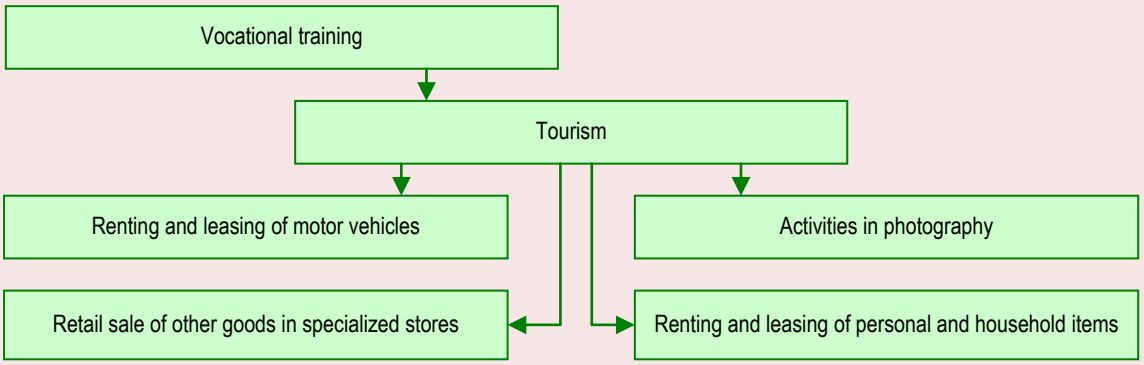
District as a whole, the production of such products is not established, but there is demand for it in Russia and in the region.

In the timber industry there is a similar situation with the state of the material and technical base. The production of products closer to the end consumer is limited by the lack of imported components. For example, the dairy industry in the Vologda Oblast faced a shortage of packaging for its own products (the production of dairy products decreased by 18.9%, the main reason being the lack of packaging for pasteurized milk) (Sidorov, 2022). In the printing industry there is a significant demand for basic raw materials (paper), as well as a shortage of dye pigments – the fifth package of sanctions adopted by the European Union in the beginning of April in addition to some types of equipment and coal prohibits the import into Russia of barrier foils, dyes, pigments, varnishes, paints, chemicals and products used in paper and cardboard processing, equipment for offset, gravure printing[13]. We see the possibility of repositioning the region in the chains of creating these types of products with the inclusion of the missing fragments, taking into account the already developed types of economic activity.

The economy of the Vologda Oblast is based not only on the sectors of material production. Thus, tourism stands out among the industries due to the high labor productivity of this type of economic activity in the region and a significant multiplier effect. The tourism industry requires the training of specialists in various profiles, and the development of related economic activities.

The government authorities also see the prospect in the development of tourism, which is reflected in the active financial and organizational support of this TEA within the framework of the national project "Tourism and the hospitality industry", in stimulating domestic tourist demand from the population. Also an argument in favor of stimulating the development of tourism as a promising economic specialization of the region is the fact that the tourism industry is an active participant in the innovation process. For example, the government

Figure 4. Embedding regional priorities of promising specialization in existing economic activities (on the example of tourism)



Source: own compilation.

[13] "Manufacturers of almost all products will face a shortage of paints and cardboard in both consumer and storage packaging. So far we cannot talk about a fundamental change in the assortment or volume of products due to the fact that companies have enough leftovers until mid-summer 2022". No bright colors: the food industry is facing a shortage of packaging and paint. Available at: https://www.dp.ru/a/2022/06/01/Bez_jarkih_cvetov

widely encourages the construction of fast-build eco-hotels and the development of inclusive tourism based on information technology (Leonidova, 2021).

Conclusion

Determination of the future trajectory of the transformation of the regional economy's sectoral structure on the basis of the proposed methodology of identifying promising TEA demonstrated the need to adjust the strategic guidelines of the Vologda Oblast economy's development. The outlined priorities in the Spatial development strategy can be used as the basic industries for diversifying the economy and deepening of product recycling. However, the construction of a highly productive, competitive and innovative economy is possible only with the transition to private TEA, filling market niches in order to ensure active economic dynamics and technological sovereignty. On the data of the Vologda Oblast the list of TEA, the development of which is promising from the point of view of long-term economic growth, was formulated, and the potential opportunities for their introduction in the existing structure of the national economy of the region were determined.

The priorities of sectoral development defined by us are not a permanent benchmark: as the national economy and scientific and technological progress evolve, it is necessary to benchmark promising regional specialization in order to adapt the economy to changing conditions.

Another important aspect of further research and its implementation in management practice is to take into account the interests and competencies of neighboring entities. Knowledge spillovers are necessary, and the diversification of the country's economy on the basis of harmonization of territorial specializations.

The scientific novelty of the conducted research consists in the development and approbation of our tools intended to find the priorities of the regional economy structural transformation, based on the identification of promising economic specializations. The practical significance lies in the possibility of using the results obtained by the authorities in the practice of managing the sectoral and spatial territorial development.

Further research will be devoted to the development and improvement of mechanisms for the development of promising economic specialization at the regional and federal levels, and the improvement of our methodology for determining promising regional specializations for the formation of sectoral priorities of structural policy.

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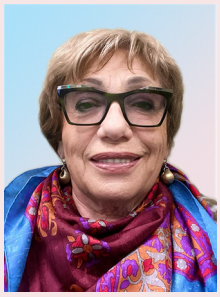
Determinants of Innovation Activity of Russian Pharmaceutical Manufacturers



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Abstract. The article presents the findings of an empirical study on the main determinants of innovation activity of Russian pharmaceutical manufacturers. We substantiate the application of two indicators that characterize innovation activity of pharmaceutical manufacturers: the first is the ratio of the number of the organization's proprietary intellectual property objects to those used under license; the second is the number of studies conducted by pharmaceutical manufacturers for original and reproduced medicines. Two-dimensional cluster analysis (the k-means clustering, excluding repetitions, using Euclidean distances) is used to classify enterprises as innovation-active. We highlight major factors influencing innovation activity of pharmaceutical manufacturers directly on the basis of the content analysis of Russian and foreign scientific works published on this topic. We analyze the selected determinants using statistical and econometric tools. The following statistical criteria are applied: Pearson's chi-squared test and Fisher's exact test for qualitative (dichotomous) indicators, as well as Student's t-test and

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the Mann – Whitney test to analyze quantitative indicators. Using discriminant analysis of the main determinants of innovation activity of Russian pharmaceutical enterprises we reveal the most significant determinants, primarily those that directly characterize the size of industrial enterprises. Additionally, we prove that widespread processes such as mergers and acquisitions of pharmaceutical manufacturers contribute to the possibility of accumulating resources necessary for innovation development of pharmaceutical manufacturers; however, these processes have certain negative effects associated with an increase in the oligopolization of pharmaceutical markets.

Key words: pharmaceutical industry, innovations, innovation activity determinants, cluster analysis.

Introduction

Innovation development of pharmaceutical production is defined as one of the main directions of Russia's economic policy[1]; this becomes especially relevant when the socio-economic, scientific and technological ties with unfriendly countries are curtailed. This sphere of material production can become one of the main starting points of the planned structural transformation of the Russian economy[2] and its shift to a qualitatively new level of development, especially in the context of the new reality. External socio-economic effects are also of strategic importance, since the development of fundamental research in the medical and pharmaceutical industries directly contributes to improving the quality of life and increasing life expectancy[3]. In addition, the pharmaceutical industry in Russia is represented by slightly less than 1,400 manufacturers that create more than 80 thousand jobs[4].

In this regard, it is of scientific and practical interest to assess the current level of innovation activity of leading Russian pharmaceutical manufacturers, as well as major factors (determinants) that promote such activity at present and evaluate longer-term trends. For the purposes of our study, the determinants of innovation activity are understood as main factors that are the driving force behind the development of innovation processes at enterprises or create conditions for such. These indicators are reflected in published scientific papers that describe innovation activity of enterprises in the manufacturing industry and material production in general, but they need to be adapted to the significant specifics of the pharmaceutical industry as a type of innovation activity. Such features are as follows: segmentation of the industry into the production of original drugs and generic drugs (reproduced drugs)[5]; the cycle of development of new drugs requiring substantial financial and time resources[6] (Tipanov, 2014); actually permissive

[1] See, for example: On approval of the state program of the Russian Federation "Development of the pharmaceutical and medical industry": RF Government Resolution 596, dated April 15, 2014: as of March 31, 2021.

[2] Romanova L. The Central Bank awaits the start of economic transformation in the coming months. What that transformation will be. *Vedomosti*. April 19, 2022. Available at: https://www.vedomosti.ru/finance/articles/2022/04/18/918674-tsb-zhdet-starta (accessed: April 29, 2022).

[3] See, for example: The pharmaceutical industry and global health. Available at: https://www.ifpma.org/wp-content/uploads/2017/02/IFPMA-Facts-And-Figures-2017.pdf (accessed: April 21, 2022).

[4] INDSTAT 4 2022, ISIC Revision 4. Available at: https://stat.unido.org/ (accessed: August 25, 2022).

[5] Moreover, the development and market launch of the latter does not imply any major discoveries or breakthrough development of science and technology, and, accordingly, does not contain an innovation component.

[6] See: The pharmaceutical industry and global health. Available at: https://www.ifpma.org/wp-content/uploads/2017/02/IFPMA-Facts-And-Figures-2017.pdf (accessed: April 21, 2022); World Preview 2021, Outlook to 2026. Available at: https://www.evaluate.com/thought-leadership/pharma/evaluate-pharma-world-preview-2021-outlook-2026 (accessed: July 17, 2022); Pharmaceutical industry and global health: Facts and figures. Available at: https://www.ifpma.org/wp-content/uploads/2016/01/2011_The-Pharmaceutical-Industry-and-Global-Health_RUS.pdf (accessed: July 17, 2022).

nature of the functioning of the industry and its strict state regulation at all stages; widespread use of patent protection of inventions, which is associated with the time-delayed transition to the growth phase within the life cycle of pharmaceutical products; advantages of large multinational corporations (MNCs) in pharmaceutical innovations.

The purpose of our study is to identify main features and determinants of innovation activity of pharmaceutical manufacturers by adapting existing theoretical and methodological developments and concepts to the specifics of pharmaceutical production; we also carry out quantitative assessment of the impact of the identified determinants on innovation activity at Russian enterprises specializing in pharmaceutical production.

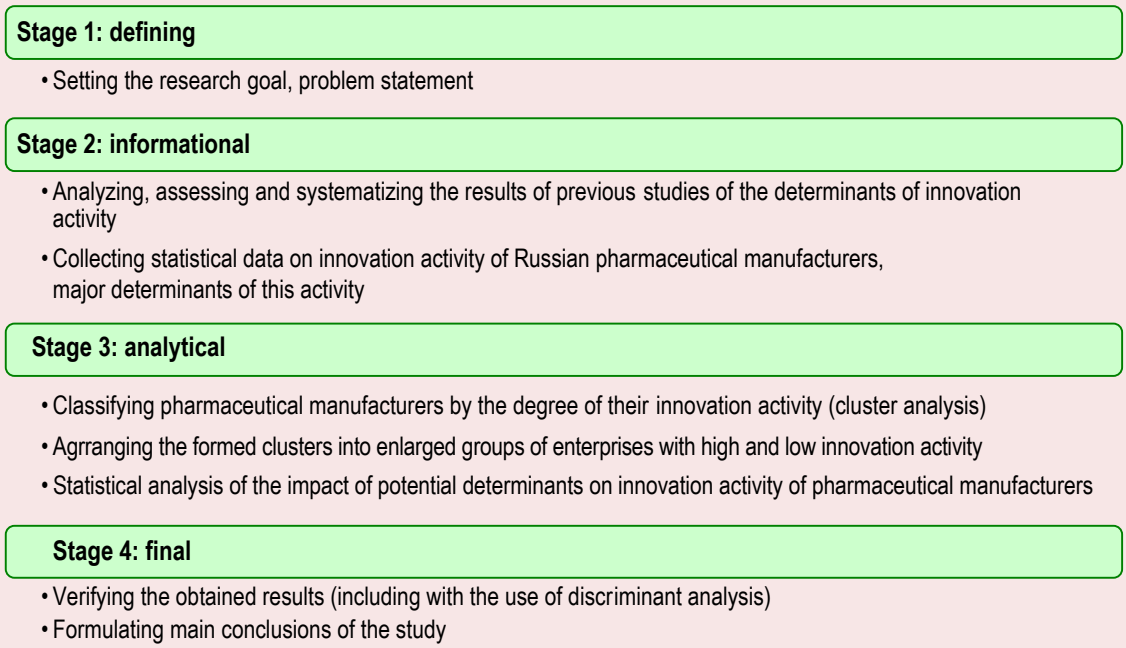
Materials and methods

The results of a multi-stage study of major determinants of innovation activity of Russian pharmaceutical manufacturers are presented below. The research algorithm is shown in *Figure 1*.

So far, a sufficient number of empirical studies have been conducted with the aim of identifying main factors influencing innovation activity at industrial enterprises. Thus, T.A. Dubrova and A.A. Ermolina (Dubrova, Ermolina, 2019) put forward a model for innovation activity of manufacturing enterprises. Having tested various determinants, the authors point out the following ones that they consider most important and include in their own final model: the size of the enterprise, the size of the locality of the enterprise, presence of industrial clusters in the region, availability of high-speed Internet access, enterprise's export activities, predominance of employees with higher education among the staff of the enterprise.

I.A. Kuznetsov et al. (Kuznetsov et al., 2017) use the method of expert assessments. As a result, it is revealed that the greatest contribution to innovation activity at enterprises is made by such factors as labor resources in the field of innovation, financial support for innovation activity, profitability

Figure 1. Research algorithm



Source: own compilation.

of production, amount of capital investment, resource efficiency, introduction of new products, technologies, improvements or management techniques, technological potential and financial situation of the enterprise. Similarly, another study (Panyavina, Vanyatinskii, 2012) analyzes determinants of innovation activity of enterprises using expert assessments method; and, according to the authors, the most significant among the factors is the indicator of the state of the market and the position of the enterprise in this market. In the studies of S. Malik (Malik, 2020) and S. Krammer (Krammer, 2009), the macroeconomic determinants of innovation activity are given on the example of Asian and Eastern European countries, respectively.

A wide range of factors influencing innovation activity of pharmaceutical manufacturers has made it possible to systematize them (*Tab. 1*). The classification is based on a multilevel approach, according to which all determinants are divided into country and global (macroeconomic); external determinants, which, in turn, are divided into sectoral and regional (mesoeconomic); as well as intracompany (microeconomic) determinants.

The influence of some determinants given in Table 1 seems to be very ambiguous. So, on the one hand, the size of the enterprise should have a positive impact on innovation activity due to the positive effect of scale, possibility of accumulating more significant financial resources and risk diversification; but the effectiveness of innovation due to the growth of management costs at large enterprises may decrease (Cohen, 2010). Similarly, it is logical to assume that a highly concentrated market allows a monopolist/oligopolist to accumulate more significant financial resources compared to a multitude of small producers, but at the same time the extinction or complete absence of competition obviously reduces the incentives

Table 1. Major determinants of innovation activity of industrial producers

Determinants of innovation activity of industrial producers		
External		Intracompany level (microeconomic determinants)
Country and global level (macroeconomic determinants)	Sectoral and regional level (mesoeconomic determinants)	
General: • Dynamics of economic and financial cycles • Socio-economic development level in the country/region • Stability and predictability of the economic situation in the country • State support of enterprises, including availability of government contracts* • Development of institutions in the country (including financial, state, etc.) • Inflow of foreign direct investment and the country's general involvement globalization processes **Specific (innovation-related):** • Level of national scientific and technological development • Extent of intellectual property protection • State innovation policy	• Type of economic activity • Geographical location • Concentration level of the market and its conjuncture • Development level of innovation infrastructure in the region • Stability and predictability of the economic situation in the region	• Age of the organization • Enterprise's size and its affiliation with a large corporate structure • Organization's access to high-speed Internet and its use • Export activities of the enterprise • Level of employees' qualifications • Financial situation of the organization, including its financial stability • General technical level and rate of equipment renewal and organization's intangible assets • Product renewal rate • Other internal features of the organization (ownership form, organizational structure, etc.)
* This refers to state support in general, and not only the targeted areas related to enterprises' innovation activity (respectively, this indicator is attributed to the general macroeconomic determinants). Compiled according to: Avdonina, 2011; Gernego et al., 2019; Davidson et al., 2018; Dubrova, Ermolina, 2019; Ibatullova, 2008; Karakulina, 2020; Panyavina, Vanyatinskii, 2012; Razumova et al., 2017; Alam et al., 2019; Cohen, 2010; Krammer, 2009; Kuznetsov et al., 2017; Malik, 2020; Zakic et al., 2008).		

for innovation activity among pharmaceutical manufacturers (Lambertini, Orsini, 2000; Ornaghi, 2009).

The causal relationship between the export and innovation activity of industrial enterprises is also ambiguous. At the theoretical level, it is noted that the dependence here should be two-sided: innovation activity provides favorable conditions for the company to enter foreign markets, but for enterprises already included in international trade, the world market, in turn, dictates the need for continuous improvement of exported products. However, the results of statistical analysis of the data on British small and medium-sized enterprises show that, with a high degree of probability, it is innovation activity (and only with regard to product innovations; this dependence is not confirmed for process innovations) that is the determinant of export activity, and not vice versa (Higon, Driffield, 2010). A specific feature of the global pharmaceutical industry is the dominance of large MNCs often called Big Pharma, and the patterns of their functioning and development differ from those observed when considering small and medium-sized enterprises. Major MNCs largely determine competition in the global pharmaceutical industry and also possess significant advantages in the course of research and market launch of innovative medicines and other pharmaceutical products (Szmelter, 2018).

Based on the above analysis of previous empirical studies (see Tab. 1) and the information availability of indicators, we consider the following potential determinants of innovation activity of Russian enterprises that are manufacturers of medical and pharmaceutical products:

- age of the organization, years;
- number of employees, people;
- state support for the enterprise;
- placement of state orders at the enterprise;
- book value of intangible assets of the organization, thousand rubles;
- share of intangible assets in the total value of the organization's assets, %;
- commissioning rate of new noncurrent assets in the organization, %[7];
- total value of the organization's assets, thousand rubles;
- the enterprise's remaining in the production growth phase[8];
- financial stability of the company[9];
- volume of the enterprise's revenue, thousand rubles;
- volume of gross profit of the organization, thousand rubles[10];
- profitability of the main activity of the organization, %.

A detailed study for a more extended analysis[11] was conducted for 85 Russian pharmaceutical manufacturers (the sample includes enterprises whose main activity is under Code 21 according to OKVED-2 (Russian National Classifier of Types of Economic Activity)[12]). The sample was formed

[7] Calculated as the ratio of the value of new noncurrent assets to the total value of noncurrent assets of the enterprise in the reporting period. Source: Blank I.A. (2007). *Financial Management*. Kiev: Nika-Center Elga. Pp. 191–192.

[8] Estimated as a simultaneous increase in fixed assets, inventories and revenues of the organization. Source: Kostrova A.A. (2018). *Financial Reporting Analysis according to Russian and International Standards*. Yaroslavl: Yaroslavl State University. P. 56.

[9] Its presence is characterized by the fulfillment of the condition of excess of current assets to noncurrent over the ratio of borrowed funds of the organization to its own funds. Source: Kostrova A.A. (2018). *Financial Reporting Analysis according to Russian and International Standards*. Yaroslavl: Yaroslavl State University. P. 57.

[10] Other types of profit include, among other things, the results of noncore activities of the organization.

[11] We have previously conducted a pilot study, the main purpose of which was to identify the main indicators characterizing innovation activity of Russian pharmaceutical manufacturers, and to carry out analytical assessment of the state of innovation activity of pharmaceutical enterprises (Berkovich, Volin, 2021). The study, based on data from 50 Russian pharmaceutical manufacturers, showed that most of them have insufficient innovation activity.

[12] Production of drugs and materials used for medical purposes. Source: OK 029-2014 (KDES Ed. 2). Russian National Classifier of Types of Economic Activity (approved by Rosstandart Order 14-st, dated January 31, 2014: as of July 26, 2022).

according to the principle of quality, completeness and availability of statistical data[13]. This explains its slight shift relative to the general population in favor of pharmaceutical manufacturers that are larger in terms of production and sales volumes. However, further on we show that such a shift is justified, since it is for larger pharmaceutical manufacturers that the issues of innovation activity are most relevant (Zabolotskii, Markov, 2010). It is important to note that since import substitution as such is characterized by the development and introduction of generics to the market and, in fact, does not involve any major discoveries and inventions, then the activity of developing generics objectively cannot be called innovation activity (Zabolotskii, Markov, 2010). We select two indicators as the main features of pharmaceutical manufacturers' innovation activity:

– ratio of the number (units) of clinical trials conducted by manufacturers for original drugs and generic drugs (reproduced drugs);

– ratio (within the organizations' portfolio) of the number (units) of own intellectual property objects representing the results of innovation activities to the number (units) of objects, used by manufacturers under license.

The first indicator is of particular interest, since the policy of import substitution is recognized as one of the most relevant areas of state regulation of the pharmaceutical industry[14]. Thus, the proposed approach to assessing innovation activity of pharmaceutical manufacturers by two criteria allows assessing innovation activity both from the point of view of the innovation process itself (conducting research) and in relation to its final results (possession of intellectual property objects as the results of innovation activity).

To distribute enterprises according to the degree of their innovation activity, a two-dimensional cluster analysis with the help of the k-means method, excluding repetitions (Euclidean distances were used in the calculations) was applied, regarding the two characteristics of innovation activity of Russian pharmaceutical manufacturers indicated above. We chose the statistical analysis methods proceeding from the nature of the distribution of the indicators under consideration (normal, in which case parametric methods were used, or different from normal, in which case nonparametric methods were used). The hypothesis about the nature of the distribution of indicators was tested using special statistical criteria (the Kolmogorov – Smirnov, Lilliefors and Shapiro – Wilk tests). For the statistical analysis of quantitative determinants, Student's t-test was used, as well as its nonparametric analogue, the Mann – Whitney U test. Categorical data comparison was carried out using Pearson's χ^2 test and Fisher's exact test. The most significant main determinants of innovation activity of Russian pharmaceutical manufacturers were selected with the help of discriminant analysis.

Results

Figure 2 shows two scatter plots. The first one represents the number of clinical bioequivalence studies conducted to confirm the pharmaceutical equivalence of a generic to an original drug, which do not include an innovation component, as well as clinical studies of phases I–IV necessary to market a new drug (phases I–III) or optimize the use of an already registered drug (phase IV)[15]. The information base of our research includes the data on the number of authorized studies with the "Ongoing" status in the Register of Permits for

[13] State Register of Drugs. Available at: https://grls.rosminzdrav.ru/GRLS.aspx (accessed: January 23, 2022); SPARK system of Interfax International Information Group. Available at: https://spark-interfax.ru/ (accessed: January 23, 2022).

[14] See, for example: On approval of the state program of the Russian Federation "Development of the pharmaceutical and medical industry": RF Government Resolution 596, dated April 15, 2014: as of March 31, 2021.

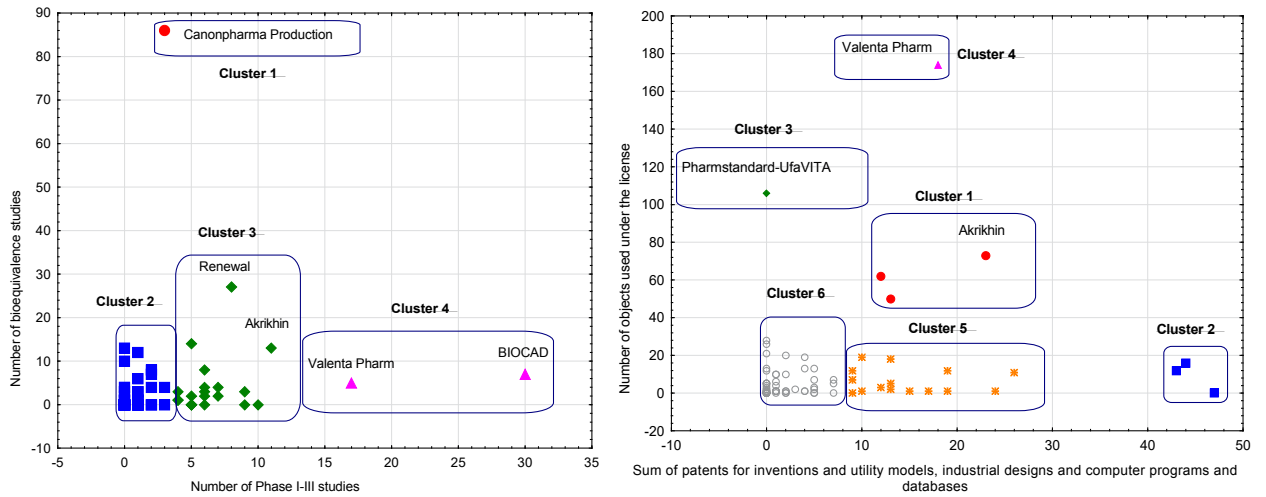
[15] General considerations for clinical studies: Guidelines of the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH) No. E8 (R1), dated May 8, 2019.

Clinical Trials[16] as of January 2022. The second scatter plot shows the spread of the number of patents for own inventions and the use of licenses for third-party developments for pharmaceutical manufacturers included in the study.

In general, the concentration of pharmaceutical manufacturers in the lower left corner of the scatter charts confirms the low innovation activity of most of them. According to the results of the analysis of the ratio of research conducted by enterprises, all pharmaceutical manufacturers are arranged into four groups, depending on the degree of their innovation activity determined by the ratio of the number of studies of original and reproduced drugs (generics). Due to the small number of the first and fourth groups for further analysis, they are combined, respectively, with the second (aggregated group of enterprises with low innovation activity) and third (aggregated group of enterprises with high innovation activity) groups. According to the results of the analysis of the ratio of own to licensed intellectual property objects in the organizations' portfolio, all the pharmaceutical manufacturers under consideration are grouped into six clusters. Enterprises included in clusters 3 and 6 have low and very low innovation activity. For further analysis, they will be combined into an aggregated group of enterprises with low innovation activity. Enterprises grouped into clusters 1, 2, 4 and 5 have on average a greater number of their own innovation developments and, as a result, are characterized by a higher degree of innovation activity. For further analysis, they will be combined into an aggregated group of enterprises with high innovation activity.

Further, we analyze the influence of the proposed determinants of innovation activity on the inclusion of an organization in one of the previously identified aggregated groups. Table

Figure 2. Segmentation of Russian pharmaceutical manufacturers by the degree of their innovation activity using the cluster analysis method



Compiled according to: State Register of Drugs. Available at: https://grls.rosminzdrav.ru/GRLS.aspx (accessed: January 23, 2022).

[16] State Register of Drugs. Available at: https://grls.rosminzdrav.ru/GRLS.aspx (accessed: January 23, 2022).

2 presents the results of statistical analysis of previously selected categorical determinants that presumably influence innovation activity of organizations (state support, placement of state orders at the enterprise, the enterprise being in the growth phase, financial stability).

We see that none of the categorical factors is a statistically significant determinant of innovation activity of Russian pharmaceutical manufacturers. We should note that there was no statistically significant relationship between the two areas of state regulation (in the form of both subsidies and placement of state orders) and the increase in innovation activity of pharmaceutical manufacturers in Russia. This may indicate, in particular, the insufficient effectiveness of state support for innovation development of the Russian pharmaceutical industry, or insufficient orientation of state regulation to directly support innovation activities of Russian pharmaceutical manufacturers.

At the next stage of the study we conduct statistical analysis of the quantitative determinants of innovation activity of Russian pharmaceutical manufacturers (namely, the age of the organization, number of employees, amount of assets, revenue, gross profit of the organization and its intangible assets, share of the latter in the total value of the organization's assets, commissioning rate of new noncurrent assets; Tab. 3). The results of analyzing the geometric mean growth rates of the main indicators characterizing the size of the enterprise (asset value, revenue and gross profit) are also presented here in order to trace the possible impact of the rate and direction of their dynamics on the company's innovation activity[17].

Descriptive statistics indicators provide a quantitative reflection of the difference between the factors under consideration, broken down by previously formed groups of pharmaceutical manufacturers according to the levels of their innovation activity.

The results of the statistical analysis confirm the statistical relationship between the enterprise's innovation activity and the size of the company expressed by four indicators: the number of employees, value of all assets, revenue and gross profit. Obviously, the larger the company, the more resources it can accumulate for innovation development; and the increasing volume of its gross profit expands opportunities for innovation. At the same time, we should emphasize that these conclusions turned out unfit for the indicators

Table 2. Statistical analysis of Russian pharmaceutical enterprises' innovation activity determinants (categorical indicators)

Determinant name	Enterprises' innovation activity	
	On clinical trials	On intellectual property objects
State support for enterprises (Yes/No)	Differences are statistically insignificant	Differences are statistically insignificant
State orders placement (Yes/No)	Differences are statistically insignificant	Differences are statistically insignificant
The enterprise is in the growth phase (Yes/No)	Differences are statistically insignificant	Differences are statistically insignificant
Financially stable enterprise (Yes/No)	Differences are statistically insignificant	Differences are statistically insignificant

* Determinants are given as of the end of the reporting year 2020.
Source: own compilation.

[17] The period for calculating the geometric mean chain growth rates from 2018 to 2020 is chosen in connection with the general principles of accounting statements of enterprises, which ensure the comparability of indicators. Source: On the forms of accounting statements of organizations: RF Ministry of Finance Order 66n, dated July 2, 2010, with amendments and supplements, entered into force with regard to reporting statements for 2020.

Table 3. Statistical analysis of the determinants of innovation activity of Russian pharmaceutical manufacturers (quantitative indicators)

Determinant name	Enterprises' innovation activity	
	On clinical trials	On intellectual property objects
Organization's age, years	Differences are statistically insignificant	Differences are statistically significant*
Number of employees, persons	Differences are statistically significant**	Differences are statistically significant**
Intangible assets, thousand rubles	Differences are statistically significant**	Differences are statistically significant**
Share of intangible assets in the total value of the organization's assets, %	Differences are statistically significant**	Differences are statistically significant**
Acquisition of noncurrent assets, thousand rubles	Differences are statistically significant*	Differences are statistically significant**
Balance sheet assets, thousand rubles	Differences are statistically significant**	Differences are statistically significant*
Average geometric growth rate of assets (2018–2020), %	Differences are statistically insignificant	Differences are statistically insignificant
Revenue, thousand rubles	Differences are statistically significant**	Differences are statistically significant**
Gross profit, thousand rubles	Differences are statistically significant**	Differences are statistically significant**
Profitability, %	Differences are statistically significant*	Differences are statistically significant*
Commissioning rate of new noncurrent assets, %	Differences are statistically insignificant	Differences are statistically insignificant
Average geometric growth rate of revenue (2018–2020), %	Differences are statistically insignificant	Differences are statistically insignificant
Average geometric growth rate of gross profit (2018–2020), %	Differences are statistically insignificant	Differences are statistically insignificant

* – statistically significant differences at a 95% level
** – statistically significant difference at a 99% level
Source: own compilation.

of revenue growth, gross profit and the size of assets. Thus, the presence of a factor of long-term return on financial investments in innovations in pharmaceutical production is confirmed (Tipanov, 2014; DiMasi et al., 2016).

Statistically significant is also the relationship between the absolute and relative number of intangible assets on the balance sheet of the organization and its innovation activity. This means that, on the one hand, the presence of such assets can be used in the organization's innovation activities, and, on the other hand, the results of such activities lead to the emergence of corresponding copyrights, the valuation of which is reflected on the balance sheet of the innovation organization.

Another important determinant of innovation activity of pharmaceutical enterprises, which has statistically confirmed its influence, is the number of noncurrent assets and the annual costs of the organization for their acquisition. Noncurrent assets include, in particular, specific experimental equipment used in the development of new or improved medicines; and their timely updating can contribute to the emergence of innovations in the company's production processes.

The impact of profitability on the company's innovation activity turned out to be somewhat less significant, and the influence of such determinants as the age of the organization and the amount of fixed assets on its balance sheet, taking into account

the statistical analysis carried out, seems rather doubtful, although it is impractical to exclude it completely.

Discussion. The results of the analysis of the most significant determinants of innovation activity of Russian pharmaceutical manufacturers indicate the decisive importance of those that somehow characterize the size of a particular enterprise and the scale of its activities. This conclusion is also confirmed by the results of the discriminant analysis we conducted, according to which, in accordance with the results of the step-by-step method with inclusion, the greatest contribution to the differences between the aggregates of organizations included in the analysis on the basis of the presence or absence of innovation activity is made by such factors as the amount of revenue and the amount of intangible assets of the organization; these factors help to assess innovation activity by the number of clinical trials of medicines conducted by the organization; the number of employees of the organization is another factor that helps to assess innovation activity by the nature of intellectual property objects in the portfolio of a particular organization (*Tab. 4*). Obviously, these factors somehow characterize the size of the organization, as well as the availability of financial, intellectual and other resources necessary for the implementation of innovation activity.

At the same time, the steady average growth trend showed by Russian pharmaceutical manufacturers included in the analysis, regardless of their level of innovation activity, may be due to the fact that the global pharmaceutical industry as a whole is characterized by a high degree of intensity of mergers and acquisitions (Evstratov, 2018); however, consolidation processes have not been widespread among Russian pharmaceutical manufacturers so far, although there exist some examples of these processes[18]. Obviously, given the high risks and long-term returns on investments in pharmaceutical innovations, only powerful corporations are able to accumulate a sufficient amount of financial, intellectual and other resources to maintain a high level of innovation activity. Thus, mergers and acquisitions of manufacturers within the Russian pharmaceutical industry at the present stage seem rather a favorable trend, if in the end they do not

Table 4. Results of the discriminant analysis of the main determinants of innovation activity of Russian pharmaceutical manufacturers***

Modeling results	Enterprises' innovation activity			
	On clinical trials		On intellectual property objects	
Method	Step-by-step analysis with inclusion			
Number of steps	3		2	
Factors	Name	F-criteria for inclusion (p-value)	Name	F-criteria for inclusion (p-value)
	Revenue, thousand rubles	<0.001**	Number of employees, persons	<0.001**
	Intangible assets, thousand rubles	0.014*		

* – statistically significant differences at a 95% level
** – statistically significant difference at a 99% level
*** The analysis was conducted for the determinants, for which a statistically significant influence on innovation activity of enterprises had been previously revealed (Tables 2 and 3).
Source: own compilation.

[18] See, for example: On the merger of Binnopharm and Obolenskoye, led by Sistema, in 2019: Labykin A. (2019). "Sistema" gathers pharmacists. *Ekspert*, 8, 32–35.

lead to high oligopolization or even monopolization of the market. Otherwise, excessive concentration of market power of individual producers may lead to a decrease in incentives for innovation development (Deangelis, 2016; Ornaghi, 2009).

In this regard, we can state that there is some dilemma that has not been solved to date and is of interest for future research on pharmaceutical production; the dilemma is related to the consequences of pharmaceutical markets oligopolization that inevitably follows the processes of mergers and acquisitions and to the need for consolidation of pharmaceutical manufacturers to increase the ability to accumulate financial, logistical, labor and other resources required for their innovation development. In this situation, an alternative to mergers and acquisitions may be to stimulate scientific and technological cooperation between independent Russian and foreign pharmaceutical manufacturers, primarily those representing friendly countries (India, China, etc.), including the use of advantages of industrial clusters (Ornaghi, 2009).

Conclusion

In our study, the generalization and systematization of the main determinants of innovation activity of industrial enterprises was carried out, a list of the main determinants directly influencing innovation activity of pharmaceutical manufacturers was formed, taking into account the specifics of this type of activity; and a quantitative analysis was carried out, followed by identifying the most significant factors based on cluster and discriminant analysis, calculation of the Mann – Whitney U test or Student's t-test for quantitative indicators and Pearson's χ^2 test or Fisher's exact test for categorical indicators. As a result, we identify the most significant determinants of innovation activity of Russian pharmaceutical manufacturers.

At the information stage of the study, a multilevel structuring was carried out, as a result of which we prove that the main determinants of innovation activity of pharmaceutical manufacturers include intracompany (at the microlevel), sectoral and regional (at the mesolevel), as well as national and global (at the macrolevel), which can also be divided into general and specific or innovation.

Based on the econometric and statistical analysis, the most significant determinants of innovation activity of Russian pharmaceutical manufacturers are indicators characterizing the size of the organization (the number of employees; book value of its intangible assets and their share; book value of non-current assets; amount of all assets of the organization, as well as its revenue and gross profit). This conclusion regarding the impact of the size of the organization on its innovation activity is also confirmed by the results of the discriminatory analysis. We also find out that a significant factor in innovation activity of Russian pharmaceutical manufacturers is the degree of renewal of the organization's fixed assets (analyzed according to the annual spending of pharmaceutical manufacturers on the acquisition of noncurrent assets), which on the one hand may include special experimental equipment used for the development of new drugs, and, on the other hand, the constant updating of equipment increases the potential for production innovation. Also, the impact of profitability of core activities on innovation activity of organizations is somewhat less strong. In addition, our calculations show the insufficient effectiveness of state support for innovation development of pharmaceutical manufacturers, or its insufficient focus on this aspect of the work of pharmaceutical enterprises. The dynamic assessment of the main determinants shows the absence of short-term effects of innovation activity of organizations in relation to their growth, but does not exclude the presence of longer-term effects, which confirms the long-term return on investment in pharmaceutical innovations.

In general, we can draw an analytically substantiated conclusion that innovation activity of Russian pharmaceutical manufacturers currently seems insufficient, which may be due to some shortage of internal resources for long-term investments in the development of innovations. At the same time, major pharmaceutical manufacturers are the most innovation-active ones in Russia, i.e. innovation development is more relevant for those organizations that are able to accumulate sufficient financial, scientific, technological, human and other resources necessary to address such tasks. Potentially, this problem can be solved by the processes of mergers and acquisitions of drug manufacturers that have become a global trend by now, but with some exceptions that have not sufficiently affected the Russian pharmaceutical industry. However, when creating prerequisites for such processes, it is obviously necessary to take into account the balance of interests not only of producers, but also of consumers, who may experience negative effects associated with increased oligopolization and even monopolization of drug markets. A possible alternative to such processes is the expansion of the cluster approach that has already proven effective; this allows creating complete chains of innovation processes through more flexible forms of scientific and technological cooperation, as well as stimulating the creation of production chains (including various stages of R&D) with foreign pharmaceutical manufacturers (primarily those originating from friendly countries).

Scientific and practical significance of our research consists in the use of our own multistage research algorithm, which expands the understanding of the combination of general and special features in the development of forecasts and programs for innovation development of the country and individual economic sectors, substantiates the expediency of using complex complementary mathematical tools in identifying sectoral determinants, and adds to the tools for evaluating the effectiveness of public policy in the field of innovation. The results of the analysis can be applied in making decisions, including strategic ones, regarding innovation development of individual pharmaceutical enterprises and the industry as a whole.

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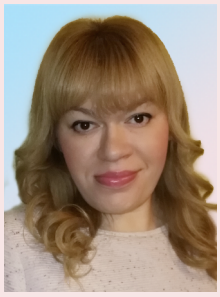
Digitalization of Small and Medium-Sized Cities in the European North of Russia: Trends and Prospects



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Abstract. Rapid introduction and spread of digital technology in all spheres of life have lead to changes in the economy and society. Digitalization seems to be one of the promising directions in terms of addressing economic, environmental and social issues related to the development of territories, including small and medium-sized cities. However, scientific literature has not paid sufficient attention to the digital transformation of such settlements and their territorial specifics. The aim of our work is to study trends and prospects related to the digitalization of small and medium-sized cities in the European North of Russia. We present a number of indicators characterizing the basic conditions for the development of digital technology in the region. We analyze the extent of penetration of digital services in small and medium-sized cities of the European North of Russia and identify the presence of a developed online trading infrastructure alongside a relatively low level of distribution of services. Main barriers to the digitalization of small and medium-sized cities are high cost of developing and implementing digital technologies and services, lack of funding, and a low level of digital competencies in the population. We propose solutions to the above problems and put forward some conceptual provisions determining the choice of priority areas of digitalization to achieve the sustainable development goals in northern small and medium-sized cities. We focus our attention on the importance of taking into account not only the opportunities, but also the risks of digitalization; the expediency of choosing priority areas of digitalization of the economy for various types of cities; the need to introduce digital technology to address social and environmental issues. The findings of our study may be useful to the

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public authorities of RF constituent entities in finalizing regional strategies on digital transformation of economic sectors, social sphere and public administration.

Key words: small and medium-sized cities, digitalization, European North of Russia, information and communication and digital technology, "smart" city.

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Introduction

Under the conditions of the Fourth Industrial Revolution, digitalization of almost all spheres of human life is becoming a global trend, and the introduction of information and communication and computer technology is a key factor in the socio-economic development of any state. The "black swan" COVID-19 pandemic has become a serious challenge for all countries of the world without exception. However, despite many negative social and economic consequences, due to the forced transition of most organizations to a distance work format, it also served as a powerful incentive for the accelerated digitalization of absolutely all spheres of human life.

In recent years, Russia has paid a lot of attention to the digitalization of industries and the use of new digital solutions and technologies in the public sector. The adoption of the national program "Digital Economy" in 2018 has greatly contributed to this[1]. Digital transformation, in turn, has been declared as one of the national development goals of the country until 2030[2].

According to researchers from the Higher School of Economics, information and communications technology (ICT) growth in Russia in 2015–2021 exceeded the GDP growth rate by 28 p.p. (35 and 7%, respectively). However, 70% of this rate was provided by imports of digital and information and communication goods and services[3]. In conditions of aggravation of the geopolitical situation in February 2022 and the subsequent introduction of a number of anti-Russian economic sanctions by Western countries, including restrictions on the supply of high-tech products, the issues of technological development of Russia and import substitution in the information and communication sector have come to the fore and become one of the most important tasks facing the Russian fundamental and applied science.

The President of Russian Federation V.V. Putin during the 25th Saint Petersburg International Economic Forum in June 2022 noted that the key principle of the country's development is "achieving true technological sovereignty, creating an integral system of economic development, which by critical components does not depend on foreign institutions"[4]. Without exaggeration, we can say that Russia's future position in the global economy depends on how quickly the country can adapt to the new conditions and what its response to the new technological challenges will be.

[1] Passport of the national project "National Program "Digital Economy of the Russian Federation" (approved by the Presidium of the Council under the President of the Russian Federation for Strategic Development and National Projects, minutes dated June 4, 2019, 7).

[2] Presidential Decree 204 "On the national goals and strategic objectives for the development of the Russian Federation until 2024", dated May 7, 2018, and Presidential Decree 474 "On the national goals for the development of the Russian Federation until 2030", dated July 21, 2020.

[3] Experts assessed the threat of sanctions to Russia's digital transformation. Available at: https://www.rbc.ru/technology_and_media/27/04/2022/62681d139a7947266b64cd9e

[4] Plenary session of the 25th Saint Petersburg International Economic Forum. June 17, 2022. Available at: http://www.kremlin.ru/events/president/transcripts/68669

With the growth of external threats, the problem of digital inequality within the state itself has moved into the background. However, in our opinion, during this difficult time, the issue of preserving the integrity of the country's socio-economic space is more relevant than ever, for which it is necessary not only to reduce the gap in the technological race with other developed countries, but also to develop those areas of the digital economy that will promote the sustainable development of absolutely all Russian settlements.

The approach based on the introduction of digital services and the use of advanced technologies in all social spheres seems to be one of the most promising in terms of solving the problems of sustainable territorial development (Semyachkov, 2021). In the scientific literature, these ideas are more often applied to agglomerations and big cities, because, as a rule, it is agglomerations and big cities that are the birthplace of innovation and new digital technologies. At the same time in Russia, 945 out of 1,117 cities have a population of less than 100 thousand people, that is, belong to the category of "small and medium-sized"[5]. At the local level these settlements are the centers of socio-economic development of the adjacent territories and the nodes of the supporting framework of resettlement. In view of this we can say that to a large extent the sustainable development of the country is provided by the balanced development of the economy, environment and social sphere of small and medium-sized cities.

For the territories of the European North of Russia (ENR), which includes the republics of Komi and Karelia, the Vologda, Murmansk and Arkhangelsk oblasts, including Nenets Autonomous Okrug, the issues related to improving the sustainability of cities in this category are particularly relevant. The vast majority of cities in the region (61 out of 68) are "small and medium-sized", and they are home to almost 36% of the urban population of the ENR. Throughout the history of economic development of the northern territories, these cities, along with large ones, have been the centers of socio-economic development of the regional scale.

Small and medium-sized cities adapted extremely hard to market conditions, which had a negative impact on their socio-economic development. However, more than 30 years have passed since the beginning of market reforms in Russia, and during this time the scientific and technological sphere of the country has changed. The era of digital technology offers great opportunities for the development of even small settlements, solving their socio-economic and environmental problems. However, little attention is paid to the study of small and medium-sized cities digitalization in the North.

In this regard, the purpose of our work was to study the trends and prospects of digitalization of small and medium-sized cities of the European North of Russia. To achieve the purpose, the following tasks were carried out: a review of current research in the digitalization field was conducted; opportunities for the spread of digital technology for sustainable development of small and medium-sized cities were identified; the primary conditions for the digitalization of small and medium-sized cities in the European North of Russia were assessed; the main barriers to the spread of digital technology and possible ways to overcome them were identified; a number of conceptual provisions that determine the choice of priority areas of digitalization of small and medium-sized cities with regard to their northern specifics.

The elements of the study's scientific novelty consist in assessing the existing conditions for the spread of digital technology in small and medium-sized cities of the European North of Russia, and in developing conceptual provisions for the digitalization of these settlements to achieve the goals of sustainable development.

[5] According to the set of rules "Urban Planning. Planning and Development of Urban and Rural Settlements" (SR 42.13330.2016) from the Ministry of Construction of Russia, cities are divided into: 1) the largest (with a population over 1 million people); 2) large (from 250 thousand to 1 million people); 3) big (from 100 to 250 thousand people); 4) medium-sized (from 50 to 100 thousand people); 5) small (up to 50 thousand people).

Research materials and methods

Theoretical and methodological research basis consisted of the works of Russian and foreign authors in the field of studying the digitalization of the economy and society, and the implementation and spread of information and communication and computer technology in urban settlements.

One of the key indicators and the main condition for the digitalization of any territory is the Internet access. Due to the absence of municipal statistics for individual cities for understanding the general trends, this paper presents Rosstat (EMISS= Unified Interdepartmental Statistical Information System) data in the context of the subjects of the European North of Russia. As the main indicators we used the data on the share of organizations and population with broadband Internet access; the share of residents who are active Internet users, including the purchase of goods; the share of sales via the Internet in the total volume of retail sales; the share of citizens who use the mechanism of receiving public and municipal services in electronic form.

For the analysis of digitalization processes directly in the small and medium-sized cities of the ENR, we used data from mobile operators' maps of 4G coverage; information about the existing online shopping infrastructure in small and medium-sized cities (pickup points of Wildberries and Ozon); information about the possibility to order a taxi using online applications (Yandex.Taxi, Uber).

Since the attitude to digitalization and the level of digital competence of the population determine largely the speed and depth of digital services distribution, we also used the results of sociological surveys of small cities residents in the Vologda Oblast, presented in a number of works of Russian scientists.

Besides, there was a content analysis of strategies in the field of digital transformation of industries, social sphere and public administration of the entities of the ENR to assess the role assigned to small and medium-sized cities of the region in these processes.

Theoretical aspects of the study

Currently, sustainable development is a strategic goal of social and economic policy in almost all developed countries of the world, both at the national, regional, and local levels. In 2015, UN member states approved 17 global Sustainable Development Goals (SDGs) until 2030, and a plan for their achievement were adopted. Goal 11th is "ensuring openness, safety, resilience and environmental sustainability of cities and human settlements"[6], which is not accidental, because due to the active and accelerating process of urbanization, cities are becoming the new flagships for promoting sustainable development as a new paradigm of social and economic life (Dorofeeva, Leont'eva, 2021).

The concept of sustainable development involves providing for the needs of the present generation without harm to future generations by achieving environmental, economic and social sustainability. Of course, this topic is not new, there are a large number of works devoted to sustainable urban development in the world scientific literature. The focus of scientists' attention is still on both the problems of the negative impact of urbanization processes on the environment (Bhargava, 2018; Keith et al., 2022), and the issues of assessing the level of sustainability of cities and their achievement of the sustainable development goals (D'Adamo et al., 2022; Xiao et al., 2022). However, in recent years, one of the relevant topics of scientific work is the analysis of the impact of the rapid spread of information and communication and digital technologies on the socio-economic urban development and the state of the environment in them[7] (Siliang, Heng, 2022).

The concept of "digitalization" itself does not have a universally recognized definition. There is no consensus in the scientific community on this issue,

[6] Sustainable Development Goals. Official website of the United Nations. Available at: https://www.un.org/sustainabledevelopment/ru/cities/#

[7] Noella V., Fahad A. Digitalization to fight everyone has to move to the big cities. DOI: 10.13140/RG.2.2.15151.05288

and the interpretation of the term depends directly on the field of research and the studied object. In a narrow sense, "digitalization" is an activity directly related to digital technology; in a broader sense, it is the impact of information and communication and digital technology on various spheres of society: economy, politics, culture, education, etc. (Ryazantsev et al., 2021). In terms of Russian law, digitalization or digital development is defined as "the process of organizing the performance of functions and activities (business processes) in a digital environment, previously performed by people and organizations without the use of digital products"[8].

One of the current topics of modern research directly related to digitalization is the formation of "smart" cities. Many authors consider the solution of socio-economic and environmental problems through the implementation of the "smart city" model (Meijer, Bolívar, 2016; Semyachkov, 2021). At the same time, some foreign researchers are quite critical of this concept as a tool for the transition of a settlement to sustainable development (Colding, Barthel, 2017; Trindade et al., 2017; Martin et al., 2018). In the scientific literature in recent years, more and more attention has been paid to the concept of "smart sustainable cities" (Vukovic et al., 2021; Yigitcanlar et al., 2019; Karagulyan, 2020), which is a kind of symbiosis of other modern urban development concepts (digital city, eco-city, sustainable city, smart city).

Technological progress and the transition to a digital economy provide many new opportunities to address the socio-economic and environmental challenges of cities, helping them to move toward a sustainable development path. However, the impact of digitalization differs for settlements with different levels of socio-economic development. In particular, in a paper (Abid et al., 2022), by building econometric models, it is proved that in the short term, the development of technology and digital services affects the sustainability of cities with only high and medium levels of economic development, while in less developed settlements these effects can be observed only in the long term.

It is important to note that it is predominantly economically developed large cities that are considered as places of origin and distribution of innovations. At the same time, modern research shows that in order to achieve sustainable and balanced development, it is advisable not only to introduce new digital technologies in metropolises, but also to stimulate their penetration in small and medium-sized cities (Raimbault, Pumain, 2022).

A review of scientific works by Russian authors (Papenov, Nikonorov, 2018; Sekushina, 2019; Rastvortseva, Manaeva, 2022) allows us to conclude that at present the sustainable development of small and medium-sized cities is hindered by a range of problems, many of which emerged during the transition to the market in the 1990s and have a chronic nature. While liberal reforms gave an impulse for economic development in large cities, in the vast majority of small and medium-sized cities, especially mono-industrial ones, led to the destruction of the existing production base (Fauser et al., 2021).

In our opinion, the most significant positive effects of digitalization for small and medium-sized cities include the following. First, for settlements with a traditional way of life, the development and implementation of innovative digital economy projects can be the basis for the emergence of new economic activities, which may become a driver of their economic development (Rabari, Storper, 2014).

Second, the massive spread of digital technology opens up opportunities for remote labor in many areas. If previously one of the main incentives to move from small and medium-sized cities to large

[8] Clarifications (methodological recommendations) on the development of regional projects within the framework of federal projects of the national program "Digital Economy of the Russian Federation" (approved by Decree 428 of the Ministry of Digital Development, Communications and Mass Media of the Russian Federation, dated August 1, 2019).

cities was high pay, nowadays, with the technical capability, it is possible to work from anywhere in the world.

Third, the problem of obtaining social services is quite urgent for small settlements. The spread of online education services, telemedicine, and the creation of digital platforms for broadcasting cultural events make these services available to anyone in the country. The same is true for the purchase of goods: if earlier residents of small and medium-sized cities sometimes had to travel to a larger city or regional center to buy them, now online commerce services cover this need. The development of digital entrepreneurship stimulates the formation and strengthening of inter-territorial links and can be considered as a tool to restrain depopulation in rural areas and small cities (Rodrigues, Franco, 2021).

Fourth, from the point of view of ensuring the sustainability of the ecological system, the great importance of implementing innovative digital technologies in the housing and utilities and industrial spheres. For example, the installation of smart lighting systems of the city helps save energy and, accordingly, the city budget.

Fifth, digital technologies lead to changes in the system of state and municipal administration, increasingly facilitating its transition to electronic format. Their implementation makes it possible to reduce the labor intensity of city management processes and reallocate the time of government specialists to the intellectual component of their activities (Milekhina, Adova, 2019). Despite the fact that at present the problem of low rates of digital technology diffusion in the public sector is still relevant for Russia (Bezuglaya, Kostyukevich, 2019), already now most state and municipal services are provided to the population through the portal "Gosuslugi". The availability of such digital platforms reduces the level of differentiation between residents of large and small cities, and provides equal quality of services to all citizens regardless of their place of residence.

Thus, digital technologies, at the level of potential effects, can answer many of the challenges facing small and medium-sized cities. The integration of new technologies into everyday life, such as the creation of online shopping platforms and residential and vehicle-sharing services, has a direct impact on the work, leisure, or consumption habits of the population (Lyons et al., 2018; Kostina, Kostin, 2021).

In general, the results of the scientific literature review show that the objects of studies to identify trends in digitalization processes in most cases are agglomerations, megalopolises and large cities. Similar works devoted to small and medium-sized cities are extremely rare. At the same time, we should note two large-scale Russian studies, which largely served as a basis for our work, conducted by the Higher School of Economics[9] and the Moscow School of Management "Skolkovo" (Korovkin, 2020). However, the object of the study is all Russian small and medium-sized cities, the authors do not set themselves the task of identifying the specifics of the digitalization of cities in different regions. However, the spread of digital technologies in small and medium-sized cities that are part of the large agglomerations of central Russia will obviously proceed at a faster pace than in similarly sized settlements located in the country's north and located thousands of kilometers away from the nearest large city. This paper attempts to focus on the small and medium-sized cities of the European North of Russia as one of the Russian regions with its own natural, geographic, and socio-economic characteristics.

Main results of the study

At present, the introduction of digital technologies in the economy and social sphere is one of the key tasks of the implemented state policy. At the same time, one of the important indicators

[9] Digitalization in small and medium-sized cities in Russia. Available at: https://www.hse.ru/data/2018/06/06/1149766040/2018-06-GSU-HSE_pres_v6.pdf

and the main condition for digitalization of any territory is the availability of access to the Internet. According to data for 2021, on average in Russia 82% of households had Internet access, that is lower than the planned values (89%) approved in the national program "Digital Economy". The document also states that 97% of households should have access to the Internet by the end of 2024. At the same time, we cannot but note that another indicator – "the share of socially significant facilities with broadband access to information and telecommunications network Internet" – was achieved ahead of schedule as early as December 2021 (100%). Such success is primarily caused by the forced transition of social infrastructure institutions to a remote format of work during the COVID-19 pandemic.

In the regions of the European North of Russia for the period of 2010–2020 the share of organizations using broadband Internet access has increased by 44.2 p.p. (from 50.3% to 94.5%) which is higher than the average Russian values (*Tab. 1*). The level of Internet access for the population is also above the national average, except for Nenets Autonomous Okrug. According to the data for 2020, the highest indicators are registered in the Murmansk Oblast – more than 86% of the residents have access to the Internet.

The analysis of the level of Internet use in the entities of the ENR revealed some positive shifts. For example, the share of active users in the region from 2015 to 2021 increased by 14.1 p.p. (from 71.2 to 85.3%), which, nevertheless, is lower than the Russian average (87.3%; *Tab. 2*). For 6 years, the share of people who use the Internet to order goods and services has increased by 1.5 times. The residents of the Murmansk Oblast are the most active (2/3 of them make purchases via the Internet). However, on average in the region almost half of the residents (46.7%) do not use these services.

The share of e-commerce in the total volume of retail turnover in the regions is very small, only in the Arkhangelsk Oblast the value of this indicator is higher than the national average. For comparison, in 2021 in the People's Republic of China (the leader in e-commerce) about 24.5% of total retail sales were in the online sector, in the USA – 14.2%[10].

Table 1. Level of Internet accessibility for the population and organizations of the subjects of the European North of Russia

Region	Share of organizations using broadband Internet access in the total number of organizations (%)				Share of people (households) with access to the Internet (%)			
	2010	2015	2020	Growth rate 2020/2010	2010	2015	2020	Growth rate 2020/2010
Republic of Karelia	66.7	91.4	94.5	27.8	37.4	71.8	83.1	45.7
Komi Republic	43.8	84.2	97.6	53.8	41.8	68.5	81.5	39.7
Arkhangelsk Oblast	48.2	77.5	92.3	44.1	37.5	67.6	81.8	44.3
including Nenets Autonomous Okrug	31.7	83.1	94.4	62.7	33	58.3	79.2	46.2
Vologda Oblast	46.8	81.9	91.6	44.8	28.9	66.9	82.4	53.5
Murmansk Oblast	64.8	88.6	96.7	31.9	47	77.8	86.5	39.5
Average for the ENR	50.3	84.5	94.5	44.2	37.6	68.5	82.4	44.8
Russian Federation	56.7	79.5	93	36.3	28	64.5	79.5	51.5

Source: own compilation according to EMISS (Unified Interdepartmental Statistical Information System). Available at: https://www.fedstat.ru/

[10] World e-commerce market: development cannot be stopped. Available at: https://journal.open-broker.ru/investments/mirovoj-rynok-e-commerce/

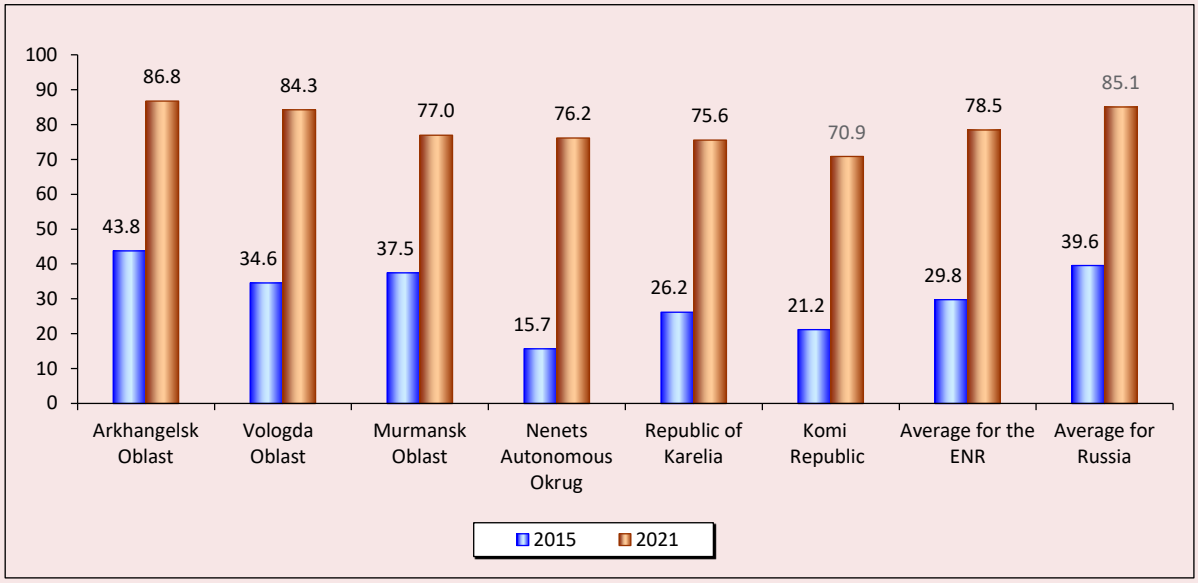
Table 2. Level of Internet use by the population of the entities of the European North of Russia

Region	Share of active Internet users in the total population (%)			Share of the population used the Internet to order goods and (or) services in the total population (%)			Share of sales online in the total volume of retail sales (%)		
	2015	2021	Growth rate 2021/2015	2015	2021	Growth rate 2021/2015	2015	2021	Growth rate 2021/2015
Republic of Karelia	71.2	85.2	14.0	27	54	27.0	0.8	1.5	0.7
Komi Republic	73.8	84.3	10.5	31.3	52.2	20.9	0	4.3	4.3
Arkhangelsk Oblast	72.4	84.1	11.7	27.7	44.2	16.5	0.3	4.9	4.6
including Nenets Autonomous Okrug	64	80.6	16.6	36.3	51.2	14.9	0	3.2	3.2
Vologda Oblast	62.5	85	22.5	18	49.4	31.4	0.6	3.3	2.7
Murmansk Oblast	83.5	92.7	9.2	39.7	68.8	29.1	0.3	1.5	1.2
Average for the ENR	71.2	85.3	14.1	30.0	53.3	23.3	0.3	3.1	2.8
Russian Federation	68.3	87.3	19.0	19.6	46.6	27.0	0.9	4/8	3.9

Source: own compilation according to EMISS (Unified Interdepartmental Statistical Information System). Available at: https://www.fedstat.ru/

Among the key indicators of the level of digitalization of society is the share of citizens receiving state and municipal services in electronic form. We note that the importance of the development of this area as one of the strategically important is noted in the national program "Digital Economy". Based on the data presented in *Figure 1*, we can conclude that, on average, the indicators for the regions of the ENR in 2021 more than doubled compared to 2015 (from 29.8 to 78.5%), which, however, is lower than the average Russian values at the end of the period (85.1%).

Figure 1. Share of citizens using the mechanism of obtaining state and municipal services in electronic form, %



Source: EMISS (Unified Interdepartmental Statistical Information System) data. Available at: https://www.fedstat.ru/

As a part of the study, we considered a number of indicators that characterize the level of digitalization directly in small and medium-sized cities of the ENR. So, based on the information of telecom operators11, presented in the coverage maps, it was revealed that all small and medium-sized cities of the region, except for Mezen and Ostrovnoi, have 4G communication.

Also an analysis of the availability of pickup points of online stores Ozon and Wildberries in small and medium-sized cities of the ENR was conducted. The situation is quite favorable: Wildberries is present in 57 out of 61 cities, and Ozon – in 6012. Thus, we can conclude that the infrastructure for the development of online commerce is created in the vast majority of the reviewed settlements.

Based on open data of transport companies, the availability of online cab ordering services in small and medium-sized cities of the ENR has been revealed. In particular, it is currently possible to use the services of Yandex.Taxi only in 21 cities out of 6113, and Uber works only in large and large cities of the ENR (Murmansk, Petrozavodsk, Syktyvkar, Severodvinsk, Arkhangelsk, Vologda, Cherepovets)14.

One of the key factors determining the speed and depth of digital diffusion is the digital competence of the population. It should be noted that sociological studies of the level of digital literacy of residents of small and medium-sized cities are rare in the scientific literature. Let us highlight two works of Russian scientists (Guzhavina, 2021; Ryazantsev et al., 2021), which present the results of sociological surveys that allow to make certain conclusions about the level of use of the existing digital infrastructure and services in small cities of the Vologda Oblast.

In particular, there is a slight gap between small cities and large cities in terms of the use of information and communication tools and digital services by the population. Thus, only 80% of the residents of small cities in the Vologda Oblast use smartphones, while in large cities (Vologda and Cherepovets) – 88%. A noticeable gap is also observed in the use of the Internet for information or shopping: in large cities, more than half (53%) of the respondents use it for these purposes, while in small cities – only a third of the residents (Guzhavina, 2021).

In small cities the Internet is used primarily for communication purposes in social networks and via e-mail and somewhat less frequently for such services as online shopping, online banking, etc. In large cities, food ordering and delivery services, online cab ordering, use of paid Internet services, etc. are in greater demand (Ryazantsev et al., 2021).

Thus, we can now talk about the completed transition of most small and medium-sized cities in the ENR from "primary" to "secondary" digitalization. If the task of the first stage was to create the necessary infrastructure for Internet access, in the second stage the key task was to develop individual digital solutions in each sector of the economy and sphere of human activity (Korovkin, 2020).

In our opinion, there are several main barriers to the digitalization in small and medium-sized cities. The main ones are the high cost of developing and implementing digital technologies and services, the lack of financing, and the low level of digital competencies of the inhabitants of small and medium-sized cities. It should be noted that all of them are more or less typical of the vast majority

[11] The analysis was conducted on the basis of data from the coverage map of cellular operators of PJSC "MegaFon". Available at: https://vologda.megafon.ru/help/offices/#coverageMap; PJSC "MTS". Available at: https://vologda.mts.ru/personal/podderzhka/zoni-obsluzhivaniya/nasha-set?on=g2; PJSC 'Vympelkom". Available at: https://vologodskaya-obl.beeline.ru/customers/beeline-map/?lat=67.88325753840412&lon=37.40225335693357&zoom=8

[12] In some cities (Mezen, Solvychegodsk, Ostrovnoy) there are no delivery points, but delivery is made by the Russian Post offices.

[13] Yandex.Taxi. Available at: https://y-taxi.ru/

[14] Uber. Available at: https://taxuber.ru/

Table 3. Barriers to digitalization in small and medium-sized cities and ways to overcome them

Barrier	Solution option
High development and implementation cost of digital technologies and services	Active use of public-private and municipal-private partnerships in the implementation of projects to integrate digital technologies into the urban ecosystem
Municipal and regional budget deficits	Using the mechanism of concession agreements to implement projects to modernize and digitalize urban infrastructure
Lack of financial resources of digital technology developers	The use of mechanisms of direct (subsidies, grants) or indirect (tax preferences) incentives for domestic developers of digital services and platforms for small and medium-sized cities
Low level of digital competence among residents of small and medium-sized cities	Development and implementation of measures to improve digital literacy in small and medium-sized cities
Lack of a system policy for the digitalization of small and medium-sized cities	Focusing on the implementation of smart city technologies and the implementation of the digital transition by municipalities in the strategic planning documents of socio-economic development of small and medium-sized cities.
Source: own compilation.	

of Russian small and medium-sized cities, and the possible options to overcome the barriers are characterized by their universality (*Tab. 3*).

At the same time, it is extremely important to take into account regional specifics, which, in our opinion, is currently lacking and not planned in the future. For example, in August 2021, strategies for the digital transformation of economic sectors, the social sphere and public administration were developed and adopted at the level of constituent entities of the Russian Federation. A content analysis of these documents in the regions of the ENR allows us to conclude that their content is almost identical, differing only in the list of spheres and industries that will undergo digital transformation. At the same time, a significant shortcoming of the presented strategies is the lack of attention to the issues of digital transformation of the production sphere, and the lack of reflection of the spatial aspects of their implementation. Obviously, that the degree of readiness to implement digital technologies in a large city will be noticeably higher than in small cities and rural areas, at least due to the higher level of population's digital literacy. Without territorial referencing, that is, a clear understanding of exactly what technology and where it is needed, there is a risk of an even greater "digital divide" between settlements of different size.

In view of the above, in our opinion, we can highlight several conceptual provisions for the use and development of digital technologies and services in small and medium-sized cities of the ENR in order to improve their socio-economic and environmental sustainability.

First, it is necessary to take into account not only the opportunities of information and communication and digital technologies, but also the threats posed by their active implementation. The digitalization of the production sphere of small and medium-sized cities located in harsh climatic conditions, on the one hand, allows to significantly simplify working conditions for the population, but, on the other hand, it is a risk, because it leads to the release of the workforce. Accordingly, the question of creating new jobs inevitably arises. For example, by robotizing enterprises, it is possible to increase output of products while reducing the labor force (Kuz'mitskaya, 2021). At first glance, this is a positive result, because in small and medium-sized cities the issue of qualified personnel is quite urgent. However, solving the problem only through the widespread introduction of innovations at enterprise can lead to a reduction of jobs and, as a consequence, to a decline of living standards of citizens and an increase in migration outflow of the population. This problem is especially relevant for single-industry cities, a

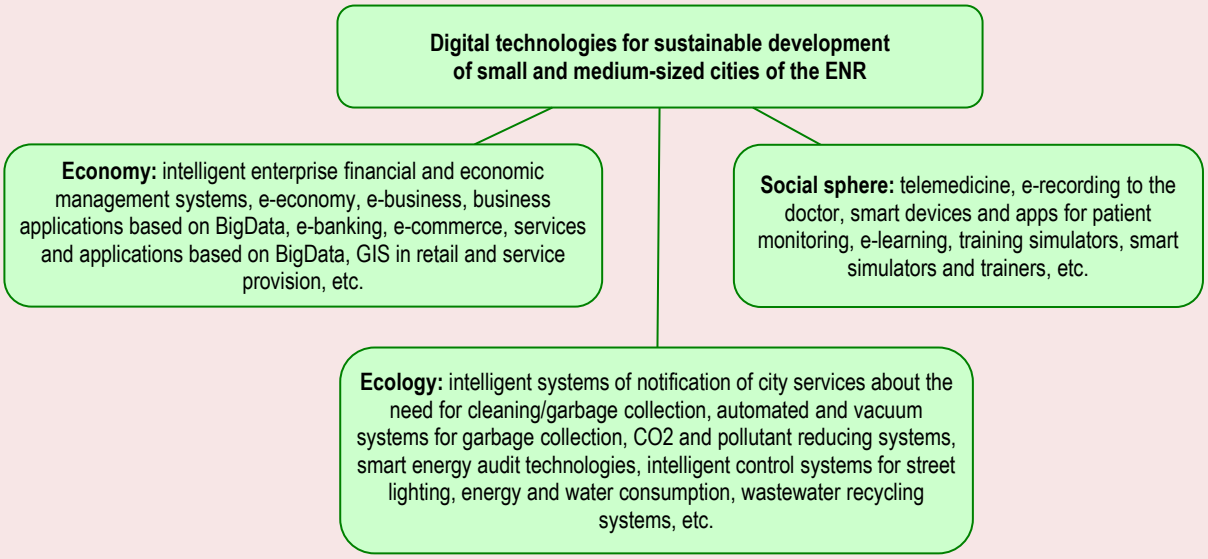
third of small and medium-sized cities (21 out of 61) belong to this category in the ENR.

Second, within the framework of the ongoing problem of budget deficit in small and medium-sized cities, it is particularly important to select the priority areas of digitalization of their industries. The cities of the European North of Russia are not a homogeneous group, differing not only by population or geographical location, but also by their economic profile and functions performed in the regional settlement system. In particular, there are several different types of small and medium-sized cities in the region: agrarian and timber, mining, industrial, transport, tourist, etc. (Sekushina, Uskova, 2020). Accordingly, it seems appropriate to introduce digital technologies in those sectors of the urban economy, which the city specializes in and which are most important in the strategic plan. For example, for industrial small and medium-sized cities of the ENR (Novodvinsk, Sokol, Kondopoga, etc.) promising areas will be the use of Internet of Things in manufacturing (IoT); smart technologies for enterprise resource planning (ERP solutions); robotization of production. For transportation centers (Babaevo, Kotlas, Nyandoma, etc.) – systems of satellite monitoring and navigation of vehicles; BigData in traffic management; IoT in logistics. For tourist cities (Veliky Ustyug, Kirillov, Totma, Kargopol, etc.) it seems appropriate to implement smart city navigation systems; Q-codes for objects of cultural and historical heritage; using robots to provide information and advisory services; video mapping, etc.

Third, if we talk about the sustainable development of small and medium-sized cities, it is important not only to carry out the digitalization of the production sphere, but also to actively apply innovation in solving social and environmental problems. Possible options for the digital technology use for all spheres of sustainable urban development are presented in *Figure 2*.

Fourth, one of the factors determining the intensity of digitalization in small and medium-sized cities of the ENR is the level of digital literacy of the population. For a city to become "smart",

Figure 2. Digital technologies for sustainable development of small and medium-sized cities of the European North of Russia



Source: own compilation.

it should have "smart" people, accordingly, the question of how to attract them or how to keep the younger generation in the city becomes relevant. At present in Russia within the framework of the national project "Education" there have already been created 123 educational centers for children under the programs of IT competence development "IT-cube", but only two of them are located in small and medium-sized cities of the ENR (Gryazovets and Sokol). This practice is undoubtedly positive, but it is mostly aimed at children who received a good basic school education, but who will anyway leave for a larger city to continue their education. One solution to this problem could be the creation (or opening of branches) of institutions of secondary vocational and/or higher education, whose activities should be based on the triad "education – research – implementation" (Detter, Tukkel, 2018). Close cooperation of such educational institutions with manufacturing enterprises will help not only to keep young people and attract them to small and medium-sized cities, but also to promote innovative and technological development of the economy of both the municipality and the region.

Discussion on the results and conclusions

In Russia, since the beginning of the implementation of national projects, special attention is paid to the digitalization of settlements. It should be noted that the idea of creating "smart cities" is clearly seen in the current state policy. In particular, as part of the implementation of the national program "Digital Economy" and the national project "Housing and Urban Environment", the project "Smart City" is being implemented in Russian regions[15].

It has been a relatively short time since the beginning of the project, but we can already see some positive trends. The number of cities participating in the project is gradually increasing (from 186 to 203), and there is also an increase in the average values of IQ-cities. However, only a small number of small and medium-sized cities take part in the project: in 2021, only 31 out of 945 settlements, and all of them have a quite developed economy, acting as the basis and, to some extent, a key factor for the active implementation of digital technologies in the urban ecosystem. For example, in the European North of Russia, only Naryan-Mar is the fastest growing city in the region, whose economy is based on oil production.

At present, we have to admit that both in the entities of the ENR and in the country as a whole, the implemented measures for the digitalization of cities are characterized mainly by technocentricity, and the attention of public authorities and local government is mainly focused on the implementation of individual technological solutions needed to support the functioning of urban infrastructure systems. At the same time, without solving the decades-long problems of sustainable development in the economic, social and environmental spheres, the transition to a new level is impossible.

The results of our study show that the basic conditions for the development of digitalization processes are generally created in small and medium-sized cities of the ENR. For example, online commerce services are now present in almost all small and medium-sized cities, which contributes significantly to the satisfaction of residents' needs for goods and services. At the same time, the spread of online commerce carries risks for local businesses, which may not be able to compete with the large digital platforms of the national and world level. The issue of tax revenues to regional budgets is no less relevant in this case, since deductions from the activities of online stores go to the place of registration of the latter.

[15] Departmental project of the Russian Ministry of Construction "Smart City". Available at: https://russiasmartcity.ru/about

Artificial intelligence, augmented and virtual reality technologies offer great opportunities for the development of e-health and education services, which is especially relevant for geographically remote small and medium-sized cities of the North. But despite the fact that according to the adopted strategies for the digital transformation of the regions of the ENR it is supposed to use these digital solutions, at present there are no specific plans for their implementation in one or another city of the region.

The question of how prepared the economy of small and medium-sized cities is in general for the implementation of existing technologies and innovations remains open, since the level of its development in the vast majority of cases corresponds only to the fifth, or even the fourth technological mode. RAS academician S.Yu. Glazyev notes that in the process of changing technological modes, the structure of demand for scientific inventions or discoveries changes, while many of them remain unclaimed for a long time because they "do not fit" into the production and technological systems of the dominant technological mode (Glazyev, 2022). In our opinion, this is characterizes the situation in the northern small and medium-sized cities of Russia quite well.

The restructuring of the economy remains one of the most important aspects of the development of small and medium-sized cities in the ENR, and it is precisely digitalization that can be seen as a way of integrating related and forming new industries of specialization (Siliang, Heng, 2022). As part of the challenges facing Russia to achieve technological sovereignty, one of the most important tasks of state policy is not only the search for promising areas of the economy for the implementation of digital solutions and innovations, but also the proper territorial placement of new high-tech industries.

The scientific significance of the research lies in the analyzing the problem field of digitalization of small and medium-sized cities of the European North of Russia, identifying the main problems that hinder the increase in its level. The practical significance of the work consists in the possibility of using the results obtained by public authorities in the development of tools to solve the problems of digital transformation of the economy and social sphere of small and medium-sized cities. The task of the next stage of work on this topic will be to analyze the level of implementation of digital technologies in manufacturing enterprises and social organizations in small and medium-sized cities.

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Knowledge as a Mediator in the Relationship between Digital and Economic Development

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Abstract. Modern development of the digital economy urges society to address not only the global issue of socio-economic inequality, but also the problem of digital inequality, since the level of development of digital technology largely affects labor productivity and, accordingly, national GDP. In this dichotomy of inequality, the sphere of knowledge plays an important role, since it is knowledge that allows us to unlock the full potential of digital technology for the economic system. The aim of the work is to identify the role of knowledge as a mediator in the relationship between the level of development of digital technology and GDP in different countries. The study used data from the Global Knowledge Index, Network Readiness Index and Digital Competitiveness Ranking in their relationship with GDP per capita. We analyzed the results of two models containing data sets for 64 countries for five years and 134 countries for three years; thus, we revealed the influence of the digital competitiveness and network readiness indices, as well as their constituent sub-indices characterizing certain aspects of development of the digital economy, on GDP. Scientific novelty of the study consists in the fact that it reveals the absence of the influence of knowledge on the relationship between GDP per capita and the penetration of digital technology into the national economy. We prove that indicators based on the spread and penetration of technology into the economy cannot objectively reflect the possibilities of economic development in the process of digitalization. It is necessary to focus on indicators reflecting the development and dissemination of national technologies; this requires an increase in the level of knowledge. We find that the level of knowledge development has a significant impact on the possibility of using digital technology to achieve the goals of sustainable

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development and organize effective management of digitalization. Otherwise, the impact of digital technology on economic development will be much less than the potentially possible level. The results of our study can be used by national governments to develop a strategy to overcome the digital divide and bridge a socio-economic gap between countries.

Key words: economic inequality, digital divide, knowledge gap, digital economy, digitalization, socio-economic development, sustainable development, mediation effect.

Introduction

The spread of digital technology gives a new impetus to the economic growth of countries and territories. However, the level of its development is uneven and its impact on the socio-economic situation in the country, although positive, can vary. This may lead to an increase in socio-economic inequality both between individual countries and territories and within them. This is largely due to the initially unequal economic situation in different countries, since significant investments are needed to develop and implement own technology and purchase foreign digital solutions. However, the problem lies not only in investments: when acquiring and implementing foreign technology alone, such a strategy leads not only to the export of funds abroad, but also to the weakening of the national technological industries in accordance with the Vanek – Reinert effect; in the future this will not only increase the country's lagging behind world leaders, but also aggravate digital and socio-economic inequality. In order to develop national digital technology, it is necessary to enhance the quality in the field of knowledge. It is knowledge that allows us to reveal not only the potential for the development of digital technology at the national level, but also the extent of the use of borrowed digital solutions. Currently, Russian academic community has many works that consider the introduction of digital technology into the education system, but there are practically no works analyzing the effects of the relationship between digitalization and knowledge, and their joint impact on the economic situation. The purpose of this work is to analyze the influence of the sphere of knowledge as a mediator between the digital and economic development worldwide. As a result of the study, we show which aspects of the digital economy are most dependent on the development of knowledge.

Literature review

The problem of digital divide arose simultaneously with the arrival of digital technology. The first articles about the digital divide appeared in the late 20th – early 21st century. Thus, S.P. Foster (Foster, 2000) argues that what people require is not information as such, but access to information and tools for accessing it. He defines the digital divide as "easier access to information by members of certain groups compared to members of other groups". R. Cullen (Cullen, 2001) identifies four types of access problems that form the digital divide: physical access to connectivity to information and computer technology (ICT); level of skills and support for the use of ICT; attitude toward ICT; online content. Today, Internet access rate is continuously increasing, and although the attitude toward digital technology is still ambiguous, more and more people are using it in various areas of life. Thus, we see a certain reduction in these types of digital divide (but it is far from rapid and it is not complete).

According to A.J. van Deursen and J.A. van Dijk (van Deursen, van Dijk, 2014), there remain two more types of digital inequality related to the content of the digital world and skills required for receiving benefits from digital technology. R. Cullen considered the lack of ICT skills as a consequence of the lack of literacy and skills in the use of computers and technologies. She perceived the problem of

inequality in relation to content as proceeding from the absence of online information that would be of interest to users (Cullen, 2001). Currently, these two reasons for the digital divide, although they remain relevant, have somewhat changed their content: there still remains a lack of specific skills in using digital technology and certain software, while the causes of the digital divide have largely changed with regard to content: initially the reason for the digital divide was a small amount of content that is of interest to users or available in a language known to users, due to the predominant share of the English-speaking Internet, while at present J. Adeyemi and S. Oni (Adeyemi, Oni, 2021) point out the existence of a gap in the content due to inappropriate knowledge, limited or emerging through digital technologies that a specific population group cannot use because they are created without taking into account their needs. We can see that the focus is shifting toward the restriction and monopolization of access to knowledge, information and data by individual countries and corporations, which gives them an advantage in the market due to the asymmetry of information.

M. Giebel (Giebel, 2013), back when the big data market had been emerging, showed that the asymmetry of information arising from unequal access to ICT technology and knowledge reduces the availability of production and innovation, which leads to a slowdown in economic growth. In this context, A. van Deursen and K. Mossberger (Van Deursen, Mossberger, 2018) talk about the emergence of a new type of digital divide associated with the Internet of Things (IoT) and Big Data: on the one hand, the Internet of Things and artificial intelligence simplify human interaction with technology, and in this case the importance of skills and education level for their use decreases; in addition, one has to choose among a fairly limited range of actions. On the other hand, the development of digital technology requires an ever-increasing amount of knowledge and skills, as well as the amount of information collected and processed. This increases the gap between users who do not have access to information and cannot use it, and technology owners who have the knowledge and information. As a result, knowledge and information play an increasingly important role in the modern digital world. Thus, V. Chan (Chan, 2021) highlights the role of the digital divide in creating economic inequality and increasing the knowledge gap.

Like information, access to knowledge is important for the digital economy. A. Sidorenko and C. Findlay (Sidorenko, Findlay, 2001) note that the role of knowledge has not decreased during the transition from the "knowledge economy" to the "digital economy": governments, research and educational centers are active users of ICT, and their choice largely determines the development of other economic spheres. L. Ongusola and T. Okusaga (Ogunsola, Okusaga, 2006), on the contrary, talk about the knowledge economy developing on the basis of digital technology. S. Brooks, P. Donovan and C. Rumble (Brooks et al., 2005) single out the field of education as a source of bridging the digital divide between developed and developing countries. At the same time S. Rye (Rye, 2008), using the example of Indonesia, shows that with a lack of skills and infrastructure, distance education increases the digital divide instead of reducing it; and subsequently, the socio-economic situation of economic entities both at the individual and regional levels.

J. van Dijk (Van Dijk, 2008) cites a cumulative ladder model of innovation development in digital technology, where after physical access a decisive role belongs to strategic, informational, instrumental and digital skills, which form the basis for user access to the achievements of digital innovation. Excluding this stage will lead to the inefficiency of digital technology even if there is formal access to cutting-edge equipment. T. Eichhorn et al. (Eichhorn et al., 2020) add the term "knowledge access" to van Dijk's model; the term means awareness of the availability of new technologies

and the development of users' interest in their use. B. Yu et al. (Yu et al., 2018) talk about education, training, development of knowledge as a catalyst for the use of ICT. C. Neogi (Neogi, 2020) shows that ICTs are involved in the formation of human capital and, thus, have an impact on improving the quality of life. In turn, J. James (James, 2008) links the digital divide with the income level of Internet users in developed and developing countries. C. Parsons and S. Hick (Parsons, Hick, 2008) also note that individuals with low incomes cannot afford Internet access or purchase software for the effective use of ICTs. Accordingly, they do not have the skills that are in demand in society and are at a disadvantage on the job market; this fact aggravated not only digital, but also socio-economic stratification. According to M. Ragnedda et al. (Ragnedda et al., 2022), users with an income of less than £10,000 have 81% fewer opportunities to gain in-depth skills in using digital technology compared to those with higher incomes. O. Buchinskaya (Buchinskaya, 2022) shows a relationship in which the growth of wealth makes it possible to acquire new knowledge, which, in turn, gives an impetus to the development of new and more advanced technology. It has been empirically proven that digital aspects of life in Russian regions significantly affect the growth of GRP (Litvintseva, Karelin, 2020).

Having reviewed the above research findings in Russia and other countries, we can assume that knowledge plays a significant role in the relationship between socio-economic development in the country and the development of digital technology in it. In this paper, we have made an attempt to measure the degree of influence of knowledge in the "digitalization – economic growth" system, considering knowledge as a mediator in this system. Despite the fact that the method of measuring mediation relations is widely used in modern scientific literature, we have not been able to identify similar studies of the relationship between digital technology, knowledge and the level of economic development. Therefore, we assume this work will contribute to the study of the development of the economy during its digital transformation.

Research methodology

To study the impact of knowledge on the relationship between economic development and the digital economy, it was necessary to choose indicators that comprehensively reflect the level of development of knowledge and digital technology.

As an indicator characterizing the level of knowledge, we used the Global Knowledge Index (GKI), published in the framework of the United Nations Development Program since 2017; we chose it because it is currently the only global knowledge index with an open methodology. The index includes a wide range of indicators of the quality of education, including indicators of primary, secondary and tertiary education, advanced training and retraining, level of development of research and innovation, current situation in the economy, as well as the institutional and environmental environment. Our study was based on GKI reports for 2017–2021. Since five years represent a fairly short time trend, we conducted a study of two sets of models based on the influence of two different indices assessing the degree of digitalization in the economy:

To assess the level of digitalization development, we initially chose the Digital Competitiveness Ranking (DCR) calculated by the Institute for Management Development since 2017. The index is calculated by aggregated indicators for three sub-indices:

– knowledge, including assessment of the development of science, education and talent (DCRK);

– technology, assessing the development of digital infrastructure, access to finance and the level of legal regulation (DCRT);

– future readiness, containing indicators of the penetration of digital technology into management, business and daily life of economic agents (DCRFR).

We should note that a fairly high correlation was found between the GKI and the DCR (-0.8890).

Since the DCR also has a knowledge component (DCRK), this necessitated the use of an alternative index, the Network Readiness Index (NRI) calculated since 2019 by the Portulans Institute (USA). The correlation of the NRI with the GKI was 0.0321, and with the DCR – -0.0384, which shows a slight relationship between the indicators. The NRI combines the following sub-indices:

- availability and use of network technologies (NRITech);
- extent of the use of network technologies by individuals, businesses and governments (NRIpe);
- digital technology management, including an assessment of trust, regulation, as well as the level of penetration of digital technology into the everyday life (NRIGov);
- impact of digital technology on the quality of life and the achievement of the UN Sustainable Development Goals (NRIImp).

The logarithm of GDP per capita was used as a dependent variable; it was calculated in current US dollars taking into account purchasing power parity (LGDPPCCURP).

Two groups of models were analyzed in the course of the study: the first group evaluated the role of mediation of the GKI under the influence of the DCR and its components on the growth of GDP per capita; the second group in a similar model used the NRI and its constituent sub-indices instead of the DCR.

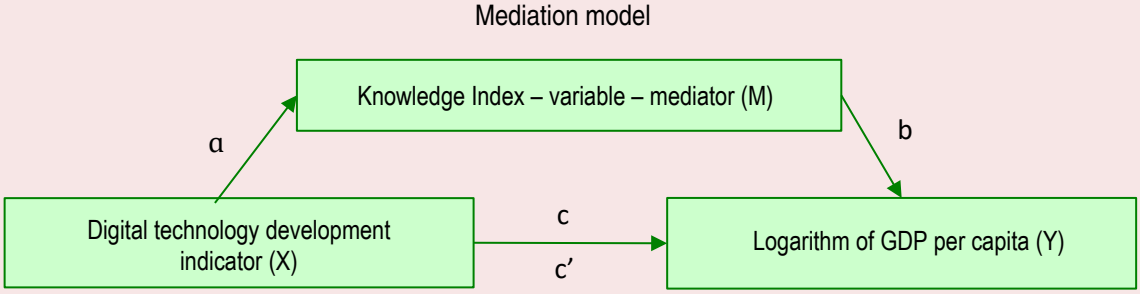
To carry out the analysis, we used structural equation modeling (SEM). The method was chosen due to the nature of mediation relations: in this case, we do not observe a one-sided dependence of the determined variable on the regressor, but a causal relationship and temporal ordering between the three variables, including the mediator variable. At the same time, variables in the causal relationship can be both causes and consequences. In this regard, according to D. Gunzler et al. (Gunzler et al., 2013), the standard regression paradigm is poorly suitable for modeling such a relationship due to its a priori assignment of either cause or effect to each variable.

The basic model of mediation proposed by R. Baron and D. Kenny (Baron, Kenny, 1986) is shown in *Figure 1* and includes a system of three equations, as follows from Formula 1 given by L. Chen and H. Hung (Chen, Hung, 2016):

$$\begin{cases} Y = c_0 + c'X + e_1 \\ M = a_0 + aX + e_2 \\ Y = b_0 + cX + bM + e_3 \end{cases} \quad (1)$$

where a_0, b_0, c_0 – constants;

a, b, c – coefficients showing the influence between the explanatory variable and the mediator, the mediator and the explained variable, the explanatory and explained variables, respectively, as indicated in the Figure. In this case, c implies a direct effect of interaction between the explained and explanatory variables, without taking into account the influence of the mediator; the indirect effect is a result of the interaction of trajectories a and b and is calculated as the product of the corresponding coefficients ($a \times b$);



Source: (Baron, Kenny, 1986, p. 1176).

c' – coefficient that shows the relationship between the explanatory and the explained variables, taking into account the influence of the mediator (full effect), which is the sum of direct and indirect effects $(c + a \times b)$;

e_1, e_2, e_3 – random errors.

In the case when the coefficient c is not significant, it can be argued that there is complete mediation, when the explanatory variable affects the explained one solely through the mediation effect, as shown by Baron and Kenny. In the case when the coefficient c is statistically significant, we can talk about the effect of partial mediation (Danner et al., 2015), when there is a direct relationship between the explanatory and explained variables, but this relationship is influenced by the mediator variable.

RMSEA criteria were used to assess the degree of data selection. The value of the criterion 0.00 indicates that the model suites the data (Weston, Gore, 2006). The Comparative Fit Index (CFI) shows a relative improvement in fit during the transition from the basic model to the postulated model and is estimated in the range from 0 to 1, where the CFI value≥0.95 demonstrates the quality of the model. The Tucker – Lewis index shows a relative decrease in the discrepancy by the degree of freedom, and is also estimated in the range from 0 to 1, where TLI ≥ 0.95 indicates the quality of the model (Shi et al., 2019). The coefficient of determination R^2 illustrates the extent to which the changes in the dependent variable are explained by the model variables. The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) reflect the comparative quality of the model according to the rule when "the less is the better". At the same time, the BIC criterion is given greater preference for SEM analysis (Wu et al., 2020).

The testing of the presence and type of mediation effect was carried out using the medsem methodology (Mehmetoglu, 2018), which includes an assessment of Baron and Kenny's mediation using the Sobel test (BK) (Sobel, 1982), as well as the Zhao, Lynch and Chen (ZLC) methodology (Zhao et al., 2010) in combination with the Monte Carlo test (Jose, 2013). In the case of the significance of all three Baron and Kenny equations in combination with the significant Sobel test, as well as the significance of the bootstrap test of the indirect effect with the significance of the direct effect according to the ZLC method, there is a partial mediation effect. In the case of the insignificance of the direct effect and the significance of the Sobel and Monte Carlo tests, complete mediation takes place. In the absence of the significance of the Sobel and Monte Carlo tests in combination with the significance of the direct effect in the ZLC method and the absence of the significance of the first three equations in the BK method, the absence of the mediation effect is recognized.

The magnitude of the influence of the mediator variable is determined by the ratio of the indirect effect to the total effect (RIT), showing what percentage of the influence of the independent variable on the dependent variable is due to the mediation effect (formula 2) and the ratio of the indirect effect to the direct effect (RID), demonstrating how many times the effect of the indirect effect exceeds the influence of the direct effect (formula 3).

$$RIT = \frac{(\mathrm{a} \times \mathrm{b})}{c'}. \quad (2)$$

$$RID = \frac{(\mathrm{a} \times \mathrm{b})}{c}. \quad (3$$

Research results

The relationship between GDP and the Digital Competitiveness Ranking and the mediation effect of the knowledge index

In the group of models 1, the influence of the knowledge index as a mediator affecting the relationship between the DCR, as well as its

constituent sub-indices, and the logarithm of GDP per capita in current US dollars at purchasing power parity was evaluated. The data set includes indicators for 64 countries from 2017 to 2021. Descriptive statistics of the data set are presented in *Table 1*.

Before constructing the group of models 1, it is necessary to note the specifics of calculating the DCR: unlike other model variables, it is calculated as a ranking assessment of countries where the top places are occupied by countries with the best indicators and an increase in rank means a deterioration of the parameter. In this regard, the positive impact of the DCR on the knowledge index and the logarithm of GDP per capita in the model will be accompanied by coefficients with negative signs. The results obtained in evaluating this model with respect to the influence of direct and indirect effects are presented in *Table 2*. An analysis of the quality of the data used for the model is shown in *Table 3*. *Table 4* shows the results of the Sobel and Monte Carlo tests, as well as indicators of the influence of the indirect effect of RID and RIT.

Table 1. Descriptive statistics of the dataset for the group of models 1

Variable	Observations	Mean	Standard deviation	Min	Max
KnowledgeIndex	305	56.68393	8.97784	34	73.6
DCR	310	32.32581	18.18247	1	64
LGDPPCCURP	310	9.935859	0.9960447	7.39471	11.78525
Source: own calculation.					

Table 2. Direct, indirect and general effects of the group of models 1

	Direct effect	Indirect effect	General effect
LGDPPCCURP <-KnowledgeIndex	0.0828413***	-	0.0828413***
DCR	-0.0092171***	-0.0363996***	-0.0456167***
KnowledgeIndex <-DCR	-0.4393899***	-	-0.4393899***
LGDPPCCURP <- KnowledgeIndex	0.107037***	-	0.107037***
DCRK	0.0043726	-0.0446323***	0.107037***
KnowledgeIndex <- IDCRK	-0.4169802***	-	-0.4169802***
LGDPPCCURP <- KnowledgeIndex	0.0849766***	-	0.0849766***
DCRT	-0.0084571***	-0.036056***	-0.044513***
KnowledgeIndex <- IDCRT	-0.4243044***	-	-0.4243044***
LGDPPCCURP <- KnowledgeIndex	0.0741109***	-	0.0741109***
DCRTFR	-0.0151047***	-0.0312953***	-0.0464***
KnowledgeIndex <- DCRF*R*	-0.4222767***	-	-0.4222767***
***– statistical significance at the level of 1%. Source: own calculation.			

Table 3. Testing the group of models 1 for the degree of data selection

	AIC	BIC	CFI	TLI	R^2
LGDPPCCURP <-KnowledgeIndex DCR	4781.138	4807.294	1.000	1.000	0.797
LGDPPCCURP <-KnowledgeIndex DCRK	4881.508	4907.664	1.000	1.000	0.722
LGDPPCCURP <-KnowledgeIndex DCRT	4854.706	4880.862	1.000	1.000	0.739
LGDPPCCURP <-KnowledgeIndex DCRFR	4838.752	4864.908	1.000	1.000	0.747
Source: own calculation.					

Table 4. Testing the group of models 1 for mediation effect

	Sobel test	Confidence interval of the Sobel test	Monte Carlo test	Confidence interval of the Monte Carlo test	RIT	RID
LGDPPCCURP <-KnowledgeIndex DCR	-0.664 (0.000)	-0.754; -0.574	-0.663 (0.000)	-0.752; -0.578	0.798	3.949
LGDPPCCURP <-KnowledgeIndex DCRK	-0.818 (0.000)	-0.889; -0.747	-0.817 (0.000)	-0.888; -0.751	1.109	10.207
LGDPPCCURP <-KnowledgeIndex DCRT	-0.654 (0.000)	-0.730; -0.578	-0.653 (0.000)	-0.727; -0.582	0.810	4.263
LGDPPCCURP <-KnowledgeIndex DCRFR	-0.564 (0.000)	-0.636; -0.492	-0.563 (0.000)	-0.634; -0.495	0.674	2.072
Source: own calculation.						

The testing of all the above models confirms their significance: the value of the root mean square error of approximation (RMSEA) 0.000 in combination with the Comparative Fit Index (CFI) equal to 1.000 and the Tucker – Lewis index (TLI), also equal to 1.000, shows a good selection of the data in this model. We should note that such results are expected, since the mediation model is conditionally saturated due to the lack of degrees of freedom.

When using the medsem methodology, the testing shows the significance of the model: with the significance of the Sobel test at 1% level, the BK methodology shows the presence of a partial mediation effect. A similar result is shown by the ZLC technique (B=-0.168 at p=0.002) in combination with the significance of the Monte Carlo test (-0.664 in the range -0.754; -0.574). At the same time, the ratio of the indirect effect to the direct effect shows that 79.8% of the DCR effect on GDP per capita is explained by the knowledge index. At the same time, the ratio of the indirect effect to the direct effect indicates that the mediation effect is 3.949 times greater than the direct impact of DCR on GDP per capita. According to Table 2, all the relationships between the model indicators are statistically significant at the level of 1%. At the same time, raising the DCR by one position, all other things being equal, will lead to an increase in GDP per capita by 0.0092%, while taking into account the increase in the country's place in the knowledge index will lead to GDP growth by 0.0456167%.

The analysis of the influence of the knowledge index as a mediator of the relationship between the sub-indices of the DCR and GDP per capita showed that in one case (the knowledge sub-index) there is a complete mediation effect: the direct impact of the knowledge sub-index on GDP is not significant. This is also confirmed by the insignificance of the BK test in combination with the significant Sobel test and the non-significance of the ZLC test in combination with the significance of the Monte Carlo test. This result is logically expected, since both the mediator and the independent variable, in fact, reflect the influence of the level of knowledge. The other two models with digital competitiveness sub-indices show the presence of a partial mediation effect: the development of indicators reflected in the sub-index has a direct stimulating effect on GDP, but in combination with an increase in the knowledge index, this influence increases significantly. At the same time, the knowledge index demonstrates the greatest indirect effect when mediating a variable of the technological sub-index.

Relationship between GDP and the Network Readiness Index and the mediation effect of the knowledge index

The group of models 2 assesses the impact of the knowledge index as a mediator influencing the relationship between the NRI, as well as its constituent sub-indices, and the logarithm of GDP per capita in current US dollars at purchasing power parity. The data set is represented by the data for 134 countries from 2019 to 2021. Descriptive statistics of the dataset of model group 2 are presented in *Table 5*. *Table 6* presents the results of direct, indirect and full effects of the impact of the studied indicators on the growth of GDP per capita. *Table 7* tests the reliability of the model and *Table 8* shows the results of testing the mediation effect.

Table 5. Descriptive statistics of the dataset of the group of models 2

Variable	Observations	Mean	Standard deviation	Min	Max
KnowledgeIndex	388	48.25928	12.049	19.1	73.6
LGDPPCCURP	400	8.871439	1.43553	5.545115	11.78525
NRI	382	51.00377	16.55572	12.33	82.75
Source: own calculation.					

Table 6. Direct, indirect and general effects of model group 2

	Direct effect	Indirect effect	General effect
LGDPPCCURP <-KnowledgeIndex	0.0280285 ***	-	0.0280285***
NRI	0.0608491***	0.0193397***	0.0801888***
KnowledgeIndex <- NRI	0.6900016***	-	0.6900016***
LGDPPCCURP <- KnowledgeIndex	0.0487121***	-	0.0487121***
NRITech	0.0406866***	0.0291166***	0.0698031***
KnowledgeIndex <- NRITech	0.5977278***	-	0.5977278***
LGDPPCCURP <- KnowledgeIndex	0.1104642***	-	0.1104642***
NRIpe	-0.0006653	0.0014836	0.0008183
KnowledgeIndex <- NRIpe	0.0134306	-	0.0134306*
LGDPPCCURP <- KnowledgeIndex	0.0703143***	-	0.0703143***
NRIGov	0.0287304***	0.0425139***	0.0712443***
KnowledgeIndex <- NRIGov	0.6046269***	-	0.6046269***
LGDPPCCURP <- KnowledgeIndex	0.0750205***	-	0.0750205***
NRIImp	0.0294288***	0.0537271***	0.0831559***
KnowledgeIndex <- NRIImp	0.7161661***	-	0.7161661***
***- statistical significance at the level of 1%. Source: own calculation.			

Table 7. Testing the group of models 2 for the degree of data selection

	AIC	BIC	CFI	TLI	R^2
LGDPPCCURP <-KnowledgeIndex NRI	5882.444	5918.412	1.0000	1.0000	0.944
LGDPPCCURP <-KnowledgeIndex NRITech	6127.883	6163.851	1.0000	1.0000	0.917
LGDPPCCURP <-KnowledgeIndex NRIpe	8239.096	8275.064	1.0000	1.0000	0.021
LGDPPCCURP <-KnowledgeIndex NRIGov	6296.733	6332.701	1.0000	1.0000	0.856
LGDPPCCURP <-KnowledgeIndex NRIImp	6157.316	6193.284	1.0000	1.0000	0.862
Source: own calculation.					

Table 8. Testing the group of models 2 for mediation effect

	Sobel test	Confidence interval of the Sobel test	Monte Carlo test	Confidence interval of the Monte Carlo test	RIT	RID
LGDPPCCURP <-KnowledgeIndex NRI	0.227 (0.000)	0.113; 0.341	0.225 (0.000)	0.116; 0.334	0.241	0.318
LGDPPCCURP <-KnowledgeIndex NRITech	0.388 (0.000)	0.289; 0.488	0.387 (0.000)	0.291; 0.480	0.417	0.716
LGDPPCCURP <-KnowledgeIndex NRIpe	0.092 (0.055)	-0.002; 0.186	0.093 (0.054)	0.000; 0.185	1.813	2.230
LGDPPCCURP <-KnowledgeIndex NRIGov	0.539 (0.000)	0.461; 0.617	0.538 (0.000)	0.462; 0.609	0.597	1.480
LGDPPCCURP <-KnowledgeIndex NRIImp	0.580 (0.000)	0.496; 0.664	0.579 (0.000)	0.497; 0.657	0.646	1.826
Source: own calculation.						

The initial model, as in the case of the DCR model, shows a partial effect of mediation by the knowledge index of the interaction between the NRI and the logarithm of GDP per capita (B=0.715 at p=0.000 indicate the insignificance of the BK and ZLC tests). However, in this model, the mediation effect is much smaller: only 24% of the total impact of the NRI on GDP growth is explained by the influence of the knowledge index. An increase in the country's position on the knowledge index gives only 0.019% additional increase in GDP per capita, which is about 3.18 times lower than the direct impact of NRI on GDP per capita.

The analysis of the remaining sub-indices showed the absence of the effect of mediation and the knowledge index when the NRIpe indicator affects GDP per capita. This is confirmed by a statistically insignificant indirect effect of this indicator, as well as an insignificant BK test (B=0.927 and p=0.000) in combination with an insignificant Sobel test and an insignificant ZLC test (B=-0.041 and p=0.038) in combination with an insignificant Monte Carlo test. In addition, there is no statistically significant relationship between the knowledge index and the NRIpe. The remaining sub-indices demonstrate the presence of a partial mediation effect, and the knowledge index has the maximum indirect effect on the NRIImp sub-index: it adds 0.053% of GDP growth per capita compared to 0.029% of GDP growth from the direct impact of this indicator. The knowledge index also has a significant indirect effect when GDP is influenced by the NRIGov sub-index: the level of knowledge explains 59.7% of the impact of the overall effect of the indicator on GDP growth, which is 0.071% and provides an additional increase in GDP per capita by 0.043%. At the same time, the NRITech sub-index shows the lowest value of indirect influence (0.029%), and the greatest value of direct influence of 0.04% on the growth of GDP per capita. Such a contradiction contrasts with the conclusions of the first group of models. The reasons for this phenomenon will be discussed below.

Discussion of the results

The results obtained after studying the influence of the level of knowledge on technological development and analyzing the digital competitiveness and network readiness indices, are rather contradictory at first glance. It is due to the set of indicators that constitute both the indices under consideration. The first contradiction is that the sub-index of the knowledge level (DCRK) shows the effect of full mediation with the knowledge index, while the indicator of the use of network technologies by individuals, businesses and governments (NRIpe) demonstrated the absence of mediation effect. This difference is explained by the composition of indicators: in

the DCRK they are directly related to knowledge (publication activity, number of graduates in scientific disciplines, development of mathematical disciplines, availability of foreign experience, training costs, number of researchers, etc.), while the NRIpe is associated with a range of more diverse indicators, including the number of broadband subscribers, literacy rate, use of social media, presence of investments in tertiary education, telecommunications and new technologies, presence of companies' websites, etc. Many of these indicators may not relate to the knowledge that the population of the country itself possesses; the investments can be allocated for the purchase and use of foreign technologies; websites can be created by foreign specialists; the availability of subscriber access and the use of social media do not require a high level of knowledge. Consequently, the NRIpe sub-index, all other things being equal, may not be associated with the presence of a high level of knowledge in the country; but this also means that the presence of high indicators of the NRIpe sub-index may reflect the level of the country's technological development inadequately, especially in terms of its information independence: in the international community, pressure on opponents has been increasing recently precisely through network technologies and, accordingly, depriving a country of access to these technologies, provided it is impossible to independently develop their national analogues, can seriously hit the economy of any state. This does not contradict the conclusions of (Solomon, van Klyton, 2020) who assess the positive direct effect of the use of ICT by individuals, businesses and governments in African countries without taking into account the impact of knowledge.

The future readiness sub-index, which also reflects the degree of penetration of technology into society (DCRFR), has a minimal indirect effect on GDP and a maximum direct effect: a high level of knowledge is not a necessary component for the penetration and use of technology. This is confirmed by Ibe (Ibe, 2018), who points out a direct relationship between GDP and the penetration of Internet technologies into the economies of African countries. Certainly, such an impact of digital technology improves the economic performance of countries, but does not reduce their lagging behind world leaders. This is also evidenced by Visco (Visco, 2020), who proves that Italy's digital and economic lagging behind the leading world powers is caused by a lack of knowledge. Conversely, the technology sub-index (DCRT) shows a high indirect impact on GDP through knowledge. In addition to the number of Internet subscribers and Internet speed, the indicator includes such variables as the possibility of starting a business, legislative regulation of scientific research and protection of property rights, availability of credit, banking and financial services, development and implementation of technologies, etc.; thus, the presence of a developed field of knowledge and its practical use in the country becomes essential to increase the impact of these indicators on economic development. An inverse relationship is also possible: technological turbulence has a significant constraining effect on the relationship between digital knowledge opportunities and innovation opportunities in entrepreneurial ecosystems (Chaudhuri et al., 2022).

In the case of NRI, the technology sub-index is focused more on the availability of technologies and their accessibility, since it includes such indicators as tariff prices, number of SMS messages sent, Internet access in schools, amount of the cases of Wikipedia editing, cost of computer software, number of robots used, etc. In this case, we are talking about the physical and financial availability of technologies; in addition, the index does not distinguish between national and imported technologies and the presence of foreign technologies may be accompanied by the presence of foreign operators.

Among all NRI components, the NRIImp sub-index shows the greatest indirect influence through the knowledge index. This sub-index combines indicators of the impact of digital technology on the economy, including the export of high technologies and ICT services, development of the gig economy, introduction of patents. And these indicators can be developed only if a country has a high level of knowledge. The development of the high-tech industry in general and digital technology in particular is impossible without the development of knowledge, which corresponds to the findings of (Ordieres-Meré et al., 2020). Our conclusions are confirmed by (Csótó, 2019), where the impact of the knowledge gap on the effectiveness of the provision of public services in electronic form is shown on the example of Hungary. In turn, knowledge makes it possible to promote socio-economic development by improving people's well-being and health; this can be achieved by enhancing the quality and safety of services, including medicine, and by raising incomes due to increased wages for skilled labor. Thus, the development of digitalization – not at the expense of acquired technologies, but by unlocking the country's own potential through the development of knowledge – can ensure the achievement of sustainable economic growth.

Conclusion

Our research shows the crucial role of knowledge for the growth of modern digital economy. The availability of technology as such certainly increases well-being in a region, but does not reveal its full potential; moreover, it makes a country dependent on external sources of technology. In this regard, the role of knowledge is particularly high in the digital economy, since knowledge promotes the development of national high-tech products, enhances the quality of management, contributes to the development of the service sector and improvement of the standard of living. It is extremely important to pay attention to the comprehensive development of the national education system, which helps to unlock the potential of the use of digital technology in the economy. Education should not be focused solely on the development of digital technology, but should give a comprehensive idea of the spheres of human society, help to engage in labor activity and adapt to its change.

The second important conclusion of this study concerns the issue of taking into account the development of digital technologies and their impact on the national economy. It is necessary to consider and analyze not only quantitative, but also qualitative indicators of the use of digital technologies, to assess the dynamics of imported and national technologies both in terms of quantity and the costs of their acquisition and maintenance. This is due to the need to monitor and develop a national system of knowledge-intensive products that allows achieving sustainable development. It is the development of the sphere of knowledge and the national production of high technologies that is the key to overcoming digital and, subsequently, socio-economic inequality between the countries of the world.

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Assessing the Impact of the Coronavirus Pandemic on the Condition of Regional Budgets: The Far Eastern Aspect

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Abstract. The purpose of the work is to determine major features and consequences of mitigating the adverse effects of a noneconomic shock caused by the 2020–2021 coronavirus pandemic in the process of implementing the regional budget policy of RF constituent entities within a large macroregion, the Far East of Russia. We analyze the impact of the pandemic on the budget revenues of Far Eastern regions, estimate changes in the dependence of regional budgets on federal transfers. We show changes in the level of transparency in intergovernmental fiscal relations in the macroregion and the extent of autonomy of the authorities of Far Eastern constituent entities of the Russian Federation in decision-making during the crisis period in terms of the formation of regional budgets. To identify statistical patterns, we use general scientific methods based on official data from the RF Federal Treasury, the RF Ministry of Finance, and regional authorities of Russia's Far Eastern constituent entities. We show that in the Far East, the first and second waves of the epidemic had the most significant impact on regional budgets, and the pace of overcoming the coronavirus crisis was different in various regions. Regions specializing in the manufacturing industry are recovering faster; the process is slower in mining regions. The main condition for overcoming the budget crisis was a large-scale increase in federal aid, which allowed most regions to compensate for the loss of their own budget revenues. The impact of the third and fourth waves of the coronavirus crisis on the economy of the Far East and the regional budget sphere as a whole is assessed as weak. Mining industries continued to stagnate; as a result, in the analyzed period of 2020–2021, problems related to forming the tax base were noted in the majority of mining regions. Thus, we may predict that

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the state of regional budgets will depend more on the transfer support from the federal center. We reveal the absence of clear criteria in the provision of transfer support to the regions. Transparency of the aid provided to RF constituent entities has deteriorated during the pandemic crisis, which may lead to the emergence of adverse factors in regional development due to the desire of regional governments to lobby for special financial preferences from the federal center. The novelty of the research is due to the fact that we consider the aforementioned range of issues while comparing federal trends and the situation in the Far East under the increasing pressure of external noneconomic shocks caused by the lingering coronavirus pandemic. The materials of the article can be used in the educational sphere and in the work of state authorities at the federal and regional levels to improve budget policy.

Key words: coronavirus pandemic, regional budget policy, Far East.

Introduction

The coronavirus pandemic that swept the world in the 2020s has become an important factor in many structural, institutional and financial changes. At the same time, we must understand that in fact we are not talking about an economic crisis caused by internal or external economic reasons, but about the implications of an extra-economic, external shock for the economy. The coronavirus pandemic was an extra-economic shock with devastating consequences, the scale of which turned out to be different for different countries and regions (Bouckaert et al., 2020; Maggetti, Trein, 2022; Aganbegyan A.G. et al., 2021; *Ural'skii federal'nyi okrug*..., 2021; *Dal'nii Vostok Rossii*..., 2021).

In the case of the Russian Federation, the noneconomic shock of the pandemic affected almost all sectors of the Russian economy (Kuznetsova, 2020; Lola, 2020; Milchakov, 2020) and, as a result, regional budget revenues as well (Deryugin, 2020; Zubarevich, 2021a; Chernyavskii, 2020). The shock could not but affect the condition of the budgets of Russia's Far Eastern constituent entities (Gulidov, 2021; Leonov, 2020).

The relevance of this study is highlighted by the necessity to analyze the course and evaluate the options for mitigating the adverse effects that the noneconomic shock of the coronavirus pandemic inflicted on the budget system of a large macro-region, the Russian Far East.

The Far East was hit the most by the 2020–2021crisis during the first wave of the pandemic due to a total lockdown imposed in the second quarter of 2020[1]. The subsequent partial economic recovery lasted until October 2020 and was interrupted by the second wave of the pandemic, which lasted the entire winter of 2020–2021 (Minakir, 2020). The second wave of the pandemic as a whole was not marked by the same large-scale closure of enterprises or severe restrictions for workers as the first one[2], but it made it more

[1] The first wave of the pandemic hit Russia in April – May 2020 and was accompanied by significant restrictions on people's mobility (quarantines, lockdowns), the suspension of work of some industrial enterprises, which led to an economic downturn and a decrease in the replenishment of regional budgets. At the same time, the rigidity and duration of the restrictions imposed in the regions were left to the regional authorities and differed from region to region (Zubarevich, 2020).

[2] During the second wave of the coronavirus, the Republic of Buryatia became the first Russian region whose authorities resumed lockdown. The work of cafes, restaurants and other places of public catering was suspended (they could only supply food and drink for consumption off the premises). Shopping malls, saunas, beauty salons, cinemas, fitness clubs were closed. The restrictions did not apply to grocery stores, pharmacies, communication shops, as well as organizations engaged in the delivery of goods. Many regions extended holidays for schoolchildren (in particular, the Nizhny Novgorod, Kurgan and Sakhalin oblasts, Khabarovsk Krai). At the end of October 2020 Rospotrebnadzor issued a decree on restrictions throughout Russia: citizens were required to wear masks in places where more than 50 people were present; catering was not supposed to work from 23:00 to 6:00. See: Min'ko D., Antipova A. What are the six main restrictions imposed in Russian regions. The main takeaways. Available at: https://www.rbc.ru/society/30/11/2020/5f8ec2d39a79471d9e2b26ce

difficult for the economy to recover (*Dal'nii Vostok Rossii...*, 2021) and, as a result, regional budgets were affected as well. The dynamics of the pandemic in the Far East were characterized by the third (July 2021) and fourth (December 2021) waves of COVID incidence, when the peak number of cases per month was 48.8 thousand and 67.7 thousand people, respectively[3].

As is known, all-Russian trends do not always reflect territorial development features and the response of regional systems to shock effects (Milchakov, 2021; Pukhov, 2020). This allows us to make an assumption about possible differences from the nationwide trends in the influence of the four coronavirus waves of 2020–2021 on the change in the condition of the budgets of Russia's Far Eastern constituent entities.

This study examines the impact of the pandemic on the budget revenues of the Far Eastern regions and assesses the degree of change in the dependence of regional budgets on federal transfers, shows whether intergovernmental fiscal relations have become more transparent during the crisis and whether Russia's Far Eastern constituent entities have gained greater independence in making decisions regarding regional financial policy.

We should note that the condition of Russian regional budgets in 2020 was considered in analytical bulletins of the National Research University "Higher School of Economics"[4], as well as in monitoring studies (Deryugin, 2020; Zubarevich, Safronov, 2020; Chernyavskii, 2021). All the works note that major trends include a dramatic decline in budget revenues during the lockdown and a remarkable increase in transfers from federal to regional budgets at the same time. However, the publications we have considered do not compare the results of the first and subsequent waves of coronavirus for regional budgets based on the quarterly dynamics of regional budget indicators for 2020–2021.

Data sources and research methods

In this study we use data of the RF Federal Treasury on the execution of consolidated budgets of RF constituent entities on a quarterly cumulative basis for 2020–2021 and previous years so as to calculate the dynamics and assess the pace of recovery from the crisis. All budget revenues of Far Eastern constituent entities were considered – their own (tax and nontax) revenues, as well as the volume and dynamics of transfers, both in general and in the context of their individual types (grants-in-aid, subsidies, subventions and other transfers)[5].

Since budget analysis in Russia does not adjust the reported dynamics of budget revenues and expenditures for inflation, the calculations of budget dynamics are made in nominal rubles.

In this section we use simple statistical methods for analyzing the dynamics and structure of budget indicators; thus, we obtain representative answers to the research questions raised regarding the budget policy of Far Eastern constituent entities in the context of the coronavirus pandemic.

Research results

1. In contrast to the average Russian data, the actual annual data on the formation of budget revenues of the Far Eastern constituent entities do not indicate a fall, but only a slowdown in the growth rate of the main sources of own revenues of the consolidated regional budget of the Far Eastern constituent entities in 2019–2021.

A comparative analysis of the condition of the Far Eastern constituent entities with the average Russian data in terms of the volume and structure

[3] The spread of coronavirus in the regions of Russia. Available at: https://ncov.blog/countries/ru

[4] Economic and social impact of coronavirus in Russia and in the world. Available at: https://www.hse.ru/pubs/share/direct/435321798.pdf

[5] Subsidies are allocated to regions for specific purposes and provide for co-financing from the region; subventions are directed to the fulfillment of federal powers delegated to the RF constituent entity (for example, payment of unemployment benefits, etc.); other intergovernmental transfers also have a targeted nature and only grants-in-aid can be freely used by regions without directions from the federal level of government.

of consolidated budget revenues does not prove that the situation in the macroregion was critical at that time. Thus, by the end of 2020, the absolute value and structure of tax revenues of regional budgets in the Russian Federation as a whole seriously changed, while in the Far East only the tax on total income and non-tax revenues showed a drop alongside an increase in the value of federal transfers, which was significant (125%), but smaller than the national average (159%) (*Tab. 1*).

In Russia as a whole, the consolidated budgets of its constituent entities for 2020 showed an increase in revenues by 1,328 billion rubles, while the sources of this growth were mainly federal transfers that increased dramatically in 2020 – by 1,523.4 billion rubles or 1.6 times compared to 2019. Federal transfers were able to smooth the decline in tax and nontax revenues of the budgets of Russian regions. According to the results of 2020, RF constituent entities witnessed quite a considerable decline in the volume of income tax (by 12.8% by 2019) and nontax revenues (by 11.7%). Despite the declared measures of large-scale support for small and medium-sized businesses, by the end of 2020, the tax on total income paid by Russian small businesses also decreased by 0.7%. Against this background, a 7.5% increase in individual income tax receipts in the aggregate budgets of Russian regions is explained by the large share of those employed in the public sector and at state-owned enterprises, where wages were raised in accordance with growing consumer prices. In general, own (tax and nontax) revenues of Russia's regional budgets for 2020 decreased from 10,992.9 billion rubles to 10,798.4 billion rubles (by 1.77%).

The formation of the revenue part of the aggregate (consolidated) regional budget in the Far East in 2020 was characterized by more positive dynamics compared to the national average. The growth of own revenues of the total budget in the first year of the pandemic slowed down dramatically and was only 0.2% in 2020; however, along with a 1.25-fold increase in the volumes of federal transfers to the region, this allowed for an increase in budget revenues of the Far Eastern constituent entities by 8.5%. The Far Eastern small business, which operates under difficult socio-economic conditions, reacted to the pandemic most harshly and more noticeably than at the national level (Leonov, 2018). In 2020, despite direct financial support for business, the Far East experienced a 7% decrease in

Table 1. Volume and structure of revenues of the consolidated budgets of the Far Eastern constituent entities and the Russian Federation as a whole (2019–2021)

	Revenues (in nominal terms), billion rubles/ %					
	2019		2020		2021	
	RF	FE	RF	FE	RF	FE
Revenues – total	13572.3/100	1211.1/100	14901.2/100	1314.6/100	17546.3/100	1499.9/100
Including:						
Tax and nontax revenues	10992.9/81.0	806.8/66.6	10798.4/72.5	808.6/61.5	13651.8/77.8	967.8/64.5
Tax revenues	*10152.3/74.8*	*706.6/58.3*	*10055.9/67.3*	*741.2/56.4*	*12675.8/72.3*	*822.5/54.8*
Profit tax	3358.2/24.7	220.0/18.2	2927.0/19.6	228.9/17.4	4529.3/25.8	249.4/16.6
Individual income tax	3956.4/29.2	271.4/22.4	4253.1/28.5	287.0/21.8	4793.2/27.3	311.6/20.8
Excise taxes	755.3/5.6	41.9/3.5	797.9/5.4	43.9/3.3	950.1/5.4	54.0/3.6
Taxes on total income	596.4/4.4	39.8/3.3	592.1/4.0	37.0/2.8	808.9/4.6	46.0/3.1
Property taxes	1350.9/10.0	91.5/7.6	1358.0/9.1	105.1/8.0	1444.5/8.2	109.1/7.3
Nontax revenues	*840.6/6.2*	*100.2/8.3*	*742.5/5.0*	*67.4/5.1*	*976.0/5.6*	*145.3/9.7*
Transfers from other budgets	2579.4/19.0	404.3/33.4	4102.8/27.5	506.0/38.5	3894.5/22.2	532.2/35.5

Source: calculated according to: "Information on the execution of the consolidated budget of the RF constituent entity and the budget of the territorial state extrabudgetary fund". Available at: https://roskazna.ru/ispolnenie-byudzhetov/konsolidirovannye-byudzhety-subektov/

the receipts from the tax on total income provided mainly by small and medium-sized enterprises (Ryazantseva et al., 2020; Leonov, 2021), and even by the end of 2021, although tax revenues on total income increased, they still turned out to be lower than the volume indicators for the pre-COVID year 2019.

Nevertheless, the results of the formation of consolidated budget revenues show that in 2021, both in the Far East and in the Russian Federation as a whole, there was a formal damping of the signs of the crisis in the revenue base of regional budgets.

In the Russian Federation by the end of 2021, against the background of an increase in own (tax and nontax) revenues of Russia's regional budgets by 26.4% and a decrease by 5.1% in the amount of transfers (from 4102.8 to 3894.5 billion rubles in 2021), the increase in revenues of the budgets of RF constituent entities amounted to 17.8% by 2020.

In the Far East, in 2021, the own revenues of regional budgets increased by 19.7% and were provided by an increase in the entire regional tax base, and an increase in federal transfers by 3.1% ensured an increase in budget revenues by 14.1% compared to the level of 2020.

However, according to the quarterly analysis of the formation of budget revenues in the Far Eastern regions (*Tab. 2*) and taking into account the growth of their income base, we see a more pessimistic picture concerning the way out of the budget crisis caused by the coronavirus pandemic of 2020–2021; we can also note some clarifying points.

2. The analysis of quarterly data on the formation of revenues of the Far Eastern budgets has shown that the depth of the recession and the rate of recovery of budget revenues after the epidemic differed across RF constituent entities. Mining regions suffered most; the Sakhalin Oblast and Chukotka Autonomous Okrug (ChAO) even by the end of 2021 still have not been able to restore the pre-COVID structure of regional budget revenues.

In the second quarter of 2020, the own (tax and nontax) revenues of consolidated budgets of the Far Eastern constituent entities decreased by 18.5%; income taxes fell by 29%, individual income tax – by 3.5%, and taxes on total income indirectly characterizing the state of small and medium-sized

Table 2. Dynamics of growth in the revenues of consolidated budgets of regions in 2020 and 2021, in% compared to the same period of the previous year

Revenue	2nd quarter of 2020 to 2nd quarter of 2019		3rd quarter of 2020 to 3rd quarter 2019		4th quarter 2020 to 4th quarter 2019		2020 to 2019		1st quarter of 2021 to 1st quarter of 2020		2nd quarter of 2021 to 2nd quarter of 2020		3rd quarter of 2021 to 3rd quarter of 2020		4th quarter of 2021 to 4th quarter of 2020		2021 to 2020	
	RF	FE	RF	FE	RF	FE	RF	FE	RF	FE	RF	FE	RF	FE	RF	FE	RF	FE
All revenues of consolidated budgets	-5	**-0.1**	11	**8**	21	**5**	10	**9**	11	**-5**	25	**13**	21	**29**	14	**18**	18	**14**
Including:																		
own (tax and nontax)	-20	**-19**	-1	**-6**	7	**3**	-2	**0.2**	8	**-13**	40	**27**	31	**43**	27	**28**	27	**20**
profit tax	-27	**-29**	-17	**-17**	-7	**15**	-13	**4**	15	**-33**	53	**25**	85	**71**	77	**28**	55	**9**
individual income tax	-10	**-4**	11	**7**	16	**11**	8	**6**	4	**1**	33	**19**	9	**4**	9	**10**	13	**9**
tax on total income	-28	**-29**	5	**-11**	16	**1**	-0.7	**-7**	18	**-6**	80	**60**	29	**18**	21	**27**	37	**25**
Total amount of transfers from other budgets	73	**47**	58	**34**	65	**8**	60	**25**	26	**17**	-11	**-7**	-2	**9**	-13	**6**	-5	**5**

Source: calculated according to: "Information on the execution of the consolidated budget of the RF constituent entity and the budget of the territorial state extrabudgetary fund". Available at: https://roskazna.ru/ispolnenie-byudzhetov/konsolidirovannye-byudzhety-subektov/

businesses in the region – by 28.7% compared to the same period in 2019 (see Tab. 2).

The mining regions suffered most: a drop in production at large companies led to a sharp reduction in the volume of profits received and, as a result, a reduction in income tax receipts to the budgets of the territories.

The Sakhalin Oblast had the maximum shortfall in revenues for April – June 2020: the oblast budget did not receive 27.3 billion rubles, mainly, as can be assumed, due to strict quarantine[6]. Income tax deductions were lower than the average for the Far East (-29%) in Kamchatka Krai (-65%), the Republic of Buryatia (-50%), the Sakhalin Oblast (-46%), Zabaikalsky Krai (-42%).

Such a critical situation with the own revenues of regional budgets led to a sharp increase in the volume of federal transfers to the regions, which increased in the second quarter of 2020 to the second quarter of 2019 by 73% nationwide and in the Far East, in particular, by almost half (47%). Transfer infusions continued in the third quarter of 2020 (in Russia as a whole, the growth was 58%, and in the Far East – 34% by the third quarter of 2019), which helped to mitigate the negative impact of the decrease in revenues for the main tax items on the replenishment of regional budgets. Individual income tax receipts at this time increased at the expense of a large proportion of those employed in the public sector, where wages were raised in accordance with growing consumer prices.

The dynamics of budget parameters by the end of 2020 in the Far East as a whole turned out to be even better than the average Russian situation. In the Russian Federation on the whole, own revenues, despite the spring failure, decreased by only 2%, while in the Far East, regional budgets showed an increase in this indicator by 0.2% to the level of 2019. The situation in the Far East looked worse than the Russian average concerning the tax on total income paid by small businesses: its receipts in the Far East for 2020 decreased by 7%, with a drop of 0.7% in Russia as a whole.

As a result, we can say that the impact of the second wave of the coronavirus pandemic on the regional budget sphere has been leveled off by the beginning of 2021; in particular, this was due to very large amounts of transfers received by regional budgets; moreover, these transfers increased by almost 60% in 2020. Such a dramatic growth of federal aid provided to regional budgets did not occur even in the crisis of 2009, when the volume of transfer support increased by a third and amounted to 34% of regional budget revenues.

In contrast to the average Russian situation, in the Far East, the second wave of coronavirus provoked a 5.1% drop in revenues of consolidated regional budgets in the first quarter of 2021 compared to the first quarter of 2020, which was due to a 33.4% reduction in income tax receipts, mainly in the mining regions, as well as a decrease in transfers provided to the Far Eastern territories. Thus, in the Republic of Sakha (Yakutia), there was a decrease in income tax receipts to the republic's budget by 31% (-4.8 billion rubles); in the Sakhalin Oblast, the reduction in the receipt of this tax to the regional budget amounted to 70.3% (-35.6 billion rubles) compared to the first quarter of 2020. At the same time, regional transfers in the Republic of Sakha (Yakutia) increased by only 6.8% (1.6 billion rubles) and did not compensate for the problems with income tax receipts; in the Sakhalin Oblast in general, a 14.2% reduction in transfers was noted in the first quarter of 2021.

Assessing the impact of the third and fourth waves of coronavirus, we should note that the situation is generally improving. Own budget revenues in the Far East and in the Russian Federation as a whole have been growing both

[6] We should note that the lost revenues of Moscow, which had the largest loss of revenue compared to other Russian regions in the second quarter of 2020 (-141 billion rubles), 5-fold exceeded the budget losses of the Sakhalin Oblast. We can assume that such a dramatic decline in budget revenues in the second quarter of 2020 was the real reason behind the termination of lockdown during the second wave of COVID in the autumn – winter of 2020–2021.

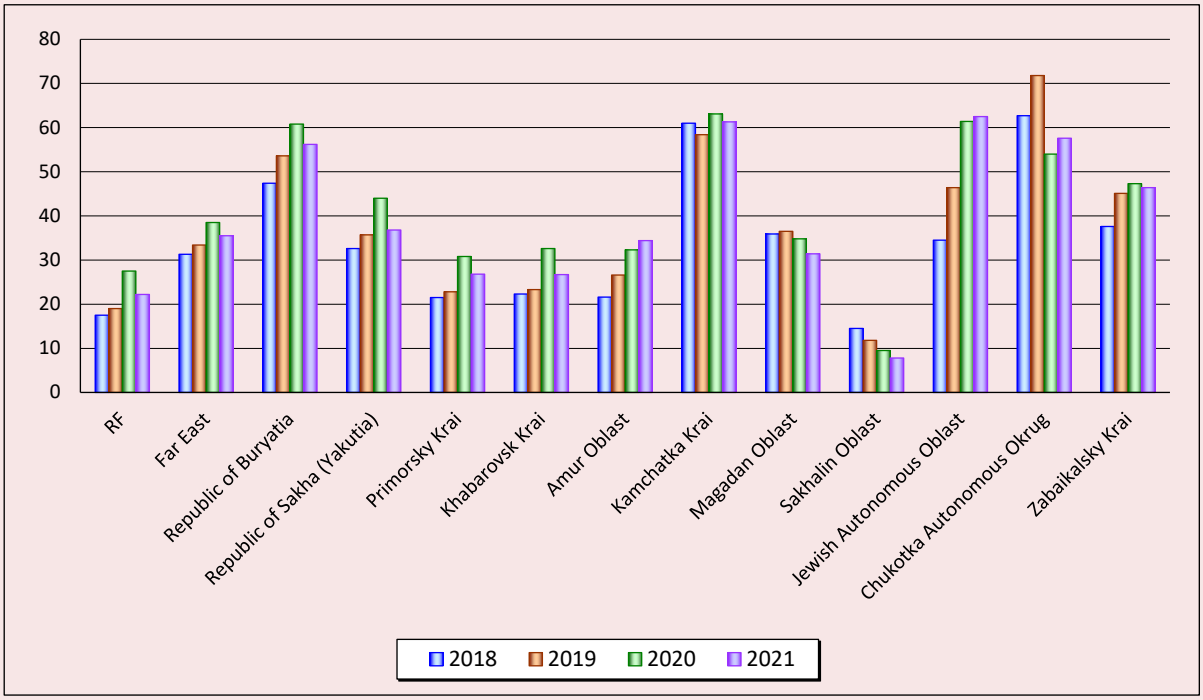
in the third and fourth quarters, and in general for 2021. In the Far East, the regions' own revenues increased by 20%, income tax receipts – by 9%, individual income tax receipts increased by 9%, and the tax on total income – by 25% (Tab. 2). At the same time, we should note that the restoration of income tax, which is most significant for developed and resource-oriented regions, is rather slow and uneven across territories. For example, according to the results of 2021, income tax inflow to the regional budget of the Sakhalin Oblast turned out to be 27%, and in ChAO – 29.2% lower than the level of 2020, respectively.

3. In the pre-pandemic years, the dependence of the budgets of the Far Eastern constituent entities on transfers, reflected by the share of transfers in the revenues of consolidated budgets, was higher than the national average in all Far Eastern regions except the Sakhalin Oblast. During the pandemic years (2020–2021), the dependence of regional budgets on transfers in most Far Eastern regions has increased significantly.

We note that in 2018–2019, the volume of subsidies allocated to the budgets of Russian regions grew as a result of an influx of additional funding to the regions so as to finance national projects. However, the growth rate of federal budget transfers at the 2020 stage (the peak of the COVID epidemic) turned out to be noticeably higher. Moreover, as we can see in *the Figure*, the national average share of transfers in regional budgets has increased even more than in the Far Eastern regions that usually receive subsidies.

This can be explained by the fact that in 2020, the increase in subsidization occurred in relatively developed territories of the Volga region, Siberia and the Urals, which had not previously received subsidies from the federal center. Less noticeable

The share of transfers in the revenues of consolidated budgets of RF constituent entities, %



Source: calculated according to "Information on the execution of the consolidated budget of the RF constituent entity and the budget of the territorial state extrabudgetary fund. Available at: https://roskazna.ru/ispolnenie-byudzhetov/konsolidirovannye-byudzhety-subektov/

increments in the share of subsidies in the budget revenues of initially highly subsidized regions are explained arithmetically, since the growth of transfers leads to an almost similar increase in the amount of budget revenues and, as a result, the proportion between the amount of the transfer and the amount of budget revenues varies slightly.

In 2021, after the first and second waves of COVID the share of transfers in the revenues of Russian and most Far Eastern constituent entities decreased. However, in the traditionally subsidized regions of the Far East, it either remained the same (Zabaikalsky Krai) or increased (the Amur Oblast and the Jewish Autonomous Oblast).

We should note that in 2020, the dependence of RF constituent entities on transfers did not increase in the city of Moscow, in Khanty-Mansi and Chukotka autonomous okrugs and in the Sakhalin and Magadan oblasts; this can be explained by the specifics of federal policy in dealing with "well-off" regions with high budget security, and focusing on providing financial assistance to subsidized regions. Moreover, in the Far East, the share of transfers in the revenues of Chukotka Autonomous Okrug and the Magadan and Sakhalin oblasts for 2018–2021 even decreased.

4. Over the years of the pandemic, decentralization in the regional financial sphere led to a reduced variability in the choice of budget spending priorities by regional authorities. According to the analysis, during the years of the pandemic, the share of subsidies that actually allow regional authorities to dispose of funds and direct them to the development of the territory in the structure of "transfer assistance" has decreased dramatically.

In 2020, there was an unprecedented increase in the amount of transfers – by 54% in Russia and by 25% in the Far Eastern regions. At the same time, targeted types of assistance (subsidies, subventions, other intergovernmental transfers) grew most rapidly in the structure of transfers; this automatically reduced the much-needed independence of regions in managing budget resources (*Tab. 3*).

In fact, it turned out that additional financial assistance transferred to the regions could only be spent on pre-agreed directions.

The dynamics of different types of transfers were dictated by various reasons.

The outstripping growth of subsidies is largely explained by an increase in assistance to the regions in terms of payments of child benefits (birth of a third child, benefits for children from 3 to 7 years

Table 3. Dynamics of changes in the amount of transfers

Type of transfers	Growth dynamics, %					
	2019/2018		2020/2019		2021/2020	
	RF	FE	RF	FE	RF	FE
Gratuitous receipts (transfers)	117.6	125.4	153.9	125.0	97.4	103.1
Grants-in-aid, total	89.2	97.3	141.1	118.1	78.4	92.7
Including:						
- grants-in-aid for equalization*	104.8	102.3	106.3	108.6	100.1	100.2
- grants-in-aid for balance**	63.6	76.9	235.5	169.2	51.8	129.9
Subsidies	145.0	189.4	181.6	198.4	117.9	141.0
Subventions	119.6	123.3	152.8	143.5	85.7	95.4
Other intergovernmental transfers	172.4	198	149	94.2	110.2	90

* Grants-in-aid for equalization of budget security are provided to RF constituent entities whose level of estimated budget security does not exceed the level established as a criterion for equalizing the estimated budget security of subjects of RF constituent entities.
** Unlike grants-in-aid for equalization that are calculated according to a given formula, grants-in-aid for balance are a less formalized mechanism to support RF constituent entities. Its main goal is to address those financial problems of the regions, which cannot be solved within the framework of the general methodology for the distribution of grants-in-aid for equalization.
Source: calculated according to "Information on the execution of the consolidated budget of the RF constituent entity and the budget of the territorial state extrabudgetary fund. Available at: https://roskazna.ru/ispolnenie-byudzhetov/konsolidirovannye-byudzhety-subektov/

old). In total, these two subsidies accounted for about a quarter of all subsidies received by the regions in 2020 (Zubarevich, 2021b). The remaining subsidies were intended to co-finance national projects.

Other intergovernmental transfers are similar to subsidies, but can be provided in order to co-finance the expenditure obligations of the corresponding budget in full (as for subsidies, they are provided on the terms of shared financing). This type of transfers has a broader list of reasons for their provision compared to subsidies. In essence, this is the least transparent transfer tool of federal budget support for the regions.

In the Far East in the pre-pandemic 2019, the growth rate of other intergovernmental transfers overtook the average Russian indicators (198% and 172.4%, respectively), while in the pandemic years, the trends in the Far Eastern and all-Russian other intergovernmental transfers became multidirectional. In the Russian Federation in 2020–2021, the growth of this type of transfers continued, which led to an increase in the share of other intergovernmental transfers in the structure of transfers received by regional budgets from 23.4% in 2019 to 25.6% in 2021. In the Far East, a sharp increase in other intergovernmental transfers in the pre-pandemic period was replaced by an absolute reduction in their size and a drop in the share of this type of transfers in the structure of transfer revenues of the Far Eastern regional budgets from 27.2% in 2019 to 17.8% in 2021 (*Tab. 4*).

Against this background, the growth of subventions was explained by the need to address employment issues in a crisis (we are talking about funds for unemployment benefits), since the payment of unemployment benefits is one of the federal powers.

Table 4. Dynamics of the volume and structure of transfers from other budgets of the budgetary system

Type of transfers	Volume (billion rubles)					
	2019		2020		2021	
	RF	FE	RF	FE	RF	FE
Gratuitous receipts (transfers)	2453.1	360	3776	450.1	3676.4	464.1
Grants-in-aid, total	924	180.5	1303.7	213.1	1021.9	197.6
Including:						
- grants-in-aid for equalization	675.3	152.7	717.9	165.9	718.3	166.3
- grants-in-aid for balance	248.7	27.9	585.8	47.2	303.6	61.3
Subsidies	557.5	50.2	1012.3	99.6	1194	140.4
Subventions	396.6	31.7	606.2	45.5	519.6	43.4
Other intergovernmental transfers	575	97,6	853,8	91,9	940,9	82,7
Type of transfers	Share (%)					
	2019		2020		2021	
	RF	FE	RF	FE	RF	FE
Gratuitous receipts (transfers)	100	100	100	100	100	100
Grants-in-aid, total	37.7	50.1	34.5	47.3	27.8	42.6
Including:						
- grants-in-aid for equalization	27.5	42.4	19.0	36.9	19.5	35.8
- grants-in-aid for balance	10.1	7.8	15.5	10.5	8.3	13.2
Subsidies	22.7	13.9	26.8	22.1	32.5	30.3
Subventions	16.2	8.8	16.1	10.1	14.1	9.4
Other intergovernmental transfers	23.4	27.2	22.6	20.5	25.6	17.8

Source: calculated according to "Information on the execution of the consolidated budget of the RF constituent entity and the budget of the territorial state extrabudgetary fund. Available at: https://roskazna.ru/ispolnenie-byudzhetov/konsolidirovannye-byudzhety-subektov/

Subsidies for equalizing budget security (the most transparent type of transfers) are calculated according to an established formula and are generally relatively stable over the years. Their growth in 2020 was about 6–8%, which is comparable with inflation parameters. But this is exactly the kind of assistance that allows the regions to distribute it independently in accordance with their own vision of regional problems. According to the data in Table 4, the share of equalization subsidies in the amount of transfers of the Far Eastern regions decreased from 52% in 2018 to 42% in 2019 and 36.9% in 2020, amounting to 35.8% in 2022. Grants-in-aid aimed at ensuring the balance belong to force majeure tools of budgetary policy (they increase during crises).

Thus, during the pandemic period, the share of equalization subsidies that the Far Eastern regions could spend independently on their own needs in the total amount of transfers decreased from 42.4% to 35.8%.

5. The crisis revealed a lack of clear criteria in the provision of "transfer assistance" to the regions. Transparency of assistance provided to RF constituent entities has deteriorated during the pandemic crisis, which actually creates negative stimuli for regional development, giving rise to the desire of regional governments to lobby for special financial preferences from the federal center.

The reason for the situation lies in the deterioration of coordination of assistance to the regions by federal structures, since regional transfers are provided to the territories not only by the Ministry of Finance, but also by other federal bodies. We find a deterioration of transparency as we analyze the ratio of budget losses[7] of the Far Eastern constituent entities to the volume of additional transfers of the current year compared to the previous one.

According to the data in Table 5, in 2020, the own budget revenues of the Far Eastern constituent entities increased by only 1.7 billion rubles,

Table 5. The difference between the loss of own (tax and nontax) revenues of consolidated budgets of RF constituent entities and the amount of additional transfers (billion rubles)

Region	2020 compared to 2019 (peak of the pandemic)		2021 compared to 2020 (decline of the pandemic)	
	dynamics of own revenues	dynamics of the amount of transfers	dynamics of own revenues	dynamics of the amount of transfers
Far Eastern Federal District	**1.7**	**101.7**	**159.2**	**26.1**
Republic of Buryatia	0.0	14.6	9.2	1.9
Republic of Sakha (Yakutia)	-6.1	32.3	72.4	10.7
Primorsky Krai	-5.4	16.5	25.5	-0.3
Khabarovsk Krai	-0.2	18.2	19.7	-4.9
Amur Oblast	9.8	11.8	6.6	6.8
Kamchatka Krai	0.4	12.5	5.6	4.0
Magadan Oblast	7.0	2.6	5.0	-0.4
Sakhalin Oblast	-14.5	-6.8	6.2	-2.7
Jewish Autonomous Oblast	0.1	5.9	1.0	2.3
Chukotka Autonomous Okrug	9.0	-11.3	-2.1	1.7
Zabaikalsky Krai	1.6	5.3	10.1	7.2

Source: calculated according to "Information on the execution of the consolidated budget of the RF constituent entity and the budget of the territorial state extrabudgetary fund. Available at: https://roskazna.ru/ispolnenie-byudzhetov/konsolidirovannye-byudzhety-subektov/

[7] Budget losses ("lost revenue") is the difference in the budget's own revenue (tax and nontax) of the current year in comparison with the previous year.

and 101.7 billion rubles of federal transfers were additionally "poured" into the region. At the same time, the Sakhalin Oblast received the least support at the peak of the pandemic in 2020. The oblast was not compensated for a 14.5-billion-ruble decrease in own revenues in 2020 compared to 2019; moreover, the amount of transfers it received was reduced by 6.8 billion rubles. Apparently, federal authorities considered that the Sakhalin Oblast, being a "rich" oil and gas producing region, would manage to solve the current financial problems on its own, as well as Chukotka Autonomous Okrug, a mining region whose transfer support was reduced by 11.3 billion rubles; while, for example, the Republic of Yakutia and Primorsky and Khabarovsky krais received very significant transfer compensation for much smaller reductions in their own revenues than the Sakhalin Oblast by the end of 2020.

Improvements in the economic situation in 2021 and, as a result, an increase in the regions' own revenues by 159.2 billion rubles led to a reduction in the amount of transfers by 26.1 billion rubles compared to 2020, but over 38% of this amount of aid was sent to the Republic of Sakha (Yakutia), which is difficult to explain, because Yakutia in 2021 demonstrated the most significant increase in its own budget revenues among the Far Eastern regions (72.4 billion rubles). The Sakhalin Oblast and Chukotka Autonomous Okrug were "overlooked" once again. This situation confirms that in the context of the pandemic, intergovernmental relations as well as the decision-making system on budget assistance to the regions as a whole are nontransparent.

The impact of the pandemic on regional budget expenditures was manifested primarily in a significant increase in health care costs. The pandemic revealed serious discrepancies in the level of medical care that have developed in different regions, which in reality manifested itself in a shortage of COVID beds in many regions, especially during the second wave of the crisis. Another priority of regional budgets consisted in the problems of social policy and social protection manifested in the growth of unemployment benefits, child support benefits, etc. The growth of another significant social item of expenditure of regional budgets – spending on education – in all regions lagged far behind health care spending and was within inflationary parameters.

Another consequence of the COVID crisis was the growth of nonsocial expenses. We are talking about raising the subsidies allocated to the housing and utilities sector from regional budgets in order to avoid raising tariffs for housing and communal services for the population in conditions of declining incomes of the latter. Moreover, despite the pandemic, regions continued to implement national projects and receive subsidies for these strictly defined purposes; thus, the total amount of subsidies (targeted transfers) increased in the Far Eastern regions for 2019–2021 by 90.2 billion rubles or 2.8-fold compared to 2019. At the same time, grants-in-aid for equalization (nontargeted transfers most "desired" by regional authorities) increased less than 1.09-fold over the same period, by only 13.6 billion rubles in 2019–2021.

Conclusion

The COVID epidemic is not over yet. For the Far East, the first and second waves of the epidemic had the most significant impact on the condition of regional budgets. Data for 2021 show a certain mitigation of the impact of the third and fourth waves of the epidemic on the regional budget system through intergovernmental transfers. The results of 2022 may clarify the impact of COVID restrictions, but we can expect that the main trends and potential risks have already been identified. The impact of the first wave turned out to be the most significant for the Far East and its regional budget system. Due to the lockdown, oil and gas producing regions (Sakhalin Oblast), as well as mining regions (Kamchatka and Zabaikalsky krais, Republic of Buryatia) suffered most. The second

wave of coronavirus provoked a 5.1% drop in the revenues of consolidated budgets of the Far Eastern regions in the first quarter of 2021, which was due to a 31% decrease in income tax inflows to the budget of Yakutia and a 70% reduction in the inflow of this tax to the budget of the Sakhalin Oblast, while at the same time the volume of transfers to the regions of the Far East decreased.

In general, in the Far East, the pace of overcoming the coronavirus crisis differs in various regions. Regions specializing in manufacturing are recovering faster; the process is slower in mining regions. The main condition for overcoming the budget crisis was a large-scale increase in federal aid, which allowed most regions to compensate for the loss of their own budget revenues.

The impact of the third and fourth waves of the coronavirus crisis on the economy of the Far East and the regional budget sphere can be assessed as weak in general. The stagnation of extractive industries continued; as a result, in the analyzed period of 2020–2021, problems of forming the tax base were noted in most of the mining regions. Thus, we can forecast that the condition of regional budgets will depend more on the transfer support from the federal center.

At the same time, we have found a lack of clear criteria in the provision of "transfer assistance" to the regions. Transparency of the aid provided to RF constituent entities has deteriorated during the pandemic crisis, which may lead to the formation of anti-incentives for regional development, giving rise to the desire of regional governments to lobby for special financial preferences from the federal center.

Since the regions, despite the pandemic, continue to implement national projects, receiving subsidies for these purposes, the total amount of subsidies increased in the Far Eastern regions for 2020–2021 by 90.2 billion rubles or 2.8-fold compared to 2019. At the same time, grants-in-aid for equalization (nontargeted, the most "desirable" transfers) increased only 1.09-fold over the same period. This means that the measures actually taken to stimulate fiscal policy in the eleven Far Eastern regions do little to create conditions for the prospective post-crisis modernization of their economies, mainly aimed at addressing the current problems of forming the revenue part of regional budgets.

The results of the study contribute to the identification of practice-oriented aspects of overcoming the noneconomic shocks of the coronavirus pandemic on the regional budgets of the Far Eastern macroregion, substantiate the need to improve approaches to providing transfer assistance to problem regions, making it more "transparent" for regional governments. Practical significance of the study is due to the possibility of applying the findings in the activities of public authorities aimed at addressing problems in the implementation of intergovernmental policy in the Far Eastern macroregion of Russia.

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Implications of Precarization in the Context of Generational Groups: Direct and Indirect Effects

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Abstract. The effects of employment precarization are the subject of active discussion in the scientific literature. Despite the novelty of the topic, the negative impact of this process on the labor and daily life has been subject of a large number of works over the previous decade. At the same time, age specifics have not been widely reflected in studies: as a rule, authors focus on the population as a whole or its individual categories, for example, youth. The purpose of the article is to analyze and generalize the existing experience of studying the impact of employment precarization on generational groups of the economically active population. For this purpose, we have examined the situation of young, middle-aged and older workers involved in unstable labor relations. The information base is the Russian and foreign sources of empirical orientation; in the work we have used general scientific methods. The results show that the impact of employment precarization on generational groups has serious specifics. For young people, job instability mainly affects the planning of their own future forcing them to postpone the issues of starting a family and having children, leaving the parental home, etc. Prolonged transition to stable employment harms mental health, which is most pronounced in adulthood, when instability becomes part of everyday life. It can be difficult to get out of the "precarity trap" because low earnings and social insecurity limit the ability to change the current situation. The effects of employment precarization for older people are ambiguous. Even taking into account all the disadvantages of unstable labor relations, having at least some work is often a necessity to maintain a habitual lifestyle. The main limitation of the research is the generalization of information obtained using various conceptual constructions and methodological tools.

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Key words: precarization, precarious employment, generational groups, labor market, non-standard employment, standard of living, youth, middle generation, elderly people.

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Introduction

Humanity's transition to information-oriented society has a significant impact on the employment. It is most evident in the industrialized countries, which a century ago formed general principles determining the nature of relations between labor market subjects. We are talking about the standard employment model, which is understood as "*full-time employment on the basis of a permanent contract in an enterprise or organization, under the direct supervision of the employer or their appointed managers"* (Gimpelson, Kapelyushnikov, 2005, p. 3). Such conditions were the best for mass production and helped to meet the needs of industry for qualified personnel. At the same time, wage workers united by the labor union movement had social protection and the opportunity to assert their labor rights. In any case, further technological developments and other factors have brought the tertiary economic sector to the fore, with employment exceeding 70% in high-income countries (50% worldwide)[1]. Today's leitmotif is flexibility, which is reflected in the spread of fixed-term employment contracts and informal labor relations, the reduction of working hours, etc. In turn, nonstandard employment forms (temporary, part-time, remote, self-employment, etc.), often used by employers to quickly adapt to the effects of financial and economic crises[2], are becoming increasingly popular as a promising way to organize working life including through the disclosure of the potential of digital platforms. In OECD countries, it is estimated that more than half of the jobs created in the period from 1995 to 2013 were nonstandard. At the end of the period, their cumulative share had reached about 33%[3]. Thus, a new paradigm of employment is emerging, which is characteristic of the next stage of social development (Castells, 2000, p. 200).

At the same time, the diversity of practices of population's participation in paid employment, some of which have no social guarantees or are poorly regulated by law (for example, self-employment), contributes to differences in the quality of employment, which against the background of flexibilization of the labor market and global uncertainty increasingly depends on the stability of the worker's position. Such a discourse has been developed in precarization theory, which focuses on issues of societal destabilization, where a key role is assigned to the *erosion of previously guaranteed conditions of standard employment*[4] (Unsustainable Employment..., 2018, p. 32). The negative effects of this process are multifaceted and manifest themselves both at the individual, organizational (despite the possibility of situational gains), and public levels (Popov, Solov'eva, 2019).

[1] Employment in services (% of total employment) (modeled ILO estimate). World Bank Open Data. Available at: https://data.worldbank.org/indicator/SL.SRV.EMPL.ZS (accessed: August 10, 2022).

[2] Non-standard employment around the world: Understanding challenges, shaping prospects. ILO. Available at: https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_534326.pdf (accessed: August 10, 2022).

[3] In it together: Why less inequality benefits all. OECD. Available at: https://www.oecd-ilibrary.org/employment/in-it-together-why-less-inequality-benefits-all_9789264235120-en (accessed: August 10, 2022).

[4] Barbier J.-C. "Employment precariousness"in a European cross-national perspective. A sociological review of thirty years of research. Available at: https://halshs.archives-ouvertes.fr/halshs-00654370/document (accessed: August 10, 2022).

Moreover, reports of the International Labor Organization emphasize that *signs of precarity can also be observed within the standard employment model, while not all of its flexible forms lead to social vulnerability*[5]. In this respect, the sustainability of workers' situation is conditioned not only by the *type of contractual agreements* (by the term and nature of the employment relationship), but also by *specific working conditions* (wages, access to social protection mechanisms, etc.)[6].

The studies show that, for population in developed countries, precarious employment is a very common way to enter the labor market (Kapsalis, Tourigny, 2005), and is also seen as an intermediate step on the way to more favorable working conditions (Gash, 2008). However, it is rarely possible to make this transition; as a result one may end up in the "precarity trap" that limits the possibilities of improving one's position in the labor market and in society. This situation affects workers in different ways, depending on the length of their working career. For some, it may be the beginning of a professional path, when the main value is the very fact of the start of labor activity, and for others – a good opportunity to earn extra money for retirement. In this regard, the *age factor is almost the most important one when analyzing the effects of employment precarization*, if we are not talking about the least competitive groups in the labor market (women with young children, people with disabilities, foreign migrants, etc.). In particular, the precariousness of labor relations can be a serious obstacle for young people on their way to adulthood: gaining financial independence, leaving home, starting a family, having children (Miguel Carmo et al., 2014), etc. Even the digital platforms, so popular among young people, do not change the situation much, since a significant number of their employees lack social security and have experienced or witnessed discrimination or harassment[7]. Experience in Russia suggests that the transition from school to stable or satisfying employment can take up to about 4 years when the first attempt was unsuccessful (Russian Youth..., 2016, pp. 63–64).

The purpose of our research is to analyze and summarize Russian and foreign experience in studying the impact of employment precarization on generational groups of the economically active population. In the article, we will consider the state of workers of young, middle and old age with precarious labor relations.

Extent of elaboration of the problem

The topic of employment precarization has actively been discussed in the scientific literature since the early 2000s, when the spread of "nonstandard" jobs in industrially developed countries led to aggravating the issues of workers' social protection. It was also facilitated by the crises of the following years and the slowdown in economic growth, forcing economic entities to reduce costs including labor costs. An undoubted breakthrough in studying and popularization of the phenomenon of precarization is associated with the name of G. Standing, who published in 2011 the book The Precariat. The New Dangerous Class (Standing, 2011), where the author outlined own views on the class structure of the new society. One of the features of the time is the emergence of the *precariat* – a large socio-economic group

[5] Non-standard employment around the world: Understanding challenges, shaping prospects. ILO. Available at: https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_534326.pdf (accessed: August 10, 2022).

[6] 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: August 10, 2022).

[7] World Employment and Social Outlook 2021: The role of digital labour platforms in transforming the world of work. Available at: https://www.ilo.org/global/research/global-reports/weso/2021/WCMS_771749/lang--en/index.htm (accessed: August 10, 2022).

(affects about a quarter of the adult population), deprived of most rights and guarantees. In such cases, it is common to speak about immanent instability preventing the implementation of work and life plans. Such concepts have found a wide response in Russian sociology, which has deepened ideas about the theory and methodology of studying the precariat, the scale and specifics of its formation in Russia (Precariat..., 2020; Golenkova, Goliusova, 2013; Shkaratan et al., 2015). The authors' approaches and assessment often have significant differences, which is due to the lack of clear criteria for class formation.

Additionally, we use the category of *"precarious employment"*[8] to analyze the process of employment precarization, which has become firmly established in scientific usage thanks to the works of J. Burgess, L. Vosko, A.L. Kalleberg, I. Campbell, G. Rogers, J. Fudge, etc. Compared to the established terminology, it does not characterize any specific forms of labor relations or their combination (however, some of them are used to identify general trends and patterns (Cranford, Vosko, Zukewich, 2003; Kim et al., 2008)), but rather describes the condition (Bobkov, Chernykh, 2014, p. 30), when the employee is in a state of vulnerability and social insecurity related with the features of the organization of the labor process[9]. This usually refers to both *objective prerequisites* (lack or limitation of social guarantees, low wages, informality of employment, etc.) and *subjective assessments* (inability to set aside their labor rights, concern about the threat of losing their jobs, dissatisfaction with working conditions, etc.). Increasing attention is also paid to the *compulsion factor* (Unstable employment..., 2018, p. 6; Odegov, Babynina, 2018, p. 393), which makes it possible to separate the precariously employed from those who voluntarily chose such a path to achieve their own goals. In fact, it can be quite difficult to distinguish them.

For certain, we can say that precarious employment is the basis for classifying workers as precariat, but such parallels should be carried out very carefully, since the latter may include other categories of the population. Nevertheless, each of these concepts is independent in the context of studying the effects of the phenomenon of precarization. English-language scientific literature more often mentions precarious employment, while the Russian one uses the precariat[10]. At the same time, the conceptual apparatus is regularly mixed, as a result of which the existing differences in research areas become not so noticeable from a meaningful point of view.

Within the framework of precarization, a special place belongs to the works devoted to studying its effects in the context of employment prospects, ensuring a decent standard and quality of life. Due to the limitations of official statistics, it is most often necessary to deal with data that requires specific empirical research (mass surveys, in-depth interviews, etc.), which is a very time-consuming task. It is in this way that we have revealed patterns concerning the negative impact of the process on material well-being, health status, reproductive plans, possibility of professional development, social inclusion[11], etc. In this regard, health issues are virtually of top priority in highly specialized publications, which substantiate the relationship between the instability of the workers' position with

[8] We use the term "precarious employment" because it has become the most widespread in the Russian-language literature (according to the data on keywords in the RSCI system).

[9] Kalleberg A.L. Measuring precarious work. Available at: https://cpb-us-w2.wpmucdn.com/voices.uchicago.edu/dist/5/1068/files/2018/05/einet_papers_kalleberg-1owgfyz.pdf (accessed: August 10, 2022).

[10] According to Google Scholar. Available at: https://scholar.google.com/

[11] The precarity penalty. The impact of employment precarity on individuals, households and communities – and what to do about it. Available at: https://pepsouwt.files.wordpress.com/2012/12/precarity-penalty-report_final-hires_trimmed.pdf (accessed: August 10, 2022).

fatigue, sleep and diet disorders, stress, muscle pain (Benavides et al., 2000; Bohle et al., 2004) and other aspects. These problems are also reflected in the context of individual socio-demographic groups, although if they are not in the subject field of the research, then they are mentioned in passing.

As we have already mentioned, the age factor is of great interest in analyzing the effects of employment precarization, since it allows not only identifying the features of the situation of generational groups, but also determining their prospects both in the labor market and beyond. Some studies in the scientific literature address the issues of subjective well-being of workers of various ages (Jetha et al., 2020; Kuchenkova, 2022), but they mainly focus on one category of the population. We would like to analyze and summarize the existing experience in this area, which could contribute to a better understanding of the multifaceted effects of employment precarization and possible ways to overcome them.

Materials and methods

During the research, we use the Russian and foreign scientific literature on the impact of employment precarization on generational groups of workers, namely: the young, middle and older generation. This division reflects the most important stages of a person's life path associated with entering the labor market, professional maturity and career endings, which ultimately determines the dynamics of material well-being (Bobkov, Odintsova, 2021, p. 18). Despite the heterogeneity of the information base (including on a territorial basis), we are deliberately talking about generational groups, the formation of which occurred in one chronological period of time. The proposed approach contradicts some provisions of the Strauss – Howe generational theory; however, in our opinion, it can be implemented within the framework of this study, since the phenomenon of precarization itself is not only relatively new to science and practice, but is also inherent, first of all, in the most developed countries that have much in common in terms of providing conditions for employment. In turn, we use the term "age groups" as a synonym.

In the analysis, we did not take into account differences in the conceptual framework and methodological approaches (including in terms of substantiating age boundaries), which may impose restrictions on the conclusions. For instance, some publications identify signs of precarity that characterize working conditions from an objective and subjective point of view, and others – the least stable forms of labor relations (first of all, temporary and part-time employment). Both cases usually use a sample, which is a certain set of features characteristic of the standard employment model. Most commonly, it happens when questionnaire surveys act as an information base, the data of which allow for comparative analysis and quantification of the parameters of the identified patterns. Qualitative methods (mainly focus groups and in-depth interviews), which are also actively used to study the effects of precarization, make it possible to approach the issue of revealing cause-and-effect relationships in more detail. All these things leave stamp on the nature of the results, which are very difficult to sum up under a common denominator. Similar is the case with cross-country characteristics, which make adjustments to the understanding of the fullness and depth of the resulting effects.

We carried out the selection of sources in the period from July 15 to August 2, 2022 by a continuous method (including without taking into account industry affiliation and the year of publication of works) with the help of Google Scholar, Scopus, Web of Science and RSCI databases, as well as the Google search engine. The search queries consisted of the words "precarization", "precarious employment" and "precariat". The sample totaled 112 papers, most of which were published in the last decade (*Tab. 1*).

Table 1 – Characteristics of the initial sample

	Young generation	Middle generation	Older generation
Selected works, units	61	16	35
Years of publications, years	1999–2022	2000–2022	2005–2022
Share of works published after 2010, %	94.4	76.9	93.5
Share of sources in Russian, %	53.7	61.5	32.3

Note: We counted separately the works in which several generational groups were affected (double counting).
Source: own compilation.

Further, we "manually" reviewed the literature for information on the effects of employment precarization for workers of various age groups. At the same time, we emphasized the *indirect effects* going beyond the essential features of the phenomenon (low wages, lack of social guarantees, illusory professional prospects, etc.), which in itself has a negative connotation[12]. For this purpose, we conducted a content analysis of the text of the works; as a result, the final sample included those where the identified relationships *were confirmed empirically*. When preparing the text of this article, we used general scientific research methods.

Research results

Young generation. In matters of the influence of employment precarization on the workers' position, the central position belongs to young people. A large number of scientific papers have been devoted to studying youth, in which attention is focused on the process of transition from education to paid work. This stage in the life of young people is characterized by many difficulties (lack of work experience and qualifications, high material claims, etc.) that prevent successful employment. It is no coincidence that the youth unemployment rate is several times higher than among the adult population[13]. As a result, many are forced to accept unfavorable working conditions just to have at least some kind of job, which is especially important during periods of socio-economic instability. Nonstandard employment forms, not to mention the informal sector (Volchik, Maslyukova, 2020), acquire the role of a "bulwark" when entering the labor market (Papadakis et al., 2021). The lack of an alternative leads to the fact that the feeling of uncertainty is perceived by the younger generation as part of growing up, another step on the way to sustainable future (Burrows, 2013, p. 14; Eckelt, Schmidt, 2014, pp. 145–146). However, this transition is not always easy.

According to a longitudinal study conducted in Germany, only about a quarter of young people make a quick transition to a permanent and guaranteed job, which averages one year (Stuth, Jahn, 2020). All the others can be combined into 5 clusters ("dropout", "express", "return", "slow transition" and "family"), depending on which the duration of precarious labor relations will vary. For example, for young men who have chosen the trajectory of early employment, it will be almost 8 years, and for girls who have prematurely stopped studying or returned to school in order to improve their qualifications and thus avoid social insecurity – about 3 years.

[12] In accordance with the accepted approach, we consider the process of employment precarization purely in a negative context, since the instability of the employee's position is often not voluntary (as it happens, for example, with flexible forms of employment), but is a consequence of forced circumstances. As a rule, the possible benefits that the employer mainly extracts (Popov, Solov'eva, 2019, p. 188) are situational and do not play a big role over a long distance.

[13] Global employment trends for youth 2020: Technology and the future of jobs. Available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_737648.pdf (accessed: August 10, 2022).

Usually, young people face precarious employment even as students combining studies with part-time jobs, which can take a variety of forms (from casual earnings to part-time work). This practice is widespread all over the world and is positively perceived by young people, as it allows them not only to gain the necessary work experience, but also to get closer to gaining financial independence. The downside of early employment is a deterioration in academic performance and a decrease in the total time spent on study, which can push you into the "precarity trap" (Sršen, Dizdarevič, 2014, pp. 165–166). Subsequently, it is possible to form a *precarious habitus* that determines an individual's lifestyle, where uncertainty is an integral part of life (Tartakovskaya, Vanke, 2019, pp. 110–111). The results of such transformations are difficult to overestimate.

Employment precarization carries a lot of negative effects affecting both the working and everyday life of young people. In the first case the influence is not so noticeable (Kuchenkova, 2022, pp. 115–116), since the first entry into the labor market itself has many advantages, as we have already mentioned, while in the second case, it is exclusively destructive. In particular, Slovenian scientists have found that involvement in precarious labor relations results in higher rates of dissatisfaction with life for the younger generation, the frequency of symptoms of anxiety and depression, as well as emotional exhaustion, which in turn leads to internal burnout (Umicevic et al., 2021, p. 239). Such conditions are associated with extreme demands placed on the mental health of young workers, which results in excessive loads and stress.

The need to constantly think about the "present" resulting from an obsessive sense of insecurity negatively affects the ability to make adult decisions, plan own future and make commitments including in matters of creating a family. Similar statements were made by young scientists holding positions at a major Australian university on temporary or fixed-term contracts during in-depth interviews (Bone, 2019). It helps the authors to conclude that precarious employment significantly limits the transition to adulthood, regardless of educational achievements or the prestige of professions. Similar conclusions are clearly presented in other publications (Lewchuk, 2017; Chan, Tweedie, 2015), where using quantitative and qualitative methods, the desire of young people to postpone the birth of children is also justified due to the impossibility of providing them with proper care (both in material terms and in terms of access to basic social guarantees, free time etc.).

These aspects are of the greatest interest in the research environment due to the long-term nature of the effects of employment precarization and the difficulty of finding a stable job for young people. Other aspects of their lives are affected much less often. In some works, we can see, for example, attempts to assess the impact of precarious employment on participation in elections, but empirical data indicate that there is no relationship (the strongest correlation is observed with the indicator of work autonomy) (Robert et al., 2017, p. 133).

Middle generation. Compared to young people, the middle-aged cohort is practically not given attention in scientific sources. The reason for this is that the group is considered the least vulnerable in terms of opportunities to meet the needs and the necessity for social support. As in the case of the population as a whole, a fairly wide range of negative manifestations of employment precarization is applicable to representatives of the middle generation including a decrease in material security, social security, deterioration of health, increased uncertainty regarding personal/family and professional prospects (Popov, Solov'eva, 2019, pp. 185–187).

A few studies on this topic have shown that mature workers are characterized by the most stable employment (Kuchenkova, 2022, pp. 111–113). However, they experience the greatest dissatisfaction with work and life when labor relations become less stable, which also leads to increased concerns about wage uncertainty and complaints about poor working conditions. Apparently, the reasons for this lie in obligations (household, family, financial, property, etc.), which simply cannot be abandoned. However, the presence of a certain burden can just encourage a quick search for a job that provides the necessary income level. In practice, it can result in the deprivation of all social guarantees and complete disenfranchisement of the employee, who is forced to put up with the current situation.

As we have already mentioned, employment precarization has a serious impact on the transition to adulthood. Lack of social guarantees and opportunities for career growth, instability in wages lead to difficulties in starting a family (Piotrowski et al., 2015). The studies prove that the instability of labor relations significantly reduces the likelihood of realizing reproductive intentions, especially for women with a high level of education (Pailhe, Solaz, 2012). Prolonged stay in the status of casual employment for women by the age of 35 reduces the chances of having a first child (Steele et al., 2014, p. 158).

The negative influence of employment precarization is also manifested in a decrease in the health of the middle generation. Data from a prospective cohort study Whitehall II, launched in London among office staff aged 35–55 in 1985, indicate that workers who were precarious for a long time had the highest incidence rates, in particular cardiovascular pathologies (Ferrie et al., 2002, pp. 451–452). On the other hand, even if during the period of working capacity people did not experience visible problems, being involved in precarious employment, then when they reach older ages, it may affect their health, reduced access to medical care, and the amount of pension. For instance, the long-term informality of labor relations has negative consequences in the form of "gray" pensions, when the insurance record and the amount of official contributions are insufficient for pension savings[14]. In addition, due to the lack of confidence in the future, a mindset may develop that prevents long-term planning[15] (Vulnerable workers..., 2010, p. 45), which cannot but affect material and spiritual well-being.

The category of pre-retirees is particularly vulnerable. In order to keep their jobs and, at least, finalize them before retirement, they have to put up with the transition to part-time or less skilled work, reduced wages, limited career advancement (Chernykh et al., 2020, pp. 1183–1184), etc. Workers over 50 years old are more at risk of long-term unemployment[16]. In this regard, going on a well-deserved rest can be burdened by a number of problems caused by the instability of labor relations.

Older generation. Elderly people traditionally belong to socially vulnerable categories of the population[17], which in comparison with other age groups is manifested in lower indicators of health, income level, access to various benefits, etc. Due to a decrease in the health resource, the older generation has relatively low productivity and significant economic needs (Aisa et al., 2012). However, in practice, it can be compensated by the availability of professional skills and experience.

[14] Malysheva E., Kopalkina E. After the gray salary came the gray pension. *Gazeta.ru*. Available at: https://www.gazeta.ru/business/2017/03/31/10605221.shtml (accessed: August 10, 2022).

[15] *Vulnerable Workers and Precarious Work*. Toronto: Law Commission of Ontario, 2010.

[16] Unemployment and employment support. Available at: https://ageing-better.org.uk/unemployment-employment-support (accessed: August 10, 2022).

[17] Integrating Social Services for Vulnerable Groups. Bridging Sectors for Better Service Delivery. Available at: https://www.oecd.org/els/integrating-the-delivery-of-social-services-for-vulnerable-groups-9789264233775-en.htm (accessed: August 10, 2022).

The decision to continue working at retirement age is made under the influence of not only the health condition, but also a number of other factors, such as: the level of material well-being, satisfaction with working conditions, desire to work further, etc. Abroad, particularly in Europe, elderly people are usually not inclined to continue working after retirement[18], while in Russian's conditions, for the most part, work in retirement is forced. This is mainly due to unsatisfactory pension provision and the desire to maintain an acceptable standard of living[19].

From the point of view of vulnerability, elderly people often face explicit and implicit discrimination in the labor market (Ivanova, 2019), characterized by restrictions on hiring, setting wages, and career growth. Therefore, in order to find a job or stay in the workplace, they have to agree to less attractive conditions. All these circumstances create prerequisites for the employment precarization of pensioners. According to the research, a significant part of them have low-paid jobs in the informal sector, casual employment, or are self-employed with low qualifications or generally unskilled (Reddy, 2016). At the same time, the choice of one or another form of work can be both voluntary and forced. For example, elderly people may prefer flexible forms of work for a number of the above reasons. If a person has a certain financial reserve, then they are more likely to prefer entrepreneurship or self-employment as options for continuing work (Sahoo, Neog, 2015). For example, foreign studies show that self-employment or part-time employment plays an important role for the population over 65 years old (Casey, 2005, p. 625). However, in the first case, there are significantly fewer opportunities to receive a higher pension upon retirement (Wahrendorf et al., 2016, p. 280). Employment flexibility is also important for Russian pensioners: when moving to the age category of 61–67 years, the importance of the convenient schedule factor increases and the role of career advancement and high income is reduced (Kipervar et al., 2022). On the other hand, the reason for employment flexibility may lie in the fact that over time older employees become too "expensive" for the company, and employers are forced to reduce their working hours[20].

The work, led by V.N. Bobkov, reveals that the older generation prevails in the first group, largely characterized by indicators of standard employment (Bobkov, et al., 2018, pp. 372–374). However, a number of representatives of this category is quite significant in other profiles that have signs of instability. For example, in profile no. 4 with a high precarization level, the share of pensioners and pre-retirees is about 23%, and in profile no. 5 (with an income below 2/3 of the median) – 31%.

A study based on the Russian Longitudinal Monitoring Survey conducted at the HSE proved that most pensioners work full-time (Kozina, Zangieva, 2018). However, if changing jobs after reaching retirement age, it is three times more likely to move to an informally employed group. This situation indicates that there are corresponding risks of precarization when re-entering the labor market, since older people most often get a job where working conditions are worse than in the previous place. In addition, there is often downward professional and career mobility.

[18] Research Institute. Rethinking retirement. Davos edition 2020. Available at: https://www.credit-suisse.com/media/assets/corporate/docs/about-us/research/publications/rethinking-retirement-wef-en.pdf (accessed: August 10, 2022).

[19] Sinyavskaya O., Ermolina A., Lyubushina E. Why pensioners should work. After going on a well-deserved rest, Russians are ready to work even for a small increase to their pension. HSE. Available at: https://iq.hse.ru/news/204917251.html (accessed: August 10, 2022).

[20] Research Institute. Rethinking retirement. Davos edition 2020. Credit Suisse. Available at: https://www.credit-suisse.com/media/assets/corporate/docs/about-us/research/publications/rethinking-retirement-wef-en.pdf (accessed: August 10, 2022).

In general, data from the International Labour Organization suggest that about 78% of workers over 65 years old are involved in the informal employment (most of this is typical for developing countries)[21]. Pensioners working informally experience a shortage of funds to meet their needs, have limited access to quality medical services and leisure activities, are often subject to negative feelings up to depression (Alvarez et al. 2016, pp. 421–423; Makovskaya, 2020, p. 53). The risks of falling below the poverty line for the older generation are higher than for other age cohorts (Lancer, 2012, pp. 95–97). It is especially difficult for lonely elderly women in such a situation (Lain et al., 2019).

As we have already noted, employment precarization leads to a deterioration in the quality of working life (low wages, restriction of rights, less job satisfaction, etc.), while there have been practically no attempts to go beyond it for people of retirement age. Scientists emphasize that when assessing the full variety of consequences, it is important to take into account the following: elderly workers may have not only wages, but also other sources of income (pension, social benefits, income from entrepreneurial activity, etc.) (D'Amours, 2009, p. 213). In this case, there may be a situation where employment is precarious, but this does not affect the total income so clearly.

The results of the All-Russian survey of the working population prove that the following signs of employment precarization are most often found in the population over aged 50: the absence of an indefinite employment contract (47%), salary in envelopes (31%), unpaid sick leave and vacation (26% each) (Kuchenkova, 2022, p. 107). It is worth noting that with an increase in their number, job satisfaction decreases to a lesser extent than in other generational groups. In particular, elderly people show less sensitivity about pay equity. According to the author of the study, this is resulting from the need to agree to less comfortable working conditions due to the risks of job loss. In general, the relationship between the level of employment precarization of the older generation and its subjective assessments of life is statistically insignificant.

Conclusion

The results obtained indicate that the precarization impact on generational groups is not the same (Tab. 2), however, as well as the labor strategies of population involved in unstable labor relations. Most often, young people find themselves in such a situation, since "nonstandard" jobs provide an opportunity to combine study with work or simply enter the labor market after completing vocational training. The duration of the transition to stable employment depends on many factors, while most are willing to put up with the current state of things: potential benefits in the form of work experience and financial independence compensate for disadvantages, while often the only alternative is unemployment. At the same time, empirical data show how destructive the indirect effects of employment precarization can be. They not only cause serious harm to the mental health of young workers, but also hinder their maturation and socialization, forcing them to constantly be in limbo and think about pressing problems. Ultimately, precarity can become a lifestyle that determines all further behavior, regardless of educational achievements or the prestige of the profession.

The middle generation group is deprived of the attention of the academic community. The reasons for this may be resulting from the fact that precarious employment is observed much less frequently in adulthood, and its manifestations

[21] Women and Men in the Informal Economy: A Statistical Picture (Third Edition). ILO. Available at: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_626831.pdf (accessed: August 10, 2022).

Table 2. Drivers and effects of employment precarization in the context of generational groups

	Young generation	Middle generation	Older generation
Drivers of employment precarization	- complexity of the transition from study to a stable job; - early employment related to the need to earn money or gain work experience; - attractiveness of flexible employment forms; - no other alternative to unemployment	- unsuccessful transit from study to stable work and consolidation of precarious habit; - availability of household, family, financial and other obligations; - necessity to finalize before retirement	- loss of the main job after retirement; - forced nature of employment due to lack of funds; - objective factors (for example, poor health) that prevent full-time employment
Direct effects of employment precarization	Unfavorable working conditions, which are expressed in low wages, lack of social guarantees (payment of sick leave, provision of annual paid leave, contributions to funds, etc.), inability to defend their labor rights, restrictions on career growth, fear of losing their jobs, etc.		
Indirect effects of employment precarization	- prevents socialization and growing up (leaving the parental home, starting a family, gaining financial independence, etc.); - harms mental health and leads to emotional exhaustion; - contributes to the formation of a precarious habitus, where uncertainty is an integral part of life	- prolonged instability leads to deterioration of general health (in particular, development of cardiovascular diseases); - prevents the creation of a family and long-term life planning; - forces to postpone reproductive plans (especially for women); - creates retirement threats	Relevant information is almost absent. We can assume that, taking into account the direct effects of employment precarzation, their impact on the daily life of elderly people will be insignificant compared to the benefits (labor income, physical activity, communication, etc.) that the older generation can receive when experiencing the need for paid work in retirement
Source: own compilation.			

cause a negative reaction from employees burdened with household, family, financial and other obligations. On the contrary, in case of unsuccessful transition from study to permanent work, future planning issues may go far to the periphery, and everyday worries will take center stage and acquire the status of chronic. And if at first these difficulties are insignificant, then over time they will increasingly affect work and daily life creating threats to a decent old age. This applies even to those moments when the income level corresponds to relatively high standards of consumption. The category of pre-retirees is particularly exposed to the risks of employment precarization; this group often has to put up with unfavorable working conditions in order to maintain their current job or directly in the process of employment.

Despite extensive work experience and professionalism, the older generation is not highly competitive in the labor market, and the decision to continue working in retirement is made under the influence of external circumstances and is largely forced, which creates prerequisites for precarious employment and downward labor mobility. Among the elderly people, work on fixed-term contracts and in the informal sector is common, as well as self-employment, which, although they contribute to maintaining a habitual lifestyle, have the negative sides mentioned above in the article. There is almost no relevant information in the selected scientific literature that could shed light on the indirect effects of employment precarization for the older generation. It may even give the impression that they are not very noticeable. And we tend to agree with it, as long as the fact of employment at retirement age remains a necessity.

In conclusion, it is important to emphasize that the effects of employment precarization are cumulative and over time have an increasingly serious influence on human life. It is no

coincidence that the problems of the transition of young people from study to stable work are at the forefront and arouse the greatest interest, judging by the number of literary sources. However, other generational groups should also remain in the focus of attention, since the instability of labor relations itself generates new behavioral patterns that are reflected in a variety of areas of life. Understanding the complexity of the research area, the use of both quantitative and qualitative methods of collecting information will allow identifying existing patterns and approach the issue of disclosure of cause-and-effect relationships in more detail. It will also be facilitated by a holistic understanding of the essence and methods of studying the process of employment precarization, which is currently disclosed in the categories of "precarious employment", "precariat" or simply in the least stable forms of labor relations. Such a variety of points of view has a positive effect on the formation of a general idea of the effects of the phenomenon, although it limits the possibilities of generalizing the research results. In this regard, the use of software products for automated selection of scientific sources and analysis of their content (according to the MAXQDA type) is promising, which will reduce the complexity of forming an information base, as well as improve its quality and completeness.

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Social and Labor Sphere in the Russian Federation: Trends and Risks in the Formation of the Quality of Working Life

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Abstract. The relevance of studying the social and labor sphere from the position of its tendencies and risks for the formation of the quality of working life is due to the search of determinants causing its low estimates. It is important to address the issues concerning the quality of working life because the quality of life in general becomes today the main criterion of social progress, indicating the turn of the economy toward human needs and its humanization. The article analyzes trends in the social and labor sphere (employment, unemployment, working conditions). It shows changes taking place inside the socio-demographic groups of the employed population (growth of educational level, growth of highly educated population in the composition of the unemployed, etc.). We highlight the causes of economic losses related to the unsatisfactory condition of workplaces, the maintenance of a high share of workers in industries with harmful and hazardous working conditions, and workplace injuries. We provide index assessments of the quality of working life of the employed population and assess workers' low satisfaction with working conditions. The information base is represented by the data of a sociological survey of employable population of the region, conducted by RAS Vologda Research Center in 2018 and 2020. The article uses the method of subjective evaluation of quality of working life by the indicators that characterize people's assessment of wages, working conditions, organizational and economic characteristics, and socio-psychological conditions. Scientific novelty of the research consists in substantiating the influence of social and labor sphere on the formation of the quality of working life of the working population. Practical significance lies in the development of proposals to improve the quality of working life, which

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helps to obtain positive results in terms of improving the efficiency of working activity. Various social innovations (organizational, environmental, aesthetic, etc.) in the workplace that influence employees' work efficiency (for example, the introduction of health saving programs at enterprises and organizations, which will reduce losses from disability) can be such tools. They can also include surveys of employees about their satisfaction with the quality of working life in a special assessment of working conditions.

Key words: social and labor sphere, quality of working life, working potential, employment, workplace.

Relevance

Nowadays, in the context of geopolitical, economic and humanitarian threats, Russia's economy is faced with the need to find new sources of growth. The most effective option in this case, and most likely the only one, is technological shifts[1]. Their implementation needs human capital, the quality of which meets the challenges facing the country. It is impossible to solve the problem related to the reproduction of such human capital without determining all its parameters, factors and indicators, with the help of which it is possible to manage the process of its formation and use. Such a broad and important parameter is the quality of working life of the population, which is formed in the social and labor sphere.

The relevance of the study of the quality of working life (QWL) is due to a number of significant circumstances. Among them, first of all, it is necessary to note the need to significantly improve the quality of life in modern Russia, including the quality of working life. These categories are now becoming the main criteria of social progress, indicating the turn of the economy to human needs and its humanization. The importance of providing decent work is mentioned among the priority national goals of the Russian Federation until 2030[2] and is included in the list of tasks of the national projects[3], which are being implemented in Russia at the present time. Among the tasks is also the focus on increasing labor productivity, one of the most urgent problems in the social and labor sphere of Russia. High indicators of occupational injuries, despite the positive dynamics of the number of injured at work, also focus attention on the problem of the quality of work life and the factors that determine it.

The purpose of the study is to analyze trends and risks in the social and labor sphere, affecting the formation of the quality of working life of the employed population. The goal is to be achieved by solving the following tasks: theoretical understanding of the category "social and labor sphere" and its relationship to the formation of the quality of working life; analyzing the trends in the social and labor sphere and identifying the most problematic points that have a negative impact on the QWL; characterizing the index estimates of satisfaction with the QWL by the working population of the region.

Social and labor sphere as an environment of forming the quality of labor life

The transformation of employment forms, changes in the nature of interaction between the employee and the employer, the means of labor (digitalization, automation), in the system of state guarantees in the labor sphere, the unconditional importance of smoothing the contradictions arising in the social and labor sphere, determine the

[1] Problems of coordination of economic policy at the federal and regional levels: A public lecture by Doctor of Economics, Corresponding Member of RAS, Director of IEF RAS A.A. Shirov within the International Environmental Forum "Ecology and society: Balance of interests". April 22, 2022, Vologda. Available at: http://www.vscc.ac.ru/activity/view?id=7670

[2] On the National development goals of the Russian Federation for the period until 2030: Presidential Decree dated July 21, 2020. Available at: http://www.kremlin.ru/events/president/news/63728 (accessed: June 15, 2022).

[3] National projects. Available at: http://government.ru/rugovclassifier/section/2641/ (accessed: June 15, 2022).

attention of researchers to its analysis (Karpushkina, Baldina, 2013; Isaykina, Lipatova, 2019; Soboleva, Sobolev, 2021).

The theoretical aspects of the social and labor sphere are most fully reflected in the works of national and foreign researchers in the field of labor economics. Among the Russian authors the works of V.N. Bobkov, N.A. Volgin, V.A. Kamenetsky, Y.G. Odegov, I.V. Soboleva are of particular interest for our study. Among foreign scientists-noninstitutionalists who consider the norms, rules, mechanisms regulating relations of employees and employers, it is possible to highlight D. North (North, 1990), T. Veblen (Veblen, 1919).

The social and labor sphere is a "multilevel integral category" and "reflects all phases of labor force reproduction and its social support" (Labor Economics..., 2003; Yusov, 2009). The core and skeleton of the labor sphere is "labor, providing effective labor activity, which includes the components of the labor sphere and derivatives of labor as a process" (Volgin, 2017). The social and labor sphere consists of such components as "labor market, employment and unemployment, motivation of productive work (motives, interests, incentives, wages); social partnership; training, retraining and skills development; social and cultural complex (health care, public education, science, culture); social protection; social security; social insurance" (Kamenetsky, 2001). A number of researchers believe that the "social and labor sphere" is an area of action of various relations concerning the joint labor (production) process; employment; distribution and consumption of the produced national income (Kolmakova, 2011; Labor Economics..., 2003, 249) and, first of all, social and labor relations.

In the study of reproductive and other processes of labor resources an active role belongs to social and labor relations as "a system of interrelations and interactions, which are formed on the inclusion, participation and "exclusion" of a person from the labor activity" (Yanchenko, 2010). An important component of social and labor relations is the mechanism of their development and regulation. It includes economic and social policy of the state, enterprises, social partnership, corporate social responsibility (Fauser et al., 2010, 16). The content of social and labor relations under the influence of scientific and technological progress is filled with new elements related, for example, to distance forms of work, innovation of jobs, employment volatility, etc. (Leonidova, 2020).

"System elements of the labor sphere" are labor organization, which "directly and tangibly affects the state and prospective parameters of rationing, productivity, wages, the final results of teams" (Volgin, 2021, 5), and also other "elements of the working situation" (Yadov Sociology ..., 2019, 141): socio-psychological (labor satisfaction, its conditions, wages, motivation, working environment), economic (wage level, employment stability, quality of the workplace, unemployment), social and cultural (professional calling, creative activity, social aspirations) (Leonidova, 2020). All listed elements of social and labor sphere, somehow, influence the formation of the quality of the worker's labor life.

Quality of working life

Within the framework of the social and labor sphere the employees' attitude toward conditions and organization of work, in other words, the set of forms of organization of production process, protection and working conditions, which provide full satisfaction of current and future social and labor needs, realization of labor and creative potential of hired employees and satisfaction of the owner's interests, is formed. All of what can be called a capacious concept "quality of working life".

It should be noted that the term itself is quite young, so its content, structure and assessment methods are actively discussed on the pages of scientific publications and conferences of various levels. The theory of the QWL is developing dynamically.

Referring to the origins of the concept of QWL, we should note that its formation took place within the framework of the prevailing socio-economic relations. It is possible to identify a number of approaches, within the framework of which the outlines of the concept were formed: political economy, technocratic, humanistic, motivational. Thus, in the theory of factors of production we can see one of the aspects of the future theoretical foundations of the quality of working life.

According to A. Smith's labor theory of value (Smith, 2009), labor efficiency depends on a number of conditions, including, for example, mechanization of labor, the need for constant training. It means that classics of economic thought foresaw an important role of certain factors related to the quality of working life according to modern concepts.

Representatives of the technocratic approach (the classical stage of development of the QWL theory (the 1890s)) considered a person as a part of the organization, without which it cannot function. The problems and needs of the workers in the organization were not paid proper attention, it was assumed that they "only economically interested in labor" (Safina et al., 2019).

The humanistic approach (post-classical period – from the 1920s – 1930s) was characterized by views on the individual as a person with a wide range of needs and capable to develop creatively. At the same time, management methods remain mainly economic ("school of human relations" (E. Mayo), model (theory) of working characteristics (J. Hackman; R. Oldham), doctrine of "production democracy" (J. Cole, P. Drucker), school of scientific management (G. Emerson, F. Taylor, G. Gantt), concept of social and labor basis of production management, scientific management of labor (N.A. Vitke), etc. (Burganova, Savkina, 2007; Drucker, 2004; Cole, 2004; Lapteva, Ostroumova, 2020; Hackman, Oldham, 1975).

Researchers' interest in various parameters of social and labor relations caused the emergence of motivational theories, the substantive essence of which was based on the study and explanation of what stimulates an employee and what are the motives of they labor actions. The motivation theories of A. Maslow, D. McClelland, F. Herzberg's motivation two-factor theory, J.S. Adams' equity theory, E. Locke's goal setting theory, the main role was given to needs, which determine human behavior aimed at achieving goals.

Currently the concept of decent work is being implemented, which was originally represented by four parameters – "gender equality", "free labor", "social security" and "social protection", later expanded by new characteristics: "productive work"; "safe work environment"; "rights at work"; "work in which the employee is provided the opportunity to participate in decision-making"; "adequate earnings"; "work-life balance"[4].

The category "quality of working life" is considered by researchers from two sides: objective (using statistical indicators) and subjective, based on people's assessments population surveys (sociological data). In foreign studies, QWL is generally associated with the well-being of personnel and includes the employee's satisfaction with the physical and psychological factors associated with work and daily life (Almarshad, 2015). In other words, QWL is defined as a subjective category, that is, "the quality of the relationship between the employee and the overall work environment", related to the climate at work and its impact on both the work process and people, as well as the effectiveness of the organization[5].

[4] Decent work indicators: guidelines for producers and users of statistical and legal framework indicators: ILO manual: Second version. (2013). International Labor Office. Geneva: ILO.

[5] Overview of quality of work life (a cross Developed Nations and India). Available at: http://shodhganga.inflibnet.ac.in/bitstream/10603/17421/9/09_chapter%203.pdf (accessed: April 15, 2022).

An example of an objective assessment of QWL is the concept of quality of life (Bobkov, Bobkov, 2014), in which this construct is characterized by indicators of *labor quality* (nature of employment, skill level of employees, labor productivity, etc.) and *quality of work environment* [type of work (physical or mental), opportunities to manifest creativity and independence in labor process, change of activities and promotion, observance of workers interests, safety and security of labor)]. As we can notice, the concept lacks the evaluation position of the highlighted components from the employees' side. Another example of highlighting QWL as part of a different, more general concept is the model of circular consumption considered in the works of the researchers of the Institute of Economics, the Ural Branch of the Russian Academy of Sciences (Belkin et al., 2021).

The analysis of theoretical sources shows that QWL is related to the conditions, nature and content of work, the quality of the relationship between the employee and his environment at work (Butkalyuk, 2010), the level of wages, job satisfaction, work-life balance (Belekhova, Ivanovskaya, 2022), and other factors. Based on these facts, we can conclude that this category cannot be evaluated with the help of only one indicator. It is a multidimensional construct, which includes a large number of components forming it. Therefore, the quality of labor life depends on the state and development trends of the social and labor sphere, the importance of which for its formation is considered above.

Information base and methods of analysis

As the information base for the analysis of trends in the social and labor sphere the materials of the Federal State Statistics Service of the Russian Federation (Rosstat) and its territorial office in the Vologda Oblast (Vologdastat), the open data of Rosstat surveys on socio-demographic problems and quality of life of the Russian regions were used.

The study used general scientific methods: analysis, comparison, generalization, abstraction. During the processing and analysis of the accumulated data, statistical and sociological methods with the use of tabular and graphical methods of visualizing the results were used.

The assessment of QWL by subjective indicators was carried out taking into account the results of sociological surveys conducted by RAS Vologda Research Center in the Vologda Oblast (monitoring of labor potential). The surveys are conducted in the cities of Vologda, Cherepovets and eight districts: Babaevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District, Sheksninsky District. Respondents are selected according to the set quotas by gender and age. The sample size is 1,500 people. The magnitude of sampling error does not exceed 3% with a confidence interval of 4–5%.

The QWL was assessed by analyzing the answers to the question about the satisfaction of the working population with various aspects of working life ("Please tell us, how satisfied are you with various aspects of your working life...?") using a scale with an odd number of answers: "not satisfied", "rather not satisfied", "cannot say whether satisfied or not", "rather satisfied", "satisfied" (Belekhova, Ivanovskaya, 2022). In the analysis, the extreme response options were combined.

Thus, the calculation of satisfaction indices of QWL is based on the aggregation of indicators of subjective evaluation of satisfaction with aspects of working life (*Tab. 1*).

There are three levels as a result of the index integral assessment of QWL. The average level is neutral, expressed by the response "Difficult to answer", respondents cannot definitely determine whether they are satisfied or not; it is assigned a value of zero. The highest level of satisfaction (the answer "Satisfied") has a score of +2 points, and the lowest (answer "Not satisfied") has a score of -2 points. On the basis of the above indicators, partial indices (arithmetic mean) are determined, which correspond to different aspects of QWL.

All calculations were made in the SPSS software package.

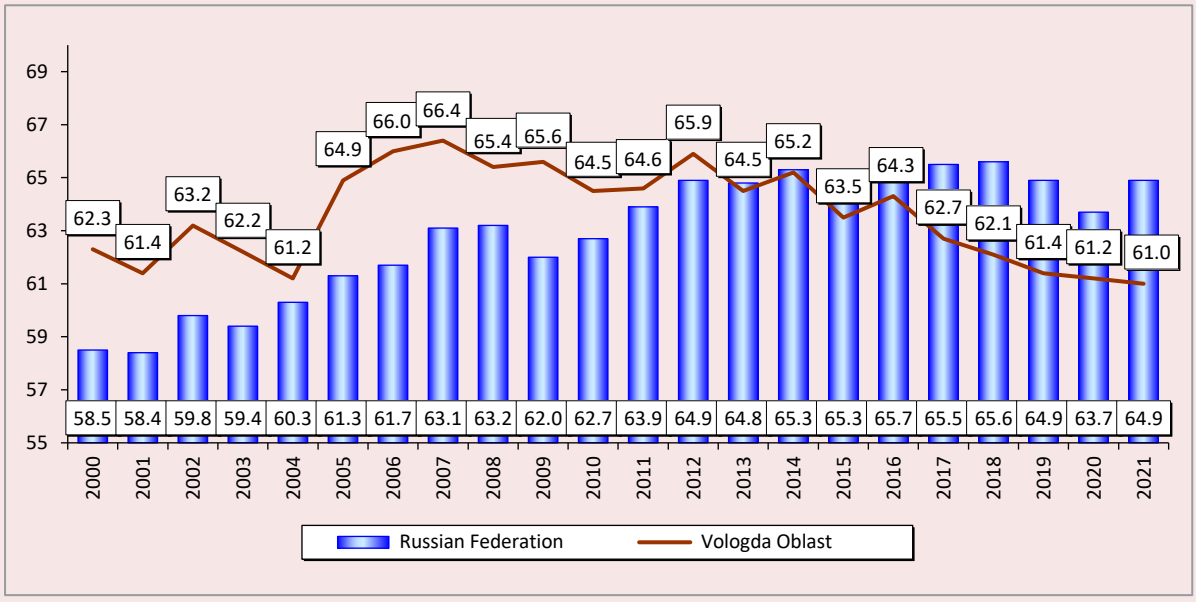
Table 1. Subjective indicators of QWL evaluation

Block of indicators	Satisfaction of...
Material well-being	Wage
	System of material incentives for employees
	Completeness of the social package (provision of basic and additional social guarantees)
Economic well-being of the employee	Stability of the organization's position on the market
	The significance of the organization for the territory
	The reliability of your position in the organization
Conditions and safety of work	Sanitary and hygienic environment and work safety
	Technical equipment at the workplace
	Operation of a trade union or other labor organization
	Observance of labour legislation in the organization
	Working conditions in general
Realization and development of labor potential	Opportunities to study, improve qualifications
	Recognition of work results, achievements (intangible incentives)
	Correspondence of qualifications, knowledge and skills to the work performed
	Opportunities for career growth
Social well-being of an employee	Relationship with the organization's management (trust, openness)
	Relationships in the work team (with colleagues)
	Ability to participate in management decision making
	Ability to combine work and family/personal responsibilities

Trends in the social and labor sphere

The quantitative and at the same time qualitative characteristic of the social and labor sphere are indicators of employment of the population. In Russia as a whole in 2000–2021 the employment remained at a fairly high level (from 60 to 65%; *Fig. 1*). In the Vologda Oblast the values of the indicator over the last decade have varied within the range of average Russian values (from 62 to 66%).

Figure 1. Employment rate of those aged 15–72 years, %



Source: Rosstat. Available at: https://rosstat.gov.ru/labor_market_employment_salaries

Table 2. Employment rate in the context of territories*, %

Region	Year						Rank by 2021
	2000	2005	2010	2015	2020	2021	
Chukotka Autonomous Okrug	68.2	75.5	77.7	78.5	76.9	77.4	1
Nenets Autonomous Okrug	73.6	70.8	73.0	72.6	72.9	74.5	2
Magadan Oblast	65.6	65.9	73.8	74.3	72.4	74.5	3
Saint Petersburg	61.5	68.0	70.3	72.2	72.5	73.9	4
Moscow	63.9	68.0	69.0	73.4	73.4	73.8	5
Vologda Oblast	62.3	64.9	64.5	63.5	61.2	61.0	63
Karachay-Cherkess Republic	46.5	54.3	58.8	53.5	50.1	53.4	81
Republic of North Ossetia – Alania	47.3	56.8	64.3	58.4	47.4	53.4	82
Republic of Dagestan	43.8	50.3	53.2	55.0	48.6	51.5	83
Republic of Ingushetia	32.7	22.5	32.2	50.2	52.1	51.1	84
Republic of Tuva	43.2	48.8	46.3	49.2	50.6	50.4	85

* Data are given for the five regions with the best and five worst values, and for the Vologda Oblast.
Source: Rosstat. Available at: https://rosstat.gov.ru/labor_market_employment_salaries; *Regions of Russia. Socio-economic indicators: Stat. collection. 2022*.

The republics of Ingushetia and Tyva are among the most problematic regions in terms of employment (*Tab. 2*). The maximum level of employment is in Chukotka Autonomous Okrug (77%)[6].

Today, the employed population is dominated by people with higher education (35%; for reference: in 1992 – 17.6%) and secondary vocational education (25%). The share of the employed with secondary general and basic general education (20%), the work of which is often characterized by difficult working conditions, exposure to harmful factors in the working environment and involves hazards, is gradually decreasing (in 1992 – 47.9%). Labor is becoming more skilled, complex and increasingly less involved in traumatic types of work and equipment.

Today almost every third worker (about 27%) is over 50 years old (20.7% in 1992). The social and labor sphere is faced with the need to take into account the physiological characteristics of the older generation of workers. This situation has become especially urgent in light of the increase in the retirement age in 2019.

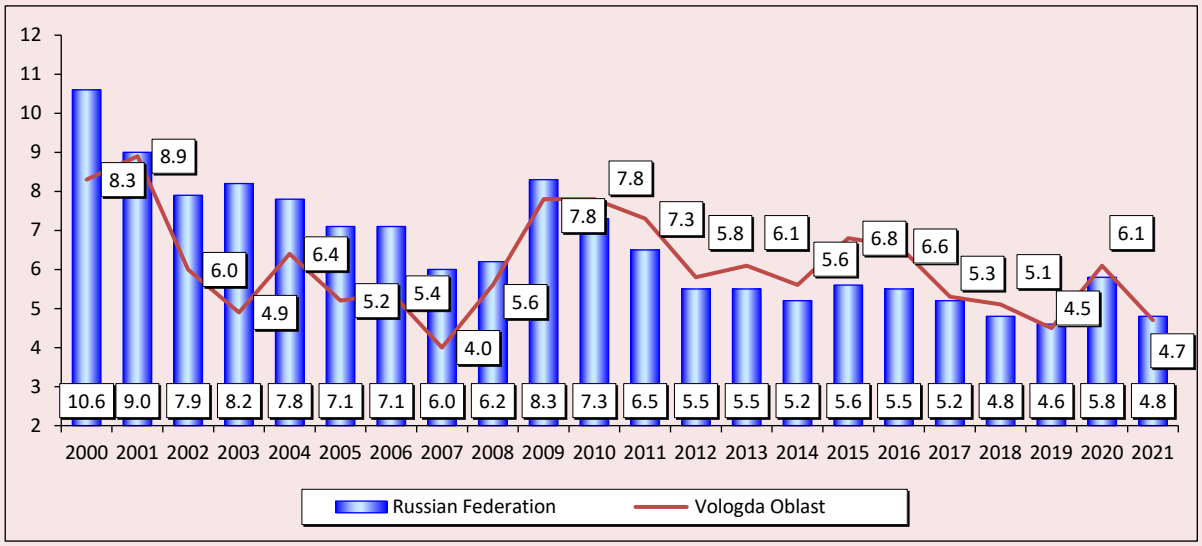
A statistical measure of well-being in the labor sphere is the unemployment rate. According to Rosstat, this indicator peaked in the crisis years or following them. Recently, the greatest rise was observed in 2020 (6.1%). In the Vologda Oblast, the trends of total unemployment were practically the same as in the Russian average (*Fig. 2*).

The republics of Ingushetia and Tuva have high levels of unemployment and the best indicators are observed in Saint Petersburg and Yamalo-Nenets Autonomous Okrug[7], where unemployment rate is the lowest (*Tab. 3*).

[6] The most important direction of improvement of the spatial structure of the economy of Chukotka Autonomous Okrug was the allocation and development of advanced development zones which are two "growth points" that have the potential of accelerated development relative to the surrounding territory. Since Chukotka has a considerable mineral and raw material potential, the emphasis was placed on its effective use. In Chukotka AO the leading role is played by the gold mining industry, its share in the industrial production of the region is about 44%, respectively, at the enterprises of this industry a considerable amount of labor resources is concentrated.

[7] Both the low level of unemployment and the high demand for jobs are connected with the structure of the economy of Yamalo-Nenets Autonomous Okrug: the region is a resource-producing region and in the future, it will develop in two directions: infrastructure projects and energy projects.

Figure 2. Total unemployment rate of those aged 15–72 years, %



Source: Rosstat. Available at: https://rosstat.gov.ru/labor_market_employment_salaries

Table 3. The level of total unemployment in the context of territories*, %

Territory	2000	2005	2010	2015	2020	2021	Rank by 2021
Saint Petersburg	6.2	2.2	2.6	2.1	2.9	2.0	1
Nenets Autonomous Okrug	8.6	7.2	4.3	3.6	2.4	2.1	2
Moscow	3.9	0.8	1.8	1.8	2.6	2.6	3
Republic of Tatarstan	8.4	6.7	6.2	4.0	3.6	2.6	4
Chukotka Autonomous Okrug	10.3	4.2	4.5	4.0	4.4	2.6	5
…							
Vologda Oblast	8.3	5.2	7.8	6.8	6.1	4.7	43
...							
Republic of North Ossetia – Alania	28,5	8,8	9.7	9.3	15.5	13.5	82
Chechen Republic	…	…	43.3	17.1	18.5	14.5	83
Republic of Dagestan	26.5	22.1	14.8	10.8	15.7	15.1	84
Republic of Tuva	23.6	21.9	21.7	18.6	18.0	15.1	85
Republic of Ingushetia	30.3	63.1	49.7	30.5	30.0	31.1	86

* Data are given for the five regions with the best and five worst values, and for the Vologda Oblast.
Source: Rosstat. Available at: https://rosstat.gov.ru/labor_market_employment_salaries; *Regions of Russia. Socio-economic indicators: Stat. collection. 2022.*

For 30 years, the category of the unemployed has consisted mostly of young people from 20 to 34 years old (in 2020 – 47.4%; in 1992 – 44.2%), but the educational level of this group has changed a bit. Among the unemployed population, as before, people with secondary general and basic general education also prevail, but their share has decreased 1.5-fold (38.2%; in 1992 – 56.7%). The number of people with secondary vocational education in this category decreased significantly (27.3% vs 40% in 1992). The number of holders of diplomas of higher education increased twice (20.6% vs 10% in 1992). It shows, on the one hand, the growth of the employed population with higher professional education, on the other hand, the deficit of high-performance jobs (HPJ). Speaking about HPJ,

it is necessary to take into account their three components: technical and technological, which can be considered as a potential, determining the productivity of equipment; labor, connected with the quality of human capital of the employee; and organizational, determining the conditions of production (usually, more comfortable).

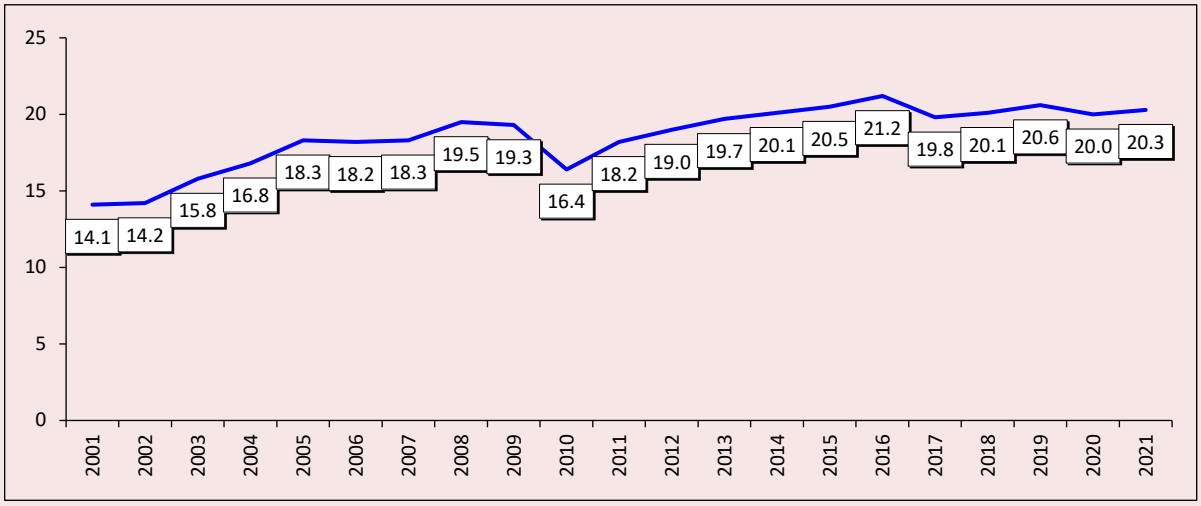
An analysis of the ratio of labor supply and labor demand shows that both the national and most regional and local labor markets, even if unemployment is high, the need of enterprises for workers is not fully satisfied. This is caused by the fact that many unemployed citizens for various reasons are not attracted to vacant jobs, and employers, in turn, are not always satisfied with the professional and qualification characteristics and personal qualities of job seekers (Akhapkin et al., 2018). Thus, in 2021, with 3.6 million unemployed in the country (4.8% of the labor force), the need for workers to fill vacant jobs in the total number of workers is 3.7% (1.02 million people).

A statistical indicator characterizing the quality of employment in Russia is "employment in the informal sector"[8]. From 2001 to 2021 its level increased from 14 to 20% (from 14 to 22% for men and from 14 to 18% for women; *Fig. 3*).

Informal labor conditions (off-the-book wages, lack of social guarantees, precarious employment, etc.) can be harmful to human development, which is expressed in health deterioration, social insecurity, reduced material well-being, limited access to education (Bobkov et al., 2019; Popov, 2019), etc. The results of our research confirm this situation: calculations show that the more signs of precarious employment workers have, the lower their production indicators, the quality of their working life and financial situation (Leonidova et al., 2018).

The issues of underutilization of available labor resources are relevant for all countries. In 2015, Russia approved a new official statistical methodology for forming a system of indicators of

Figure 3. The share of the informal sector in total employment, %



Source: Rosstat. Available at: https://rosstat.gov.ru/labor_market_employment_salaries

[8] Informally employed are primarily small business units (without the formation of a legal entity).

labor activity, employment, and underutilization of labor, which is understood as "a mismatch between the labor supply and labor demand, resulting in an unmet need for jobs"[9]. The components of underutilization of labor force include part-time employment in terms of working hours, and unemployment. Operating with the indicators of unemployment and part-time employment does not allow assessing the qualitative side of the issue. According to the research of RAS Vologda Research Center and the developed methodology[10] the level of implementation of qualitative characteristics of labor potential was assessed. It turns out that together with underutilization of working time, part-time employment, etc., there is also an incomplete realization of the quality of labor potential. For example, in 2011 (the beginning of measurements of this indicator) the share of unrealized creative abilities was 51%, and attitudes to achieve success were not realized by 49%. This indicator has increased by now (*Tab. 4*). For all eight considered qualitative characteristics of the working-age population there is an increase in the share of workers using their potential to the fullest and to the limit of their abilities, while the share of those who noted that they use their qualities and skills "more or less fully" or "partially" decreased. In other words, there is a gradual intensification of the use of labor potential (Chekmareva, 2018).

It should be noted that the increase of the realization level of physical health potential raises alarming concerns, since this resource is exhaustible. At the same time, the increase in the level of realization in the field of cognitive and creative efforts, as well as in the part of social claims indicates the growth of the creative and knowledge component in the Russian economy.

One of the most urgent problems of the social and labor sphere is labor productivity. As the 2019 statistics show, labor productivity in Russia is noticeably behind the level of many developed countries (26.7 US dollars per hour worked at PPP prices in 2015 vs 54.4 US dollars in the European Union and 63.2 US dollars in the G7)[11].

According to Rosstat, the maximum value of the labor productivity index in 2020 is registered in Zabaikalsky Krai (110%) and the Penza Oblast (108.7%), the minimum value – in Khanty-Mansi Autonomous Okrug – Yugra (93.7%) (94.7%) and the Republic of Sakha (Yakutia) – 92.4%[12]. The factors of the regional differentiation of the index of labor productivity include the sectoral structure of the economies of the entities of the Russian Federation, the state of the material

Table 4. Dynamics of the level of unrealized quality of labor potential of the working population of the Vologda Oblast, %

Year	Physical health	Mental Health	Cognitive potential	Creative potential	Sociability	Cultural level	Moral level	Need for achievement
2011	28.4	30.7	31.9	51.0	26.4	31.4	29.8	49.3
2020	16.4	19.2	25.7	36.9	20.1	23.1	22.4	35.1
Source: Quality state monitoring of the labor potential in the Vologda Oblast, 2011–2020.								

[9] Ponomareva S.A. Experience of the Vologda Oblast in legalizing the "shadow" economy at the regional and local levels. Analytical center under the Government of the Russian Federation. Available at: http://ac.gov.ru/files/content/16438/opyt-vologodskoj-oblasti-po-legalizacii-tenevoj-ekonomiki-na-regionalnom-i-mestnom-urovnyah-pdf.pdf (accessed: May 15, 2022).

[10] This method allows us to estimate the amount of quality of labor potential, which at the moment is not used by the employee in labor activity, the so-called unrealized potential.

[11] Level of GDP per capita and productivity. OECD Stat. Available at: https://stats.oecd.org/

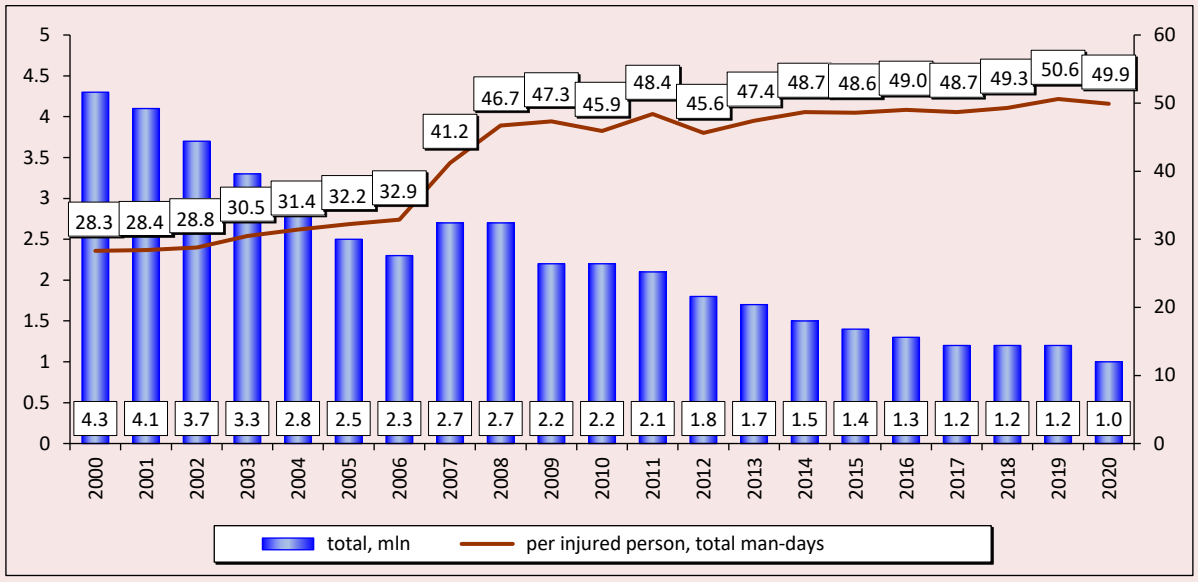
[12] Labor productivity index in the Russian Federation, by constituent entities of the Russian Federation in 2008–2020 (in % to the previous year). Available at: https://rosstat.gov.ru/folder/11186 (accessed: November 07, 2022).

and technical base of industries (today Russian enterprises have rather high wear of fixed assets, about 40%), the availability of the labor force with the required qualifications, etc. Increasing labor productivity has been declared the main task of ensuring sustainable growth of the real sector of the economy[13]. The goal is to "increase labor productivity on a new technological, management and personnel basis"[14].

The task of increasing labor productivity is closely connected with such indicator of the social and labor sphere as occupational injuries, because it makes a significant contribution to the loss of GRP. One third (30.2%) of workers are injured due to unsatisfactory organization of production (failure to comply with work permit procedures and inadequate control, that is, unsettled occupational health and safety management processes). About 7% of accidents with severe consequences are caused by technogenic factors[15].

Statistics show that men's types of economic activity are the most traumatizing. In the early 2000s, the number of men injured at work was more than three times higher than the corresponding indicator among women. It should be noted that the dynamics of the number of injured workers at work has a positive trend. By 2020 the number of male injuries has decreased 10-fold (to 14,400 people), and the number of female injuries has decreased 6-fold (to 6,000 people). The total number of days of incapacity for work has also decreased by more than four times since 2000. However, this indicator per injured person has grown almost 1.7 times (*Fig. 4*).

Figure 4. Number of man-days of incapacity for work among injured person in the Russian Federation



Source: Rosstat. Available at: https://rosstat.gov.ru/labor_market_employment_salaries

[13] Economic Security Strategy of the Russian Federation until 2030: Presidential Decree of May 13, 2017. No. 208. Available at: http://government.ru/docs/all/111512/ (accessed: June 15, 2022).

[14] President V.V. Putin's Address to the Federal Assembly of the Russian Federation, March 1, 2018.

[15] Report on the results of monitoring of working conditions and labor protection in the Russian Federation in 2020. Moscow: Ministry of Labor and Social Protection of the Russian Federation, 2021. Available at: vcot.info›uploads/researches_file/....pdf (accessed: May 20, 2022).

The reproduction of labor resources in Russia is associated with negative demographic processes, due to which the age structure of the population is being transformed toward a decrease in the number of working-age citizens (by 7 million people or 8% over the period 2000–2021). Moreover, together with general demographic trends, the labor force is aging: in 2000 the average age was 38.7 years; in 2020 it will be 41 years.

One of the indicators of quality employment, perhaps the main one, is salary. For 96.6% of the population, work is primarily a way to provide for the family, i.e. it is a source of livelihood. But, as the researchers rightly point out, this does not mean that this is the meaning and value of labor is all about. According to scientists, it is simply the most "accurate description of the respondents' life situation" (Kozina, 2020). The main source of income of the working population is salary at the main place of work, in connection with which the resource opportunities of families are limited and often are scarce. Moreover, the annual growth of accrued wages is leveled by the growth of the consumer price index. Despite positive transformations in the socio-economic life of Russian society since the early 2000s, it is still characterized by excessive monetary inequality: since 2003 the R/P 10% ratio has not been fallen below 15 times, the Gini coefficient – below 0.400, and poverty rate is relatively stable since 2008 (within 11–13%). Stabilization of inequality indicators, recorded by official statistics in recent years, is ensured by a decrease in the incomes of the wealthiest groups of the population while enriching the "elite and sub-elite strata". At the same time, the financial situation of the poorest groups of the population has not improved significantly (Leonidova, Basova, 2020).

Data from official statistics show that the growth of wages in the Vologda Oblast is significantly limited by inflationary processes in the economy. The annual growth of accrued wages in the region since 2000 was 7–12%, but taking into account the consumer price index the dynamics of wages in some years was negative. The insufficient level of wages, limiting the purchasing power of the population, leads to the self-reproduction of poverty and reduces the level of labor motivation of the employed (Leonidova et al., 2021).

According to the results of federal statistical observation for 2018, in Russia in general only 39% of those employed in the economy are quite satisfied with their wages. At the same time, in the vast majority of regions (51 constituent entities) this indicator is below the national average level. The Vologda Oblast in the rating of satisfaction with wages among Russian regions was on the 78th place. An extremely small percentage of respondents (25%) expressed satisfaction with wages.

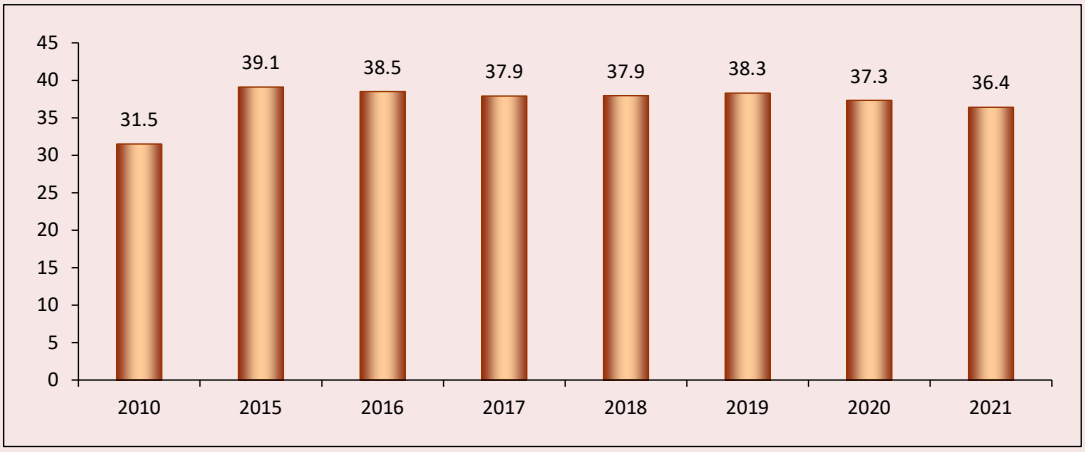
As European research shows, working conditions affect the working ability of one-third of all workers. According to a study by the European Foundation for the Development of Living and Working Conditions, one in four workers in Europe was absent from work in 2009 because of health problems; one in ten had an accident at work16.

According to Helloworkplace – Mieux-lemag – Malakoff 201917 research, 70% of workers complain of mental fatigue at work, 53% complain of physical fatigue, stress affects one in two workers, professional burnout affects one in eight, and musculoskeletal pain, representing 80% of all occupational diseases, is the leading cause of absence from work.

[16] Nasman O., Ahonen G. (2007). The DRUVAN-project: A major increase in Occupational Health Service based on the Metal Age method in a Finnish municipality improved the work ability and gave significant financial return. The Centre for Occupational Safety and The Finnish Work Environment Fund. PunaMusta, Iisalmi.

[17] Available at: https://ru.hrmaps.eu.com/category/%d1%81%d1%82%d0%b0%d1%82%d0%b8%d1%81%d1%82%d0%b8%d0%ba%d0%b0/

Figure 5. The share of workers employed in harmful and (or) hazardous working conditions in organizations (at the end of the year), %



Source: Report on the results of monitoring working conditions and labor protection in the Russian Federation in 2020. Moscow: Ministry of Labor and Social Protection of the Russian Federation, 2021. Available at: vcot.info›uploads/researches_file/….pdf (accessed: May 20, 2022)

The share of employees working in harmful and (or) hazardous working conditions remains high (*Fig. 5*). In 2021, 36.4% of workers were employed in harmful and (or) dangerous working conditions by types of economic activity as a whole. The largest share of such jobs is characteristic of such types of economic activity as "mining operations" (54.4%), "coal mining" (79.1%), "production of coke and petroleum products" (54.4%).

According to the mentioned circumstances, it is legitimate to emphasize that the parameters of the social and labor sphere (working conditions, quality of jobs, their compliance with the requirements of health protection, material well-being, opportunities for development and growth) should be in the constant attention of economic entities and the state as a whole.

Quality of working life in the context of current trends in the social and labor sphere

Analysis of the calculation results of the partial and integral indices of the QWL has shown that they are in the positive zone of the population's perception (*Tab. 5*). But despite the fact that the index values are positive, nevertheless, they are quite low (at the maximum of the scale, equal to +2 units, the value, for example, of the integral (generalizing) index is -0.390, i.e. less than 1).

In 2020, there was an increase in the integral index. A downward trend emerged only for employment stability (from 0.927 to 0.901 units), which is due to the realities of the first pandemic year, associated with rising unemployment, redundancies etc. The highest values are the private indices of satisfaction with job stability (0.927 in 2018, 0.901 in 2020) and the psychological climate in the organization (0.424 in 2018, 0.577 in 2020); the lowest – private indices of satisfaction with career opportunities (0.129 in 2018, 0.190 in 2020), wages (0.111 in 2018, 0.205 in 2020), working conditions and organization (0.176 in 2018, 0.296 in 2020).

More often the population perceives the quality characteristics of working life positively with the following socio-demographic characteristics: average working age (25–49 years), the presence of formal family relationships and children.

Table 5. Values of private indices and individual indicators of the QWL of the employed population in the Vologda Oblast (2018–2020), in points

Components of the WQLI	Vologda		Cherepovets		Districts		Oblast	
	2018	2020	2018	2020	2018	2020	2018	2020
Partial indices of satisfaction with QWL								
Wage index	0.212	0.139	0.084	0.031	0.067	0.359	0.111	0.205
Index of working conditions and organization	0.198	0.332	0.139	0.223	0.187	0.316	0.176	0.296
Index of the use and development of human potential	0.256	0.400	0.262	0433	0.210	0.307	0.238	0.369
Career opportunity Index	0.135	0.166	0.144	0.173	0.115	0.218	0.129	0.190
Employment stability index	0.938	0.822	0.941	0.784	0.910	1.029	0.927	0.901
Index of psychological climate in a work collective	0.541	0.716	0.482	0.694	0.314	0.405	0.424	0.577
Index of interaction with common life space	0.364	0.703	0.207	0.628	0.240	0.409	0.263	0.557
Social importance of labor index	0.357	0.741	0.342	0.698	0.205	0.278	0.286	0.530
Integral (summary) index of satisfaction with QWL								
Index of satisfaction with the quality of working life	0.311	0.425	0.252	0.372	0.220	0.375	0.254	0.390
Source: data of the sociological surveys "Quality of Labor Potential". VoIRC RAS, 2018–2020.								

It should be noted that if the population classifies itself as poor during self-identification ("there is not enough money even to buy food"), the assessment of satisfaction with the quality of working life has a very low boundary – in 2018 it is negative (-0.213 units), and in 2020 – the lowest of all indices (0.100 units).

Dissatisfaction with work, as a rule, becomes a factor that increases workers' dissatisfaction with their social position. In contrast, satisfaction, according to the research of Russian sociologists18, has "a close relationship with the interest of people in productive effective activity, which generates favorable attitudes toward the whole set of social values". It is confirmed by economic effects of work of those who are satisfied with quality of working life, which are expressed in higher level of wages and realization of qualitative properties of labor potential. The quality of labor potential of such workers is significantly higher.

As the results of the study show, there is exactly in this vein, through the prism of the quality of labor life, it is necessary to assess the dynamics of the parameters of the social and labor sphere.

Conclusion

Taking into account the importance of the quality of working life for the economy as a whole, we consider that in the new economic realities an effective way to improve it will be the creation of high-performance jobs. Based on the definition of high-performance jobs, it can be argued that their essence is closely related to QWL. First, such a job must be well-paid. Second, it must be high-tech, automated, innovative, digital, etc.

Consideration of the QWL as a management tool helps to receive positive results from the introduction of various social practices that meet the needs of workers. These can be various social

[18] Dynamics of socio-economic situation of the population of modern Russia and the problems of adaptation to the changed conditions of work and employment (on the materials of the "Russian monitoring of the economic situation and health of the population 1992–2008"): Information-analytical bulletin (INAB). (2009). Moscow: RAS Institute of Sociology.

innovations (organizational, environmental, aesthetic, etc.), significantly affecting labor productivity; for example, the introduction at enterprises and organizations of health saving programs. Such corporate practices can reduce disability losses from a number of causes by almost 30%[19].

The introduction and use of the subjective assessment of the QWL as one of the indicators of the special assessment of working conditions (SAWC) and appropriate monitoring of the satisfaction indicator of working conditions as an indicator of the effectiveness of employers can help to achieve this.

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Assessing the Development of Digital Employment in the Labor Market on the Example of the IT Sector: Basic Metrics

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Abstract. The article is devoted to the assessment of the development of digital employment in the IT sector. The aim of the study is to determine the metrics of digital employment in the IT sector in the gender and territorial perspective, which can be used for monitoring the development and comprehensive assessment of the labor market in the area under consideration. We provide our own understanding of the essence of the term "digital employment". The research was conducted by benchmarking and content analysis of information about the supply and demand of labor force in the IT sector; the information was retrieved from Russian government and commercial job search and recruitment websites (Rabota Rossii and HeadHunter). The subject of the content analysis was information about the number and composition of vacancies and resumes in the digital segment of employment in the IT sector, including vacancies containing references to remote working hours, both overall in the sample, and in the context of

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gender and industry. The content analysis covered vacancies and resumes in all federal districts: Central, Northwestern, Southern, North Caucasian, Volga, Ural, Siberian and Far Eastern. The results were used to calculate the structure of professional qualifications, to identify gender specifics and general trends in the development of digital employment in the IT sector, both on average in the country and in the federal districts. The analysis of information on the demands of the labor market participants in the area under consideration allowed us to conclude about the asymmetry of supply and demand. In order to assess the development of the market for professional qualifications in the IT sector, the metrics of digital employment were identified, which help to evaluate its quantitative and qualitative characteristics, including in the gender and territorial perspective. The research results can further be used in monitoring the development and comprehensive assessment of digital employment in the IT sector, and also serve as the basis for the development and implementation of state policy programs to regulate digital employment in the labor market of the IT sector.

Key words: digital employment, remote employment, information technology sector, IT sector, gender, resume, vacancy, labor market

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Introduction

The relevance of the study is due to the processes of globalization, digitalization, informatization, wide implementation of information and communication technologies (ICT) and the Internet in the labor organization and increasing their role in the state economy. In today's rapidly changing digital economy conditions, under the influence of many different factors, employment is transformed, its digital forms are developing, the structure of the country's economy is changing, including the information technology sector (hereinafter – IT-industry). In order to identify the scale, structure, gender specifics and efficiency of digital employment in the IT sector in a timely manner, metrics of socio-economic assessment of the development of this segment of employment are is important to use. The development of such metrics is one of the expected results of the IT sector development strategy until 2025[1], according to which this sector in Russia has the potential for global competitiveness and should become one of the most important points of economic growth. Currently, the share of IT specialists in the total number of employees does not exceed 1.2%, while in countries with a developed digital economy this indicator reaches 2.0–3.4%. In order to achieve a leading position in the economy's digitalization, Russia needs a significant increase in qualified IT personnel in the short term. This requires new approaches to the systematization of information on the current supply and demand in the labor market, the use of relevant metrics to assess the development of digital employment in the IT sector, and the adjustment of state employment policy.

The purpose of the study is to critically evaluate and select the main metrics of digital employment in the IT sector, which are available on digital job-hunting and recruitment platforms (job websites).

[1] Strategy for the development of the information technology sector in the Russian Federation in 2014-2020 and in perspective until 2025. Available at: https://digital.gov.ru/ru/documents/4084/ (accessed: June 25, 2022).

Objectives of the study:

1) to conduct a content analysis of supply and demand in the digital segment of the labor market in the IT sector according to job search website; (работный портал)

2) to identify metrics that characterize the development of digital employment in the IT sector according to the data of job search website;

3) to identify the gender characteristics and structure of digital employment in the IT sector in the context of federal districts.

The novelty of the study lies in the possibility of using the information base of digital job search and recruitment platforms to assess the scale, gender and territorial specifics of digital employment in the field of information technology.

Literature review

The result of the Fourth Industrial Revolution (Industry 4.0) was the transformation of modern society, which, in turn, led to the development of digital forms of communication in the social and labor sphere and the employment sphere. Due to the unprecedented development of the IT sector, the labor market has gained considerable flexibility, digital forms of employment in various industries have emerged, such as remote, platform, self-employment based on digital technology, etc.

Understanding digital employment as part of the digital economy is a new problematic research area. Although scientific interest in the issues of digital employment transformation began to form more than 20 years ago, the conceptual and terminological framework in this area is very poorly developed. The analysis of scientific publications confirms that nowadays there is no unified approach to defining and understanding the essence of digital employment, but it allows us to highlight the diversity of its forms.

The mainstream of digital employment is currently remote employment. This segment in the labor market is quite broad (Kolosova, Ludanik, 2018; Fedchenko et al., 2018; Kalashnikova, Filippova, 2020), due to which researchers raise the issues of advantages and disadvantages in using remote employment, and pay attention to the factors that determine the prospective development of remote (Mamontova, 2019; Musaev, 2019; Dashkova, Zvyagintseva, 2020; Razumova et al., 2020; Lapina, Stuken, 2017; Róbert et al., 2019). The benefits of remote employment include the ability to have a flexible work schedule and reduced travel expenses; special attention is paid to the employment opportunities that remote employment offers to people with disabilities and women with little children.

Along with the advantages, many publications also highlight the disadvantages of remote employment (Gebrial, 2008; Pesha, 2018; Zemlanukhina, 2019; Tonkikh, 2019; Thulin, Vilhelmson, 2019), which may serve as a barrier to its development and spread in the labor market. The main problems of remote work are related to the communication interaction between colleagues and manager.

The impact of digitalization became a challenge for the organization and structuring of the labor market and contributed to the emergence of digital employment. One of the first works devoted to this particular type of employment is authored by N.A. Azmuk, who attempted to formulate a definition of digital employment and to reveal its essence; the author justified segmentation of the labor market into digital and traditional, defined the features of the digital labor market, the advantages and risks of using digital employment (Azmuk, 2020). E.A. Chernykh (2021) highlighted the criteria of this phenomenon, defined the socio-demographic characteristics of platform workers, and established a correlation between these characteristics and the quality and sustainability of employment.

M.V. Chudinovskikh (2021) justified the advantages of using platform employment, at the same time revealing the threats and risks of it using. The main problem is related to the lack of legislative regulation and legal status of platform workers, which can reduce the level of their social protection. A similar problem of "non-standard" regulation and the need for its further solution are noted

by foreign researchers (Dieuaide, Azaïs, 2020). Digitalization, on the one hand, has created endless opportunities for the development of new forms of employment, and on the other hand, has contributed to a significant increase in uncertainty in the labor market. For example, the development of digital forms of employment has acutely raised the problem of the "hidden status" of digital employers, which requires an early transformation of public employment policies and a new type of digital management (Chen et al., 2020).

R.N. Abramov and A.V. Bykov emphasize that the penetration of digital technologies into the labor sphere has contributed to the development of platform and remote employment. The COVID-19 pandemic has only accelerated the digitalization of a number of individual areas of employment, primarily related to delivery and transportation services. According to the authors, the growth of the platform employment sector in the large Russian cities is associated with unskilled labor and precarious employment conditions. One can agree with them that fundamental changes in employment need to be comprehended and their consequences should be analyzed (Abramov, Bykov, 2021).

A review of scientific sources helps us to identify a general trend: many researchers include non-standard distance and platform forms of employment in digital employment. In our opinion, this approach to defining the essence of digital employment is too limited. We should agree that distant (remote) and platform employment are forms of digital employment, which has been manifested especially clearly in the post-pandemic period. However, we understand digital employment in a broader sense – employment with the use (more than 70% of working time) of digital technologies and ICTs as an integral part of labor activity. At the same time, the actual work process can be carried out both in a stationary workplace and in a remote form, the ways of using digital technologies and ICTs may differ depending on the form of employment.

All of this leads to problems of statistical accounting of digital employment itself and its forms, which develop under the influence of digitalization (remote, platform, etc.) [2]. It is extremely difficult to estimate the volume of platform employment in Russia due to the lack of its statistical accounting; the number of self-employed registered on platforms also does not allow conducting reliable conclusions (Sinyavskaya et al., 2021). In general, records of digital employment do not cover it in its entirety; specific types of employment are not highlighted. As the digitalization of the economy is ongoing, labor market measurement tools need to be improved to encompass existing and emerging forms of digital employment.

It should be emphasized that in domestic statistical publications digital employment is recorded only among the employed in professions associated with the intensive use of ICTs (Abdrakhmanova et al., 2022), which confirms our thesis of ICTs as an integral part of digital employment.

As for foreign accounting methodologies, research on new forms of employment, their scale, and prevalence is conducted by the European Foundation for the Improvement of Living and Working Conditions, identifying new trends and actual problems of new forms of employment, including digital, to provide adequate social protection and decent working conditions (Mandl, 2020).

The works of domestic and foreign scientists are devoted to the issues of methodology for assessing digital types of employment. Thus, D.V. Malyar investigated the correlation between remote employment and the development of the digital economy and found out that the use of remote format in different sectors of the economy depends

[2] Demyanova A.V. Statistical measurement of the impact of economy digitalization on employment: A presentation to the report at the meeting of the section of science, innovation, education and information society statistics of Rosstat Scientific and Methodological Council (April 9, 2021). Available at: https://rosstat.gov.ru/storage/mediabank/ryCC4yXJ/Demyanova.pdf (accessed: November 10, 2022).

on the degree of use of digital technologies in manufacturing, as well as on the ability to "digitize" the results of work. We can agree with him that ICT-based remote employment contributes to the deployment of the digital economy, and the volume of such employment can serve as a metric for the digitalization of the economy (Malyar, 2019).

N.V. Tonkikh, M.V. Chudinovskikh, and T.L. Markova studied the gender aspects of women's remote work in the digital economy. Metrics of remote employment made it possible to assess its scale and prospects for the development of this segment of employment among women in terms of the ability to combine parenting and social functions (Tonkikh et al., 2019).

Despite the coverage of many aspects of digital employment, it can be noted that in the scientific literature there are not enough independent studies dedicated to the assessment of the development of digital employment in the labor market based on open sources, which can be digital job search and recruitment platforms.

Materials and methods

The methodology of the study was based on our own understanding of digital employment. The distinctive feature of digital employment is, in our opinion, the use of ICTs as an integral part of labor activity, occupying more than 70% of working time. The IT specialists can be referred to digital employment, as their work is associated with the intensive use of ICTs.

Digital employment involving the use of ICT can be carried out both in "standard" conditions at the stationary workplace (no more than 40 hours according to the Labor Code of the Russian Federation on the territory of the employer), and through non-standard forms (remote, hybrid, platform, flexible work mode, self-employment, freelancing).

Statistical and socio-economic analysis and benchmarking methods were used in the study. The empirical study of supply and demand in the digital employment segment of the IT sector was conducted through content analysis of information on the total number and composition of resumes and vacancies published on Russian state and commercial digital job search and recruitment platforms (job portals).

The information base included resumes and vacancies in the IT-sector, representing the segment of digital employment, published in the public domain on the largest employment portals – the commercial online resource HeadHunter and the state web-service Rabota Rossii.

Key search criteria: vacancies and resumes indicating "information technology" specialization.

Information on supply and demand was collected on June 19, 2022 in all federal districts. The number of processed vacancies and resumes in the segment of digital employment in the IT sector are presented in *Table 1*.

Vacancies and resumes were processed using Microsoft Excel.

Table 1. Number of vacancies and resumes in the digital employment in the IT sector by federal districts

Platform	Federal district	Number of resumes	Number of vacancies
HeadHunter	Central	249 157	29 867
	Northwestern	104 698	8 550
	Southern	40 994	3 461
	North Caucasian	6 403	390
	Volga	62 240	8 257
	Ural	22 496	3 635
	Siberian	24 320	3 867
	Far Eastern	8 984	1 201
	Total for the Russian Federation	**519 292**	**59 228**
Rabota Rossii	Russian Federation	150 384	20 490
Source: own calculation using the data of HeadHunter and Rabota Rossii portals.			

Results and discussion

To solve the first research task, we conducted a content analysis of the information about the total number of resumes and vacancies in the IT sector, published on the HeadHunter portal[3]. The analysis covered all federal districts (*Tab. 2*).

The Northwestern and Central federal districts are leaders in the number of resumes and vacancies in the IT sector. The interest of employees and employers may indicate the development of the IT sector under consideration.

The Ural Federal District occupies an average position by demand and supply of labor in the IT sector, it can be explained by the economic industrial specialization of the district, where skilled workers of other professions are more in demand. The small supply of labor in the IT sector in Southern and North Caucasian federal districts can also be explained by the territorial specifics, where agriculture is a priority.

The share of vacancies in the IT sector on average in the federal districts is 1.5-fold higher than the share of similar resumes. As for the quantitative indicators of vacancies and resumes, there is a skew toward the labor supply, which exceeds the demand 8.7-fold on average in all the districts (the least difference between the number of resumes and vacancies is in the Ural Federal District – 6.12, the largest difference is in the North Caucasian Federal District – 16.42). Thus, according to the quantitative comparison of resumes and vacancies we can conclude that the current labor supply cannot meet the demand for specialists in the IT sector.

The benchmarking did not allow us to compare the data obtained in the territorial perspective with similar data on the portal Rabota Rossii[4], because the geographical areas on the job portals are represented differently and not fully. The level of representation of the real market of resumes and vacancies in the country as a whole was 2.37% and 0.85%, respectively.

The IT sector development strategy reflects the main indicators of development, one of the main metrics is the share of the number of employed in the IT sector in total employment in the economy.

Table 2. Share of digital employment in the IT sector in the context of federal districts

Federal district	Resumes, %	Vacancies, %	Ratio of vacancies and resumes
Central	5.65	10.63	1.9
Volga	3.49	5.77	1.7
Far Eastern	3.81	5.33	1.4
Siberian	3.61	5.13	1.4
Ural	3.50	4.91	1.4
Northwestern	6.72	8.65	1.3
Southern	3.79	4.88	1.3
North Caucasian	3.81	3.75	0.9
Average value	4.29	6.47	1.5
Source: own calculation using the data of HeadHunter portal.			

[3] Available at: https://ekaterinburg.hh.ru/search/resume/advanced?no_default_area=&area=1118&area=1174&area=1192&area=1932&area=1941&area=1943&area=1946&area=1948&area=1960&area=1975&area=1982&clusters=true&exp_period=all_time&gender=male&items_on_page=50&label=only_with_gender&logic=normal&no_magic=false&order_by=relevance&ored_clusters=true&pos=full_text&professional_role=10&professional_role=12&professional_role=25&professional_role=34&professional_role=36&professional_role=73&professional_role=96&professional_role=104&professional_role=107&professional_role=112&professional_role=113&professional_role=114&professional_role=116&professional_role=121&professional_role=124&professional_role=125&professional_role=126&text=&hhtmFrom=resume_search_result (accessed: June 25, 2022).

[4] Resumes of job seekers all over Russia. Rabota Rossii. Available at: https://trudvsem.ru/cv/search?_regionIds=&page=0&professionalSphere=InformationTechnology (accessed: June 25, 2022).

This indicator in 2017 was 0.49%, the forecast for 2025 is 0.60%.

The analysis of resumes revealed the gender structure of specializations in the IT sector, as well as the specifics of "female" and "male" professions (*Fig. 1*).

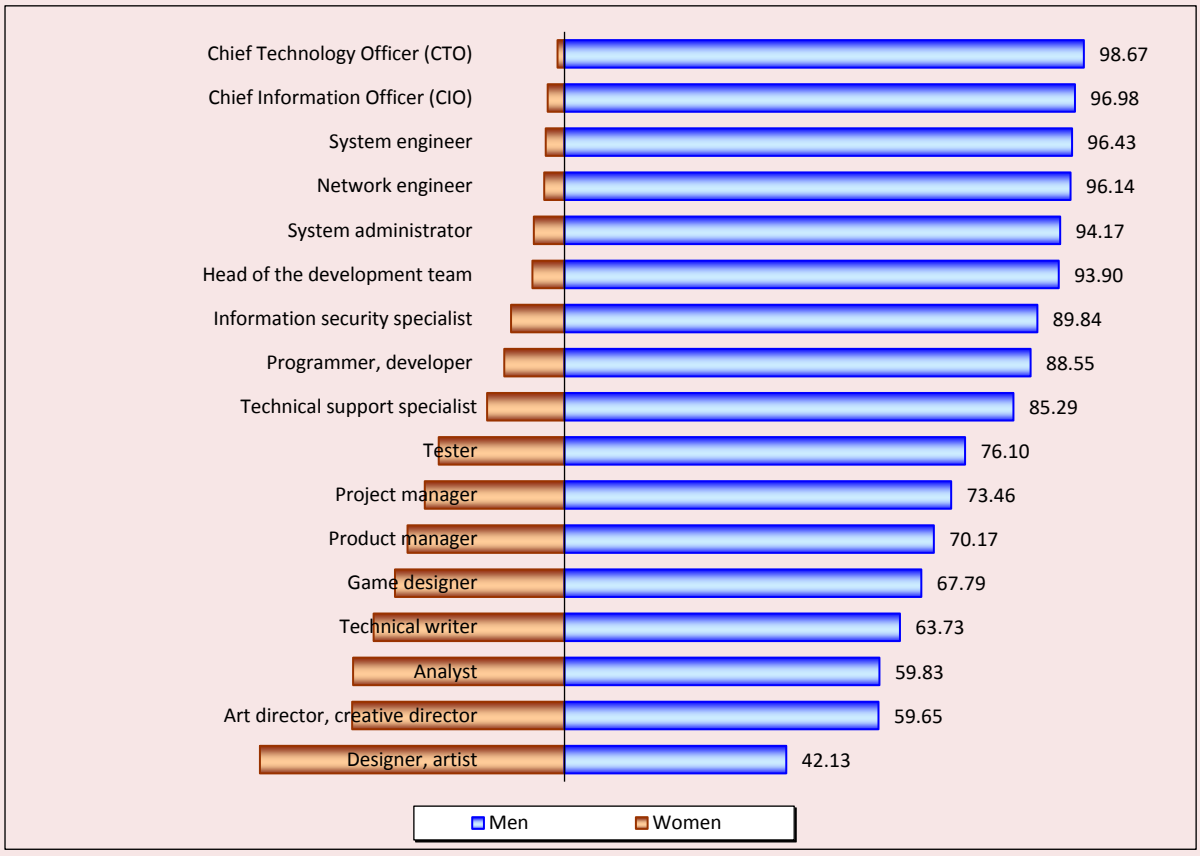
On average, the overall gender structure of digital employment was revealed in the districts, which allowed us to identify "typically male" (technical director, IT director) and "typically female" (designer, artist) professions.

Benchmarking of similar information on the portal Rabota Rossii did not make it possible to identify the structure of occupations in the IT sector due to the absence of these metrics. The information presented on the portal allows us to consider resumes only for the "Information Technology, Telecommunications, and Communications" sector as a whole. Thus, the share of women's resumes in this professional field in the country as a whole was 31.91%, and men's resumes were 68.09%.

The gender structure of IT occupations in the distribution by districts (*Tab. 3*) reflects general trends in the choice of occupations in the sector.

Thus, in all federal districts, except the Far Eastern, the first place in male resumes is occupied by the profession of chief technical officer (CTO). It is also possible to identify such predominantly "male" professions as system engineer, system administrator, network engineer, and chief information officer (CIO). In almost all the

Figure 1. Gender structure of digital employment by IT occupations on average in the context of federal districts, %



Source: own calculation using the data of HeadHunter portal.

Table 3. Gender structure of digital employment by IT occupations in federal districts, %

Specialization (occupation)	CFD		NWFD		SFD		NCFD		VFD		UFD		SibFD		FEFD	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Technical writer	63.99	36.01	60.20	39.80	88.76	11.24	63.64	36.36	67.86	32.14	57.89	42.11	43.84	56.16	63.64	36.36
Chief technical officer (CTO)	97.69	2.31	98.08	1.92	98.93	1.07	100.00	0.00	99.23	0.77	98.31	1.69	98.76	1.24	98.33	1.67
Tester	77.60	22.40	73.90	26.10	76.19	23.81	81.52	18.48	77.99	22.01	73.99	26.01	73.59	26.41	74.03	25.97
Technical support specialist	88.35	11.65	84.95	15.05	86.01	13.99	86.05	13.95	84.56	15.44	81.96	18.04	85.28	14.72	85.15	14.85
Information security specialist	90.26	9.74	89.42	10.58	91.16	8.84	93.72	6.28	89.43	10.57	87.50	12.50	87.67	12.33	89.57	10.43
System engineer	96.61	3.39	95.63	4.37	96.51	3.49	96.45	3.55	97.04	2.96	95.89	4.11	95.54	4.46	97.79	2.21
System administrator	95.29	4.71	94.87	5.13	94.12	5.88	93.39	6.61	93.45	6.55	93.36	6.64	94.58	5.42	94.27	5.73
Network engineer	96.68	3.32	95.75	4.25	98.07	1.93	96.72	3.28	92.59	7.41	93.81	6.19	96.39	3.61	99.12	0.88
Project manager	70.37	29.63	72.99	27.01	71.28	28.72	78.65	21.35	74.79	25.21	73.36	26.64	73.66	26.34	72.54	27.46
Team development manager	91.78	8.22	92.41	7.59	94.23	5.77	95.17	4.83	93.18	6.82	93.19	6.81	95.57	4.43	95.68	4.32
Programmer, developer	88.47	11.53	87.97	12.03	88.20	11.80	90.61	9.39	88.66	11.34	86.32	13.68	88.65	11.35	89.55	10.45
Product manager	66.56	33.44	71.80	28.20	64.80	35.20	75.68	24.32	68.86	31.14	68.78	31.22	66.33	33.67	78.57	21.43
Chief information officer (CIO)	95.28	4.72	96.70	3.30	97.58	2.42	95.92	4.08	96.55	3.45	96.89	3.11	97.97	2.03	98.92	1.08
Designer, artist	42.79	57.21	42.04	57.96	39.48	60.52	40.77	59.23	40.66	59.34	41.23	58.77	43.64	56.36	46.41	53.59
Game designer	73.21	26.79	68.38	31.62	64.60	35.40	68.75	31.25	66.67	33.33	68.75	31.25	71.94	28.06	60.00	40.00
Art director, creative director	60.72	39.28	58.24	41.76	60.59	39.41	70.42	29.58	55.76	44.24	57.27	42.73	52.11	47.89	62.11	37.89
Analyst	64.72	35.28	63.99	36.01	57.53	42.47	69.30	30.70	58.69	41.31	54.96	45.04	56.07	43.93	53.35	46.65

Source: own calculation using the data of HeadHunter portal.

territories the top five "female" specialties are designer (artist), art director (creative director), analyst, game designer, project manager. In Central and Far Eastern federal districts, the top five "female" occupations include project manager.

Figure 2 shows the five key competencies and skills listed on the resumes of female and male job seekers, averaged across the districts.

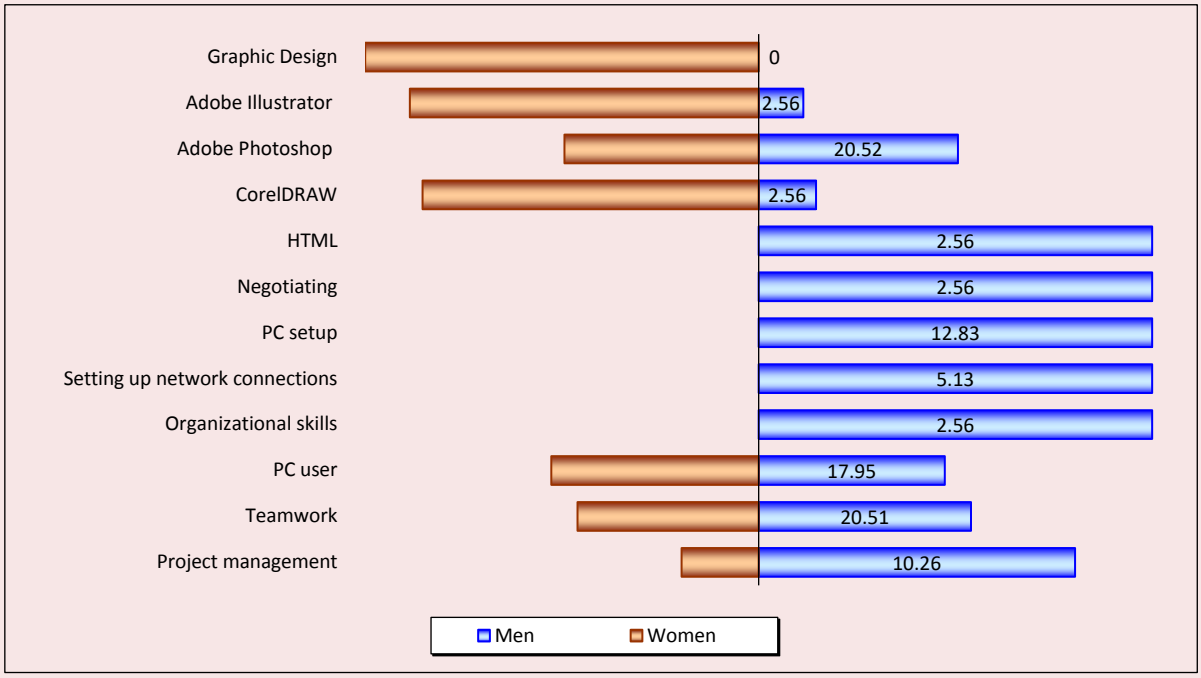
The listed competencies of women and men have some differences, which is most likely related to the identified gender preferences of professions in the IT sector. For example, men have one of the core competencies "project management", which is required for the positions of CTO and CIO. For women, the professional competency Adobe Photoshop is a key competency for a designer/artist and game designer. We consider it is inappropriate to specify the competence "PC user" for the IT sector, as it is a basic competence.

Benchmarking of information on the portal Rabota Rossii did not allow us to identify the main key skills in the IT sector due to the lack of relevant information. The search filters on this portal contain such key competences as "calling", "assembling", "improvement", etc., which can hardly be called IT competences. In this regard, it should be noted that the list of key competencies on the portal Rabota Rossii requires unification.

The age structure of IT specialists in the context of federal districts makes it possible to see a general trend of male predominance in all age groups (*Fig. 3*).

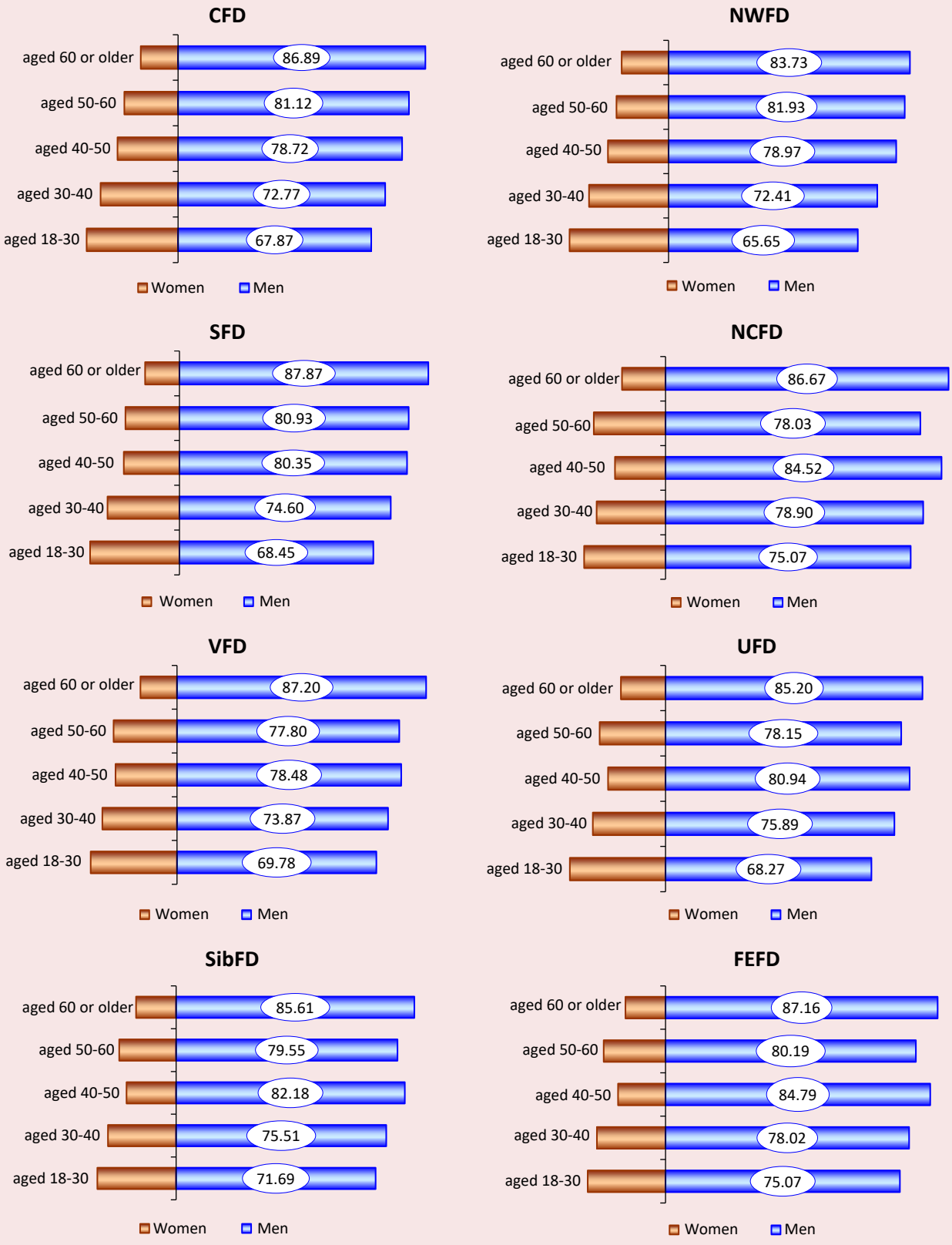
Moreover, it can be noted that interest in this sphere is growing among women, the share in the age group of 18–30 years old is the largest in all districts, especially in the Northwestern, Central, and Ural federal districts.

Figure 2. Gender structure of key skills of job seekers in the segment of digital employment in the IT sector, average across the districts, %



Source: own calculation using the data of HeadHunter portal.

Figure 3. Gender and age structure of digital employment in the IT sector in the federal districts, %



Source: own calculation using the data of HeadHunter portal.

Table 4. Average gender profile of job seekers in the IT sector, %

Indicator	Group	Men	Women
Age	18–30	28.52	35.86
	30–40	44.47	44.06
	40–50	18.60	13.70
	50–60	6.21	5.11
	Over 60	2.20	1.27
Work experience	No experience	14.85	18.16
	1 to 3 years	9.55	11.91
	3 to 6 years	12.47	15.45
	More than 6 years	63.13	54.48
Source: own compilation.			

Table 4 presents a social portrait of a job seeker in the IT sector; the indicators are calculated by the average value of the studied districts.

The main age groups of job seekers in the IT sector are 18–30 years old (generation Z) and 30–40 years old (generation Y). These generations are characterized by the influence of digitalization, active use of the Internet, mobile devices, social networks, which can affect the interest in the studied sphere. The interest of the younger generation in this field can also be noted in the structure of job seekers by work experience, where this age group ranks second among job seekers (both men and women). At the same time, the share of women without work experience is higher than the same share of men, hence the interest of women in the IT sector is growing.

Table 5 shows the structure of supply and demand in the segment of digital employment in the IT sector according to the "type of employment" criteria.

In the gender structure of labor supply according to the "type of employment" criteria, we can identify common features among women and men. Thus, the first place in the search is full-time employment (with male applicants 4.66 percentage points more than female applicants). Full-time employment also prevails in the structure of demand, and exceeds supply by 37.15 percentage points.

Part-time work and project work are mentioned on women's resumes more often than men's, this may be related to the desire to work part-time. Besides, part-time employment assumes, as a rule, a flexible work schedule, which allows a woman to combine family and work responsibilities.

Table 6 shows the gender structure of digital employment in the IT sector according to the "type of employment" criteria by district. The largest share of men who prefer full-time employment is recorded in the Central Federal District. The highest share of women who prefer part-time employment is in the Ural Federal District.

Table 5. Demand and supply of labor in the digital employment segment by "type of employment" criteria on average in the context of federal districts, %

Type of employment	Resume		Vacancies
	Men	Women	
Full-time employment	58.96	54.30	93.78
Part-time employment	20.42	23.59	4.72
Project work	13.00	15.65	0.45
Internship	6.43	5.58	1.05
Volunteering	1.19	0.88	0.00
Total	100.0	100.0	100.0
Source: own calculation using the data of HeadHunter portal.			

Table 6. Gender structure of digital employment in the IT sector by "type of employment", %

Federal disctrict	Sex	Full-time employment	Part-time employment	Project work	Internship	Volunteering	Total
Central	Men	63.29	17.78	12.36	5.65	0.92	100.00
	Women	56.4	21.45	15.57	5.71	0.87	100.00
Northwestern	Men	58.14	19.55	13.77	7.29	1.25	100.00
	Women	51.63	23.02	17.21	7.19	0.95	100.00
Southern	Men	59.03	20.57	13.08	6.18	1.14	100.00
	Women	53.59	24.04	16.35	5.16	0.86	100.00
North Caucasian	Men	57.71	21.73	12.54	6.48	1.54	100.00
	Women	53.11	25.01	16.10	4.72	1.06	100.00
Volga	Men	59.89	19.93	12.57	6.57	1.04	100.00
	Women	57.10	22.99	13.85	5.35	0.71	100.00
Ural	Men	58.03	20.96	13.61	6.24	1.16	100.00
	Women	52.18	25.05	16.25	5.55	0.97	100.00
Siberian	Men	57.07	21.63	12.89	7.27	1.14	100.00
	Women	52.92	24.50	15.46	6.30	0.82	100.00
Far Eastern	Men	58.50	21.25	13.19	5.73	1.33	100.00
	Women	57.49	22.62	14.42	4.68	0.79	100.00
Source: own calculation using the data of HeadHunter portal.							

Table 7 shows the gender structure of supply and demand for preferred work schedules on resumes and job openings.

Less than half of job seekers of both sexes prefer to work full-time, as indicated in their resumes, while this schedule prevails in the vacancies. We can note the interest of job seekers in remote work and flexible working hours, with a higher interest among women than men. This can be explained by the fact that remote work allows, for example, reducing transport costs (both temporary and material), working from any location, additional earnings, getting education, participating in social life, continuing work during maternity leave, and also creates employment opportunities for people with disabilities. Working on a flexible schedule provides the opportunity to allocate work time independently, choose the order of work, and so on (Kamarova, 2018).

The second place in vacancies is occupied by remote work schedule, which may be explained by the advantages of such schedule for employers: opportunity to hire qualified employees from other regions, saving on rent, maintenance of office space, organization of workplaces, etc.

A significant share of remote employment both in the demand and supply structure can be explained by the fact that the IT sector makes it possible to organize work remotely with ICT.

Table 7. Demand and supply of labor in the digital employment sector by "work schedule" criteria on average by district, %

Work schedule	Resume		Vacancies
	Men	Women	
Full time	46.38	44.32	73.57
Remote work	19.01	23.12	17.87
Flexible hours	17.52	19.25	4.31
Shift schedule	12.97	11.98	3.73
Fly-in fly-out work	4.12	1.33	0.52
Total	100.00	100.00	100.00
Source: own calculation using the data of HeadHunter portal.			

Table 8. Gender structure of digital employment in the IT sector by "work schedule" criteria on average by district, %

Federal disctrict	Sex	Full-time employment	Remote work	Flexible hours	Shift schedule	Fly-in fly-out work	Total
Central	Men	52.35	17.05	16.46	11.56	2.58	100.00
	Women	47.77	20.87	19.28	11.12	0.96	100.00
Northwestern	Men	47.23	18.51	18.11	12.73	3.42	100.00
	Women	43.01	22.17	20.67	12.96	1.19	100.00
Southern	Men	46.14	19.37	17.10	13.24	4.15	100.00
	Women	42.87	24.00	19.26	12.57	1.30	100.00
North Caucasian	Men	45.12	19.88	17.64	13.32	4.06	100.00
	Women	42.83	26.02	18.15	11.72	1.30	100.00
Volga	Men	47.16	18.88	17.40	12.78	3.78	100.00
	Women	46.94	21.83	18.53	11.66	1.04	100.00
Ural	Men	44.34	19.62	17.78	13.37	4.89	100.00
	Women	41.67	24.14	20.52	12.31	1.36	100.00
Siberian	Men	44.00	19.52	18.5	13.73	4.25	100.00
	Women	42.71	23.31	20.00	12.56	1.42	100.00
Far Eastern	Men	44.70	19.22	17.21	13.01	5.86	100.00
	Women	46.74	22.61	17.54	11.06	2.05	100.00

Source: own calculation using the data of HeadHunter portal.

Table 8 shows the gender structure of digital employment in the IT sector by "work schedule" criteria by federal district.

In the Ural and North Caucasian federal districts, the largest share of resumes for both women and men contains a mention of a remote work schedule. Apparently, this is related to the possibility of balancing work and private life, which is especially important for women with little children, as well as for those who take care of family members (we note that over the past five years the total fertility rate in these districts has been high, at 1.67 and 1.81, respectively). Women from the Central and Volga federal districts were the least likely to indicate a remote work schedule on their resumes (over the past five years, these regions have had low average fertility rates of 1.42 and 1.44, respectively). There are general trends across all federal districts: the prevalence of full-time work schedules (with a few percentage points more for men); the second and third most important are remote work and flexible work, respectively (in both cases female job seekers prevail).

Benchmarking of information on the Rabota Rossii portal by type of employment and work schedule does not allow to compare similar information with the data of the HeadHunter portal due to different criteria. Such a relevant query as "remote employment" is missing from the search filters.

Conclusion

In order to determine the main metrics of digital employment in the IT sector, a content analysis of supply and demand was conducted, taking into account open information on Russian state and commercial job search and recruitment platforms. We defined the basic metrics of digital employment in the analyzed industry: the share and the number of the employed in the overall labor market supply; the structure of the employed in the IT sector by gender, age, specialization, preferred working hours and forms of employment; the structure of competences. The proposed system of basic metrics will help to clarify the list of official statistical metrics for measuring the development of digital forms of employment in the labor market and to

identify demanded professional competencies associated with their application.

The study reveals gender and territorial features of digital employment in the IT sector.

First of all, in the structure of digital employment there are "typically male" IT occupations, which include chief technology officer (share of vacancies 98.67%), chief information officer (96.98%), and "typically female" occupations – designer/artist (share of vacancies 42.13%). Differences in competencies between women and men are related to gender preferences for IT occupations.

Second, a general trend of the predominance of men of all age groups in all federal districts was revealed, along with an increased interest of women aged 18–30 in the IT sphere also in all districts with the predominance of the North-western, Central and Ural (their shares were 34.35; 32.13 and 31.73% respectively).

Third, there is an overall trend in the analysis of preferences by type of employment – the prevalence of full-time employment in all districts under consideration among men (the share of vacancies was 58.96%) and women (54.30%). Besides, there is a prevailing interest of women in remote work (the share of vacancies was 23.12%) and flexible working hours (17.53%), which is explained by the possibility to maintain a work-life balance and take care of little children; women in the North Caucasian and Ural federal districts had the largest share of resumes with such work schedules (26.02 and 24.14%, respectively).

The empirical results revealed the potential and prospects of using the information bases of digital job search and recruitment platforms to assess the scale, gender and territorial specifics of digital employment in the IT sector and to highlight general trends in the digital labor market. The obtained results showed the presence of differentiation in the metrics used in the Russian state and commercial job portals.

The key conclusions and suggestions from the study are that digital employment assessment needs a centralized mechanism for collecting and processing information based on unified metrics. In order to assess the development of digital employment forms, a comprehensive approach that involves the use of not only the databases of digital job search platforms and statistical materials, but also the results of sociological research seem appropriate.

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Effectiveness of Nonprofit Organizations for the Regional Economy: Conceptual Foundations for Identification

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Abstract. We make an attempt to substantiate the significance of creating institutional conditions for the development of nonprofit organizations; to this end, we identify social and economic impact of their activities on the regional economy. Using the synthesis of theoretical approaches to explaining the reasons for the emergence of the nonprofit sector (theory of interdependence and failure theory) and the results of content analysis of the projects supported by the Presidential Grants Foundation and submitted by socially oriented nonprofit organizations from the Volga Federal District, we identify directions and specify forms of leveling government failures. It was found that socially oriented nonprofit organizations focus on providing a range of services in the education system, health care and social support, which are of priority importance for the formation of people's basic needs, which can be fulfilled by the state only to a certain limit, regardless of the territory of residence and taking into account residents' individual

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needs. When assessing the effectiveness of their own work, representatives of socially oriented nonprofit organizations focus on its social significance, using mechanisms of point solutions to the current problems of the target audience. We identify the range of potential socio-economic effects from the activities of socially oriented nonprofit organization carried out on a systematic and long-term basis in the context of priority areas of their work. We emphasize that our approach, due to the formation of a unified view among economic agents (government, business, society and nonprofit organizations themselves), expands the idea of its importance for the region's economy and may become a starting point for the creation of institutional conditions for the development of nonprofit organizations in Russia. The prospects for our future research include modeling the management system of specific regions of the Russian Federation based on the creation of institutional conditions to increase the contribution of socially oriented nonprofit organizations to the balanced development of territories.

Key words: effectiveness of socially oriented nonprofit organizations, socio-economic effects, regional economy, social inequality, disadvantaged groups, public goods, government failures.

Introduction

The growth of social inequality and the inability of the state to provide equal access to meritorious goods for all categories of the population regardless of their territory of residence necessitated the formation of a nonprofit sector in the economy. It was assumed that the creation of nonprofit organizations (NPOs) would level out the growing dysfunctions (failures) of the government and the market. Attention was focused on such comparative advantages of NPOs as an individual approach and accelerated adaptation to the changing needs of beneficiaries, the ability to attract additional resources (volunteers, donations), the ability to continue their work in case of reduction of state funding (Mersyanova, Benevolensky, 2016). As a result, a significant number of studies on the factors that determine the size and level of development of the nonprofit sector have appeared. Such factors include the heterogeneity of society (Matsunaga, Yamauchi, 2004; Paarlberg, Gen, 2009), the amount of state financial support (Lecy, Van Slyke, 2013; Bae, Sohn, 2018), the level of socio-economic development of the territory (Grønbjerg, Paarlberg, 2001; Sevak, Baker, 2022).

However, as we know from institutional economic theory, the formation and development of a new institution under the conditions of the existing institutional environment without the creation of special mechanisms for its stabilization is always accompanied by the growth of disproportions. As applied to the nonprofit sector, this manifests itself in a wide range of problems faced by NPOs in their activities. Numerous studies have focused on the specifics and depth of problems in different countries. For Russia such problems as lack and project nature of financing, forced competition with state institutions, shortage of qualified personnel, etc. are especially relevant (Grigoryeva, Parfenova, 2021).

In our opinion, all of them arise due to the lack of incentives to create transparent rules of NPOs activities, understandable and unified for all interested economic agents (the state, business, society and NPOs themselves). One of the grounds for the formation of such rules is a clear understanding of the long-term socio-economic effects and specific criteria of effectiveness of NPOs activities for the territory (region) where they are located. As our analysis has shown, the specified aspect of the research is presented extremely fragmentarily.

In this regard, the purpose of this study is to substantiate the importance of creating institutional conditions for the development of NPOs on the basis of identifying the social and economic effects of their activities on the economy of the region.

We will briefly outline the theoretical basis of our research in the next section of the paper.

Theoretical concepts of the emergence and specifics of NPOs development

One of the main approaches explaining the emergence and development of NPOs is the theory of state failure, presented by B. Weisbrod in the 1980s (Weisbrod, 1986). It consists in the fact that the state produces benefits for the majority and is unable to take into account the needs of all groups of the population. The origins of this lie in political processes, where the state tries to ensure the support of the majority of citizens participating in elections. At the same time, the number of categories of citizens who are in the minority is gradually increasing, which requires an alternative participant to meet their needs (Lu, Xu, 2018, p. 455). The more of these groups, the more heterogeneous the society, the more likely nonprofit organizations will emerge, which are ready to produce goods and services, the demand for which cannot be met by the state (Skokova, Rybnikova, 2022). Note that failure theory is quite widely used as a theoretical basis for research. Thus, Japanese researchers in their analysis of the interdependence of the size of the state and the size of the nonprofit sector on the data of 22 countries revealed a negative correlation between the amount of government spending on education and health care and the size of the nonprofit sector in these sectors (Matsunaga et al., 2010). The results obtained in the framework of the panel analysis are confirmed by studies conducted at the national level (Lecy, Van Slyke, 2013; Van Puyvelde, Brown, 2016). This suggests that nonprofit organizations are characterized by a supplementary function, which means that they occupy "niches" in which the demand for goods and services is significantly lower than the supply (Lu, Xu, 2018).

The theory of failure is based on the theory of interdependence, according to which the relationship between the state and nonprofit organizations has a cooperative nature. The state relies on NPOs as alternative providers of public goods, especially for minority populations. At the same time, in order to carry out such activities, NPOs receive state support in the form of grants, subsidies, social contracts, etc., information and advisory and legal assistance, which can lead to their dependence on it (Gazley, 2010; Bae, Sohn, 2018). Research confirms that the bigger the nonprofit sector, the more significant this support (Kim, 2015; Lecy, Van Slyke, 2013). However, a negative trend has been revealed: NPOs, striving for financial stability, prefer to work in regions with a higher level of socio-economic development and a smaller number of people in need of their services (Sevak, Baker, 2022). To some extent, this conflicts with the intuitive notion that NPOs emerge as a response to existing population problems. Nevertheless, the financial sustainability acquired as a result of state support allows nonprofit organizations to develop expert competencies and introduce new practices into their activities, implementing the established social mission. In fact, we are talking about the complementary role of NPOs, which in this case act as partners of the state (Lu, Xu, 2018).

Empirical research confirms that the size of public expenditures is related to the level of NPOs activities in addressing poverty problems (Joassart-Marcelli, Wolch, 2003) and generally correlates with the size of the nonprofit sector in a region (Kim, Kim, 2016; Liu, 2017). The theory of interdependence suggests that nonprofit organizations are more effective in providing social services to the population due to a better understanding of local problems, the ability to provide a personalized approach and less bureaucratic organization of work. In turn, the state compensates the costs of

NPOs and provides information-consulting and legal support. Thus, there is an interdependent relationship between the state and nonprofit organizations.

It seems that the considered theoretical approaches can contribute to the conceptual substantiation of the impact of NPOs performance on the development of the region. Currently, there is an opinion in the scientific discourse that the nonprofit sector in Russia is developing under the strong influence of the state (Tarasenko, 2015, p. 172). Consequently, using financial mechanisms, the state will set the priorities of NPOs activities, the determination of which will make it possible to identify the niches of leveling the failures of the state. On this basis, it is further possible to determine the socio-economic effects of NPOs activities for the territory of location in the short and long term. The next section of the article describes the tools we used to implement the goal of the research.

Methods and information base of the research

The following methods were used to achieve the goal:

a) content analysis of scientific literature, relevant legal and regulatory documents, published reports of nonprofit organizations;

b) analysis of statistical data of the Federal State Statistics Service on the activities of socially oriented nonprofit organizations (SONPOs); the choice of the object of research is determined by the importance of SONPOs in the structure of the nonprofit sector, as they implement the role of its core; the functionality of SONPOs, concentrating their activities on providing socially important services to the population, having a priority for a balanced development of the regional economy; greater availability of indicators of SONPOs activities in the system of state;

c) content analysis of applications from NPOs that received support from the Presidential Grants Foundation (PGF);

d) the winning projects of the 2022 contests (two main and one special) were selected for analysis; the Volga Federal District (VFD) was chosen as the object of research. The reason for choosing the Volga Federal District (VFD) as the object of the study is that the approach proposed in the article to evaluating the effectiveness of NPOs activities for the regional economy was tested on one of the entities of the VFD through our participation in the creation of the "Concept for Promoting NPOs Development in the Perm Territory" at the request of the Perm Territory Governor Grants Foundation[1].

The choice of the PGF as the information base is connected with the possibility of carrying out an objective comparative analysis of applications from NPOs from different VFD regions, because the Foundation, as the largest domestic regulator of financial support to nonprofit organizations, applies unified evaluation criteria to all projects. The data for all 13 project areas are characterized by openness and partially include a description of potential effects of organizations by applicants.

An empirical analysis of priority spheres and criteria of nonprofit organizations' effectiveness (on the example of the Volga Federal District)

Since 2012, the number of socially oriented nonprofit organizations in the VFD, as well as in the country as a whole, has increased almost threefold and currently amounts to 24,839 units. The active growth of SONPOs is due to the increasing acuteness of the problems associated with the growth of social and economic inequality, and the importance of using the potential of the nonprofit sector to solve them. A set of measures aimed at the development of SONPOs and their access to budgetary foundations was adopted, a "roadmap" (action plan) "Supporting access

[1] Discussion of the project of the document is scheduled for December 10, 2022 within the framework of the Perm Krai Public and Volunteer Forum.

of non-state organizations to social services" was developed, changes were made in the federal law "On nonprofit organizations" and the concept of "NPO is a performer of socially useful services" was introduced, a Presidential Decree was adopted, defining priority areas of SONPOs' activities. Priority areas include preschool education, organization of recreation and health rehabilitation for children, educational activities under additional general education programs, implementation of territorial programs of compulsory medical insurance, early services for diagnosis, socialization and rehabilitation of children with disabilities, and development of nonstate (nonmunicipal) organizations in the sphere of culture2. The priorities established by the state are reflected in the activities of the nonprofit sector. Thus, an analysis of the activities of SONPOs confirmed the concentration of their services in the areas of education, health care, social services, culture, and sports (*Tab. 1*).

According to Table 1, the largest number of SONPOs are involved in providing various types of personal services to the population (for example, repair and maintenance of computer equipment, household items and personal stuff, etc.). Such support is especially relevant for the elderly and people with low mobility. Besides, it is necessary to take into account that the mentioned data are collected in the framework of sample survey of socially oriented nonprofit organizations and the questionnaire provides several variants of answers to the question about the types of activities. This means that along with the main activity respondents could choose non-specific personal services. Thus, excluding general personal services from the calculation, it becomes obvious that SONPOs predominantly operate in the fields of education, health care, social services and cultural and leisure activities. These sectors are extremely important for the region, because they create the formation and improvement conditions of the human capital quality, which is the main factor of production in the modern economy, contribute to the growth of social protection and, as a consequence, are aimed at reducing social inequalities.

Data from a sample survey of socially oriented nonprofit organizations also allows us to assess their financial situation and determine the main sources of income. The results of 2021 show that in the district "external" financial support (grants, subsidies and similar revenues, but not revenues received from the sale of their goods and services) remains the main resource for SONPOs, its share was about 65% of total revenues (for comparison: 75% in 2017). Moreover, there is a differentiation among the regions of the VFD: for example, in Perm Krai the ratio of external/internal sources is approximately 54/45%. However, this aspect of the functioning of SONPOs needs a more thorough

Table 1. Structure of the spheres of SONPOs activities in the Volga Federal District in 2021

Scope of activity	Total for the Volga Federal Disctrict	
	Number of SONPOs	Share of the total number of SONPOs
Activities in the sphere of culture, sports, recreation and entertainment	3506	14.1%
Education	2791	11.2%
Health and social services activities	1654	6.7%
Other types of services	13459	54.2%
Note: the table does not include areas of activity in which the number of SONPOs is less than 1654 units. Source: Unified Interdepartmental Statistical Information System. Available at: https://www.fedstat.ru/		

[2] On approval of priority areas of activity in the sphere of public utility services: Decree of the President of the Russian Federation of August 8, 2016. no. 398.

analysis, which is beyond the scope of the article and could be the subject of future research. At the same time, the fact that SONPOs rely to a large extent on grant support provided sufficient grounds for referring to the data of the Presidential Grants Foundation, one of the main operators of financial support to the third sector.

In order to identify the specific effects of the activities of SONPOs for the location territory, we carried out a content analysis of the projects supported by the Presidential Grants Foundation, submitted in 2022 from the regions of the Volga Federal District. Quantitative indicators and volumes of financing in the regional context are shown in *Table 2*.

We should note that according to the data presented in Table 2, the amount of own foundations invested by SONPOs to implement projects is 44%. In the short term, this means that in fact they are also invested in solving local problems of citizens. In the long run, as we will show further, this can be expressed in a whole range of multiplicative effects for the regional economy.

The content analysis of applications revealed that the predominant area of activity of SONPOs in the regions of the VFD are social service, social support and protection of citizens; the second most important is the protection of citizens' health and promotion of healthy lifestyles. The third priority, depending on the region, was education and science or family support projects (*Tab. 3*).

The results of a detailed content analysis of the projects indicate that the main target audience of SONPOs are socially vulnerable categories of the population: low-income families with children, the disabled and the elderly. Accordingly, projects are implemented either to provide them with in-kind assistance (in the form of provision of food or stuff), or focus on solving problems of citizens' socialization (patriotic education of children, involvement of the disabled and the elderly in social and labor activities, creating conditions for getting out of a socially difficult situation and improving the quality of life). A noticeable trend, reflecting the state's influence on the determination of areas of activities of SONPOs, was the fact that this year a significant part of the projects that received support under a special grant competition of the Foundation is aimed at providing various assistance to citizens who are in a difficult life situation due to the conflict in Ukraine.

Table 2. Quantitative characteristics of the projects supported by the Foundation in 2022

Region	Number of supported projects	Grant volume, rubles	Co-financing volume, rubles
Republic of Bashkortostan	175	204635006.9	163287479.9
Kirov Oblast	36	59695098.62	44795745.7
Mari El Republic	20	37465125.22	18895093
Republic of Mordovia	41	48337340.64	40807011.06
Nizhny Novgorod Oblast	94	259711940.7	193710365.9
Orenburg Oblast	48	78247423.83	65049552.33
Penza Oblast	32	93196393.99	90233715.51
Perm Krai	78	138605416.1	166508377.1
Samara Oblast	146	290884796.8	221621101.7
Saratov Oblast	58	103591928.1	58113145.41
Republic of Tatarstan	98	192308118.5	145704867.3
Udmurt Republic	91	129008666	111782162.7
Ulyanovsk Oblast	61	81524522.8	54783511.93
Chuvash Republic	22	41015257.71	25299701.5
Total for the Volga Federal District	**1000**	**1758227036**	**1400591831**
Own compilation according to: https://президентскиегранты.рф			

Table 3. Prioritization of SONPOs activities, share of the total number of SONPOs in % (based on 2022 data)

Region	Activity areas							
	Health protection	Environmental protection	Youth projects	Education	Family support	Civil society development	History preservation	Social service
Republic of Bashkortostan	17.1	1.7	3.4	16.6	12	2.9	5.7	33.1
Kirov Oblast	5.6	11.1	11.1	22.2	13.9	5.6	8.3	19.4
Mari El Republic	40	5	-	10	10	5	5	25
Republic of Mordovia	24.4	-	14.6	2.4	19.5	7.3	7.3	22
Nizhny Novgorod Oblast	19.1	3.2	5.3	13.8	11.7	2.1	11.7	25.5
Orenburg Oblast	12.5	4.2	8.3	6.3	12.5	2.1	12.5	35.4
Penza Oblast	25	6.3	-	12.5	12.5	6.3	6.3	31.3
Perm Krai	19.2	10.3	9	10.3	6.4	3.8	7.7	29.5
Samara Oblast	21.2	6.8	8.9	6.8	15.1	6.2	6.2	24
Saratov Oblast	22.4	3.4	5.2	-	19	3.4	15.5	27.6
Republic of Tatarstan	15.3	2	8.2	12.2	13.3	4.1	10.2	28.6
Udmurt Republic	16.5	1.1	9.9	31.9	4.4	1.1	12.1	17.6
Ulyanovsk Oblast	23	16.4	4.9	13.1	6.6	3.3	9.8	23
Chuvash Republic	13.6	4.5	4.5	13.6	13.6	4.5	18.2	18.2

Own compilation according to: https://президентскиегранты.рф
Notation (full name of the grant area):
protection of citizens' health, promotion of a healthy lifestyle; environmental protection and protection of animals; support of youth projects, the implementation of which covers the activities provided for in Article 31 of the Federal Law 7-FZ, dated January 12, 1996 "On nonprofit organizations"; support of projects in the field of science, education, enlightenment; support for family, maternity, paternity and childhood; development of civil society institutions; preservation of historical memory; social services, social support and protection of citizens;
Notes: 1) three priority directions for the region are highlighted.
2) directions with limited participation of regions, the share of which is less than 5% are not included in the table.
Own compilation according to: https://президентскиегранты.рф

Taking into account the research goal, the question arises about the results of the projects implementation and the possible socio-economic effects for the region stated by the SONPOs. The content analysis of the projects revealed that the majority of SONPOs define them in terms of beneficiaries, which are the target audience (*Tab. 4*).

On the one hand, it is obvious that the specifics of the activities of SONPOs determine the focus of their employees on the social significance of projects. The implementation by SONPOs of the functions of an intermediary in the provision of social services, their proximity to the population explains focusing on a point solution of the problems of the target audience. On the other hand, dealing only with the local problems does not allow SONPOs to work out a long-term development strategy, creates a situation of "patching up holes". In our opinion, this is one of the objective reasons for the lack of an effective mechanism of intersectoral cooperation to systematically solve existing socially significant problems in the regions.

Table 4. Presentation of SONPOs on the results of the implementation of supported projects (examples, sample, based on 2022 data)

Direction	Effect/Result
Social services, social support and protection of citizens	
Support for refugees	Providing refugees with seasonal clothing. In the framework of the project we will provide clothing assistance for at least 1,500 appeals. The average estimate of the cost of assistance received for each appeal will be 3,000 rubles (*For the Good, the system of providing refugees with seasonal clothing. Penza Oblast*)
Support for the poor	The result of the work will be the solution of family problems, which will lead to increased material well-being, increased parental and social competence, conflict resolution, and ultimately a higher start in life for children in these families *(Professional Support for Families in Difficult Situations. Nizhny Novgorod Oblast)*
Support for people with disabilities	Creating a favorable environment for social adaptation and self-realization of deaf and hard of hearing people through inclusion in a variety of activities *(A Home Where We Are Heard. Inclusive playground for the deaf and hearing impaired in Kirov. Kirov Oblast*)
Protecting the health of citizens, promoting a healthy lifestyle	
Sporting events	The most expected results of the project: the number of sports activities at least 2 per month, the number of participants in sports activities at least 35 people, the number of local residents engaged in Nordic walking at least 10 people (*A Platform for Play, Sport and Health for Rural Residents! Bashkortostan*)
	Increasing people's physical activity, contributing to an increase in active longevity and life expectancy of the elderly (*Sport in Every Home. Mordovia*)
Tourism development	Creating conditions for social adaptation and versatile rehabilitation of visually impaired people through adaptive physical education, sports and tourism by organizing swimming training, rafting on the river, thematic hiking tours and educational activities *(Swimming and Tourism – the Best for Life Motto. Mari El*)
Support for projects in science, education, and enlightenment	
Additional education for children	Increase the number of students in one year of the project by 250 people to the basic number of recipients of educational services due to the introduction of new and adjacent to each other multi-age studios-workshops. Accordingly, there will be an increase from 3.1% to 4.7% of the total number of children in the city enrolled in our organization's supplementary education programs and from 6.6% to 9.8% of the target number of children enrolled in these programs (*Theatrical and Creative Workshops "Tochka+", Udmurtia*)
Preservation of traditional culture	As a result of the project, at least 35 families will get acquainted with the cultural traditions of choral singing, and the image of a large family will be popularized. The project participants will improve their vocal skills, psycho-emotional background, and their knowledge of cultural traditions (*Musical Evenings in the Big Family. Samara Oblast*)
Support for family, maternity, paternity and childhood	
Support for people with disabilities	To improve the quality of life of families who are raising a child with disabilities by involving 100 parents in the habilitation process, increasing parental competence, including assistance in creating a developmental and habilitation environment, and including them in the habilitation process, in order to achieve the most effective and long-lasting habilitation results in children (*We Are Coming to You! Tatarstan*)
Support for foster families	Promoting comprehensive support for foster families both through training and through varied recreational activities and activation of inner potential, expanding new opportunities for a supportive environment for foster families (*Expanding Horizons: New Opportunities for a Supportive Environment for Foster Families. Saratov Oblast*)
Own compilation according to: https://президентскиегранты.рф	

In order to address the identified limitations in the next section of the article we will highlight the possible socio-economic effects of the activities of SONPOs for the territory of location.

Conceptual substantiation of the potential multiplying effects of SONPOs activities for the region's economy

As our analysis has shown, the priority areas of activities for SONPOs in the VFD are the provision of services in pre-school and additional education, health care, social services and social support to the population. Below we will briefly present the range of socio-economic effects obtained for the region as a result of the functioning of SONPOs in the above sectors of the economy.

Education system in the region

Nowadays Russia is characterized by strong regional differentiation in the availability of preschool education, especially for children under the age of three: the maximum value of the indicator in 2021 is recorded in the Ural Federal District (36.8%), the minimum – in the North Caucasian Federal District (15%). In the Volga Federal District only 29.6% of children under the age of three are provided with places in preschool institutions (PI). There are more than 17% differences throughout the district: the leader is the Perm Krai (38.3%) and the outsider is the Saratov Oblast (21.2%). According to data for 2021, one hundred percent of children aged 3 to 6 in the VFD have preschool institutions only in the Udmurt Republic, while almost 15% of children in the Saratov and Orenburg oblasts do not have such an opportunity[3]. The unresolved problem has a number of negative socio-economic consequences for the population and the economy of the region. Thus, according to studies, more than 36% of women note the presence of young children (preschool age) as a barrier to participation in public production, professional and social development (Kolesnikova, Maslova, 2019). In addition, the lack of places in preschool institutions reduces the opportunities for secondary socialization of children. A particularly difficult situation arises in low-income families, large families, and families with persons with disabilities. Partial reimbursement of parental fees for children in preschool institutions (and even more in private kindergartens) is difficult for them (Abankina, Filatova, 2018, p. 231). In addition, the specialization of women in the accumulation of family capital (in G. Becker's terms) as a result of the time concentration on the care of children limits their ability to returning to the labor market and, consequently, leads to a depreciation of human capital (in G. Becker's terms – market capital). On this basis secondary inequality may form, limiting the quality of human capital of children in such families. For example, it has been empirically proven, that children from families in a less favorable socio-economic situation demonstrate less significant academic success (Uvarov, Yastrebov, 2014, p. 126).

A similar situation is observed in the sphere of additional education. According to the National Research University Higher School of Economics, 44% of children not involved in additional education programs are children from families with low levels of education and income[4]. In addition, the extent of children's involvement in additional education differs significantly in urban and rural areas. As a result of the lack of a network of specialized institutions in rural areas, the supply of supplementary education services is often limited to schools.

One of the main reasons for the current situation is that in Russian Federation constituent entities, the main share of budget expenditures for additional

[3] Key indicators of preschool education in the Russian Federation. Available at: https://rosstat.gov.ru/statistics/education

[4] Kosaretskii S.G., Frumin I.D. (Eds.). (2019). *Additional Education for Children in Russia: Unified and Diverse*. HSE Publishing House. Moscow. P. 81.

education of children falls on the local budgets, and since it is not covered by guarantees of free and public availability, its financing is carried out on a "residual principle"[5].

Meanwhile, the activities of preschool and additional education institutions represent a special environment of socialization and create conditions for the acquisition of various social skills, which then influences the sustainability and quality of human capital of specific individuals and, as a consequence, the human capital of the region as a whole (Ivanyushina, Aleksandrov, 2014; Pavlova, 2020). Mastering social norms, values and rules determines the further behavior of an individual, their attitude toward society, forms the worldview, which is the basis for the formation of the region's social capital (Churekova, Puranen, 2017).

It should be noted that the importance of these education subsystems is realized at the state level. The May Presidential decrees[6] and a number of other normative legal documents provide for the achievement of one hundred percent accessibility of preschool education[7] and set the task to increase the coverage of children from 5 to 18 years old with additional general education programs[8]. At the same time, it is obvious that the government "works" for the average consumer, and these problems, as we showed above, require targeted intervention, taking into account the individual needs of families. The participation of SONPOs in this area will reduce government costs[9] and help to reduce inequality in access to preschool and additional education services in terms of both financial and space limitations.

Health care system

Health is one of the key resources of social production. At the same time, health care is among the areas of great concern for experts (Ivanov and Suvorov, 2021). The growing demographic burden (by 133% from 2005 to 2020 in the country) and the increase in the number of people over the working age (by 4.8 p. p. from 2005 to 2020) lead to significant socio-economic consequences. According to Rosstat forecasts, in 2035 average life expectancy will increase to 79.1 years (according to the average scenario)[10]. At the same time, the overall morbidity of Russians is steadily increasing, which is due to population aging and health deterioration[11].

According to estimates, out of the total number of terminally ill citizens in Russia, only 15% of those in need of palliative care (PC) receive it, which corresponds to the world average (Fadeeva, 2019, p. 111). However, it should be taken into account that 78% of those in need of PC live in low- and middle-income countries[12]. It is known that the Russian Federation is classified by the World Bank as a middle-income country[13] by the end of 2021, and its real income has a negative dynamic at present.

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[12] Palliative care. A vital service with clear economic, health and social benefits. Available at: https://www.who.int/ru/news-room/fact-sheets/detail/palliative-care

[13] World Bank country classification by income level. Available at: https://blogs.worldbank.org/opendata/new-world-bank-country-classifications-income-level-2022-2023

Population aging forms new challenges for institutions (pensions, employment, health care, etc.) and requires additional mechanisms to support senior citizens by creating a system of geriatric care (Chereshnev, Chistova, 2017; Dobrokhleb, 2018). The results of a Canadian study showed that the last year of a person's life accounts for a quarter of the total costs of medical services[14]. The organization of palliative care allows for a more efficient and cost-effective use of health care resources by reducing the cost of care for people with life-threatening chronic illnesses and transferring patients from hospital-based to outpatient palliative care. For example, research indicates that starting palliative care for patients within three days of admission to the hospital significantly reduces costs to the medical institution (May et al., 2018).

The development of a public health intervention system is a necessary preventive measure that can reduce the burden on the health care system as a whole and the organization of long-term care in particular (Selezneva et al., 2022, p. 9). However, according to experts, the number of citizens who lead a healthy lifestyle has been decreasing in Russia over the past two years, and in 2021 their share will be just over 7%[15], which is lower than the value set by the national project "Demography" (12%). Researchers believe that the negative trends are related to the low-income level of the population, highlighting that the consequences of the Corona crisis may cause an increase in morbidity rates (Pruel, Gradusova, 2021). As we pointed out in earlier publications (Bazueva, 2015), this will have negative consequences at all levels of the socio-economic system, for example: an increase in the direct cost of medical care, an increase in indirect costs, a decrease in GDP caused by lost work capacity due to illness, absence of people at work and/or reduced productivity, an increase in social tensions and instability in society, a reduction in income for businesses and households, a decrease aggregate return on investment in human capital, etc. However, despite the importance of health as a strategic resource of the national economy, in Russia there is still no unified system of health protection, including measures for prevention and promotion of healthy lifestyles[16].

Activities aimed at improving the quality of life, which forms the prerequisites for a healthier lifestyle, are implemented on a point-by-point basis, for certain categories of the population. For example, the Action Plan ("road map") on improving the quality and availability of palliative care provides for achieving the value of 90% of all those in need of palliative care by 2024[17]. The Action Plan for the implementation of the strategy for the support of senior citizens until 2025 also announced an improvement in the organization of medical care for senior citizens, including the introduction of a program for the prevention of cognitive disorders[18]. At the same time, the government is aware of the limitations of its ability to quickly and fully cover elderly citizens with these services, in this regard, within the framework of the national project "Demography" on a competitive basis from the federal budget since 2020, subsidies have been provided to private organizations for providing medical and social assistance to elderly citizens in 15 pilot regions[19]. In general, to fulfill

[14] Palliative care. A vital service with clear economic, health and social benefits. Available at: https://www.portailpalliatif.ca/Assets/Economics-of-Palliative-Care-Final-EN_20170320114419.pdf

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[18] Decree of June 23, 2021, 1692-p. Available at: http://government.ru/news/42628/

[19] Decree of January 27, 2022, 97-p. Available at: http://government.ru/news/44425/

this social order, the government has developed a particular order of interaction between medical organizations and social service organizations with public associations and other NPOs carrying out activities in the field of health care[20]. In 2021, according to Rosstat, SONPOs provided services in health care to about 29 thousand people; in the field of sports (this is the section that usually includes organizations involved in the formation of a healthy lifestyle) to 67 thousand people[21]. At the same time, the share of those in need of daily care due to limitations caused by chronic diseases is 29.4% of the Russian population (Selezneva et al., 2022, p. 40). Consequently, the potential of SONPOs is not fully exploited and there is an opportunity to increase their participation in solving these problems. An increase in the volume and range of services provided by SONPOs could substantially reduce inequality of opportunity in shaping the health capital of these population groups.

Social service system

The aging and the growth of disability in the population leads to the need to public spending on the provision of long-term care for citizens (Natsun, 2019). Currently in Russia, the demand for such services is satisfied by only 20%[22]. The low-income level of the population limits the possibility of full reimbursement of such costs.

The currently forming systems of long-term care and social support are aimed primarily at supporting the elderly population (Kolosova, Gushchina, 2021). At the same time, 93% of the total number of Russians living below the poverty line are working-age citizens and children under 16 years of age[23]. The targeted approach to social support and assistance declared by the Russian government has not actually been achieved (Usova, Grischuk, 2019). As a result, extremely high indicators for the national economy concerning the number of citizens in need of social support remain. In terms of population coverage, the existing system provides quite high indicators (65% coverage of the Russian population as a whole and 84% coverage of the low-income population), but the effectiveness of these measures is, according to expert estimates, on average 25%[24]. This acts as a factor in destabilizing the socio-economic situation in the country and its regions, fragments the social structure of society, and weakens the foundations of social solidarity by excluding vulnerable groups from normal social life (Zubova, 2017; Ilyin, Morev, 2022).

It is also possible to strengthen the targeted support of those in need of social assistance through more active involvement of nonprofit sector organizations, which, according to our analysis, are currently working in this direction on an unsystematic basis in a limited range of socially significant tasks. The potential of SONPOs is not used to the fullest extent in one of the preferred forms of living arrangements for citizens in need of long-term care – accompanied living, which ensures that citizens remain in a habitual and favorable social environment for them. At the same time, their independence and autonomy in the realization of basic life needs (organization of household, leisure, communication and social connections) are supported, and the skills necessary

[20] Available at: https://minfin.gov.ru/ru/press-center/?id_4=37821-k_aprobatsii_sotsialnogo_zakaza_prisoedinilis_novye_regiony; The decree of May 31, 2019, 345н/372н. Available at: https://docs.cntd.ru/document/560482941

[21] Number of people who have received social services in 2021. Unified Interdepartmental Statistical Information System. Available at: https://www.fedstat.ru/indicator/58621

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for living at home are developed[25]. Intensification of the participation of SONPOs in the functioning of the long-term care system will be a factor in its enhancement, which will improve the overall health of citizens, their psychological well-being, reduce the likelihood of depression (Brimblecombe et al., 2018), reduce the amount of demand for hospitalization (Feng et al., 2020), prolong life (Choi, Joung, 2016).

Let us systematize the possible socio-economic effects of the impact of SONPOs on the region's economy considered in this and the previous paragraphs (*Tab. 5*).

The presented economic effects, in particular with regard to the increase in the level of incomes of the population, require some clarification. The actual data do not provide direct evidence of the impact of the activities of socially oriented nonprofit organizations on the growth of citizens' income, but we take into account different forms of assistance from SONPOs (in-kind, resource, technical, financial support), which allows to redistribute items of spending of the family budget, to give more freedom of choice.

On the one hand, the socio-economic effects of SONPOs activity presented in Table 5 emphasize the importance of their development for the regional economy, on the other hand, they provide a systemic view of the potential opportunities from SONPOs activitiy, if they are carried out professionally, on a systematic and long-term basis for the territory of location. In addition, the effects indicate that the nature of SONPOs activity is not only socially important, as emphasized by the authors of existing studies and representatives of SONPOs, authorities and businesses. This, in our opinion, may form additional incentives for interested economic agents to create institutional conditions for the development of NPOs in the Russian Federation.

Table 5. Systematization of the potential effects of SONPOs activities on the region's economy

Economic effects	Social effects
Education system	
1) growth of paid employment; increase in revenues to the Social Insurance Foundation of the Russian Federation and the territorial foundation of compulsory medical insurance; 2) growth of income of the population; reduction of the poverty rate; 3) increased efficiency of the use of women's human capital; improved quality of the region's human capital.	1) diversity of children's socialization; 2) growth of the quality of children's human capital; 3) leveling of gender discrimination of women; 4) increasing the quality of the region's social capital.
Health care system	
1) increase in GDP and GRP; 2) effective use of human capital, increasing the level of its return; 3) increasing the efficiency of the use of budgetary foundations.	1) improving the quality of life of the population; 2) increasing the duration of active life; 3) improving the quality of life of patients and their families.
System of social services	
1) reduction of state costs for the system of social security and social services; 2) reducing the demand for hospitalization when long-term care cannot be provided; 3) increase in the family income level; reduction of poverty and social inequality.	1) defragmentation of the society's social structure; 2) increasing the level of social solidarity; 3) improving the quality of life of the people in need of long-term care and their families; 4) increase of life expectancy.
Source: own compilation.	

[25] Annual report for 2021 on the implementation and assessment of the effectiveness of the state program of the Russian Federation "Citizens' Social Support". Available at: https://mintrud.gov.ru/docs/2232

Conclusion

First, the analysis of conceptual approaches to explaining the causes of the emergence of NPOs (the failure theory and the interdependence theory) has established that the financial mechanisms used by the state to support nonprofit organizations influence the size of the third sector (the interdependence theory) and enable it to establish priorities for their activities in areas where the supply of public goods in conditions of limited resources and bureaucratized social system is much less than demand (the failure theory).

Second, based on the content analysis of the projects supported by the Presidential Grants Foundation from the VFD regions, it was found that the activities of SONPOs are focused on providing a range of services in the education system, health care and social support, which are of priority importance for forming the basic needs of the population. The possibility to meet these needs in the state in full regardless of the territory of residence and taking into account the population's individual needs is limited.

Third, when evaluating the effectiveness of their activities, representatives of SONPOs focus on their social significance, using mechanisms of point solutions to the current problems of the target audience. At the same time, the contribution of SONPOs' own resources to solving acute social problems in the regions of location remains underestimated.

Fourth, the range of potential socio-economic effects from the activities of SONPOs has been identified, under the condition of their implementation on a systemic and long-term basis, which broadens the idea of their significance for the economy of the region. In our opinion, this may become a starting point for the creation of institutional conditions for the development of NPOs in the Russian Federation.

At the same time, it should be emphasized that we certainly understand that the contribution of the socio-economic effects of the activities of SONPOs indicated in the article for the territory of location is not as significant as the contribution of other sectors of the economy. However, it should not be underestimated, especially considering the current trends associated with the need to transform the dominant models of economic development and the formation of conditions for inclusive economic growth, leveling the inequality of potential opportunities for vulnerable categories of the population. Modeling the system of management of specific regions of the Russian Federation based on the creation of institutional conditions to increase the contribution of SONPOs in their balanced development determines the prospects for future research of the authors.

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Employee Environmental Responsibility: Empirical Analysis and Typology

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Abstract. Environmental responsibility of employees is a key prerequisite for achieving environmental goals of an organization and improving its environmental performance at the managerial and executive levels. Forming environmental responsibility in employees requires an understanding of the mechanisms and drivers of individual environmental behavior that may differ considerably, depending on the environmentally significant professional and personal qualities that encourage their conscious manifestation at work. The purpose of our study is to provide theoretical and empirical substantiation of the types of employee environmental responsibility. Methodological basis for our work includes the concept of individual environmental responsibility and environmental behavior of employees. The empirical base of the study is formed by the data from a survey of employees at Russian pro-environmental enterprises of the oil and gas industry. According to the results of the cluster analysis of the data obtained, we reveal

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characteristics for the role models of environmental behavior and identify four types of employees: eco-conservatives, eco-pragmatists, eco-activists, eco-pro-activists, differing in the awareness and acceptance of the company's environmental values, compliance with environmental requirements in work activities, interest in participating in additional environmental activities and initiative in addressing environmental issues. The results obtained can be used to study the nature of individual environmental behavior and environmental responsibility; they can be also useful for companies in developing and improving human resource management policies and practices aimed at employees' environmental development. The main limitation is the fact that we have chosen major oil and gas industry enterprises as the object of research, and they have a highly developed environmental policy, environmental management and the practice of environmental development of personnel; this narrows the significance of the results obtained within one industry, not allowing us to draw generalized conclusions and give practical recommendations.

Key words: employee environmental behavior, required environmental behavior, voluntary environmental behavior, employee environmental responsibility, environmental competence, environmental engagement.

Introduction

The priority of environmental protection and conservation of natural resources has been a global trend in recent decades encouraging companies to include environmental safety and responsibility issues in development strategies as significant factors promoting competitiveness, investment attractiveness and trust of stakeholders (Dummett, 2008; Wang, 2016). Companies' experience proves that sustainable long-term environmental results are achieved through the consolidation of environmental activities and the human resource management system (HRM), which ensures increased competence, awareness and involvement of personnel in solving environmental problems in every business process and workplace (Bunge et al., 1996; Del Brío et al., 2007; Jabbour et al., 2010; Potrich et al., 2019).

In recent years, the understanding of the critical role of personnel in the implementation of the environmental strategy of an organization brings to the fore the concept of employee environmental responsibility (EER), which is determined by personal internal motives and attitudes in relation to environmental problems and is reflected in various models of employee environmental behavior. Understanding the role models of employee behavior and their manifestation in real actions is an important condition for achieving the company's environmental goals (Ramus, Killmer, 2007; Benn et al., 2015; Boiral et al., 2015). Currently, various typologies of employees are presented in the literature depending on the presence or absence of individual qualities necessary for performing environmentally oriented activities, but not taking into account the relationship of these qualities or behaviors with employee environmental responsibility, which limits the understanding of organizational and personal mechanisms of its formation in a real organization. In this regard, the purpose of the research is to empirically substantiate and identify the types of employee environmental responsibility.

Literature review

In modern science and practice, environmental responsibility is a widespread concept associated with conscious and careful activity of organizations and people in relation to the environment. On a personality level, environmental responsibility is considered from the standpoint of individual attitudes and obligations (moral responsibility),

which are based on ideological attitudes, environmental values, human knowledge and experience (Ponomarenko, 2012; Kraynik, Sergazina, 2018; Babu et al., 2019). At the same time, individual qualities of an environmentally responsible person manifest themselves in the form of behavior aimed at obtaining environmentally favorable results (Eden, 1993; Hemphill, Laurence, 2018; Norton et al., 2015). When it comes to an employee, environmental responsibility means an understanding of environmental problems, the ability to solve them, and behavior aimed at reducing and preventing negative environmental impacts when performing professional duties.

The employee's ability to solve environmental problems is ensured by their environmental competence, which represents a set of environmental values, knowledge, skills and abilities of eco-oriented activities (Subramanian et al., 2016; Cabral, LochanDhar, 2020). The measure of environmental responsibility is employee environmental behavior (EEB), based on a sense of personal interest, determined by the degree of employee involvement in solving environmental problems and achieving significant results in the field of environmental protection (Eden, 1993). Employee environmental behavior combines behavior providing for the fulfillment of mandatory environmental requirements related to the environmental goals and indicators of an organization (mandatory or regulatory EEB), and behavior through which employees show willingness to cooperate with their company and its members demonstrating behavior in the workplace that benefits the natural environment (voluntary EEB) (Daily et al., 2009; Boiral, Paillé, 2012; Norton et al., 2015; Arzamasova, Esaulova 2021).

Thus, employee environmental responsibility can be defined as a form of environmentally significant behavior, manifested in the conscious voluntary involvement of employees in solving company's environmental problems, based on their internal attitudes and values, and expressed in the desire to implement effective environmentally oriented professional activities through the practical application of environmental-oriented knowledge and skills[1].

Employee environmental responsibility is formed by two interrelated components (*Fig. 1*):

– *environmental competence* is a set of employee's environmental values, knowledge, skills and experience in an environmentally-oriented professional activity;

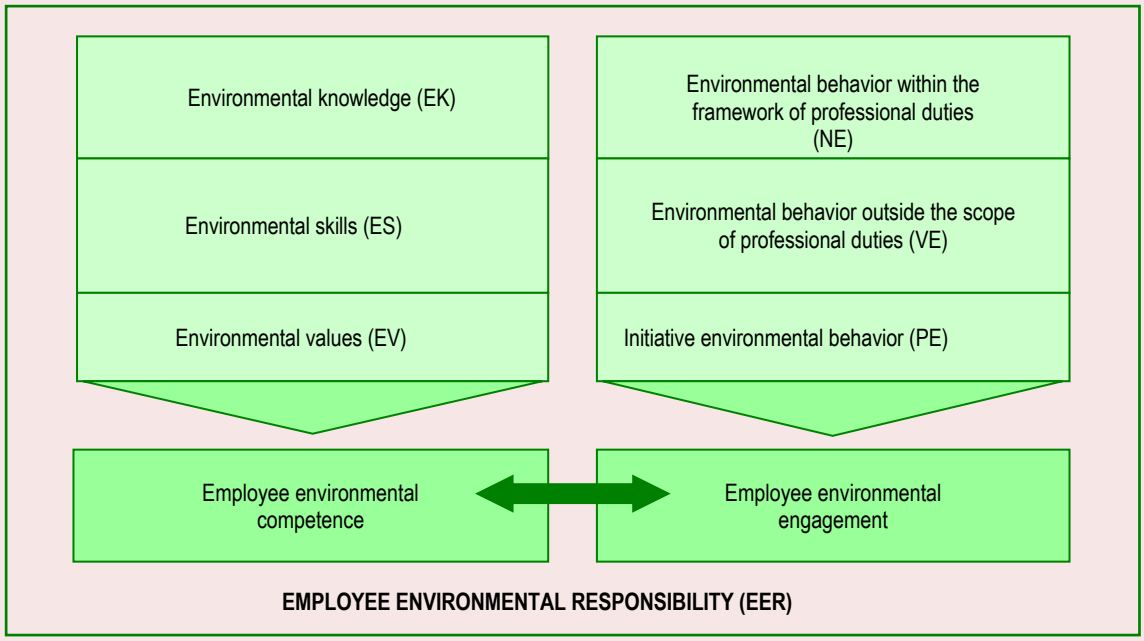
– *environmental engagement* is the active participation of employees in the implementation of environmental policy and goals of the organization, manifested in the voluntary contribution to the achievement of these goals and the desire to make a positive contribution to environmental initiatives and innovations.

The multicomponent nature of this scheme suggests that employee environmental responsibility can manifest itself in various forms of employee environmental behavior. Defining these forms becomes an important research task, since it will allow substantiating the relationship between employee environmental behavior and employee environmental responsibility, which, in turn, will be useful to select and implement appropriate personnel management practices in environmentally oriented companies.

To date, the scientific literature presents several typologies but, unfortunately, they have not yet been empirically supported. In particular, H. Opatha and A. Arulrajah described three types of employees: "defenders", "non-polluters", "activists" (Opatha, Arulrajah, 2014). There are extended classifications where, in addition to the demonstrated behavior, employee psychological motives are taken into account when solving environmental problems.

[1] Arzamasova G.S. (2021). Formation of eco-integrated human resource management model: Candidate of Sciences (Economics), thesis. Perm.

Figure 1. Employee environmental responsibility elements



Source: Arzamasova G.S. (2021). Formation of eco-integrated human resource management model: Candidate of Sciences (Economics), thesis. Perm.

For example, according to these characteristics, D. Ones and S. Dilchert distinguish "protective", "executive", "avoidant", "motivating" and "initiative" workers (Ones, Dilchert, 2012). Depending on the intensity of the manifestation of employee environmental behavior, high-intensity and low-intensity employees are distinguished (Ciocirlan, 2016).

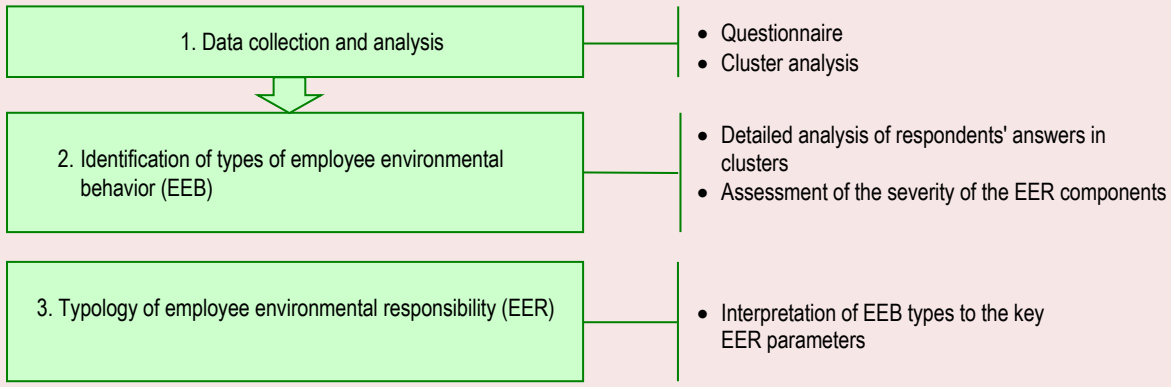
However, it is obvious that the classifications describe exclusively the employee behavioral differences in relation to ecology, whereas from the point of view of environmental management, it is not so much the formation of environmental behavior models that matters, as individual environmental responsibility, which, as we have justified above, is a complex structure combining professional knowledge, skills, attitudes, personal interest and environmental activities of employees. Within the framework of our research, the key criterion for building a typology of employees is the component expression degree of employee environmental responsibility: environmental competence as a basis for encouraging the manifestation of environmental behavior, and its real manifestation in the form of environmental engagement.

Research methodology

The general model of studying employee environmental responsibility included three stages (*Fig. 2*).

The study involved 1,522 employees of production and nonproduction units of three Russian oil and gas companies including managers, specialists and workers. The study was conducted in 2021 at enterprises that are among the major nature users and belong to socially responsible companies. The unifying criteria for the selection of research objects were the well-formed environmental management system, "open" environmental policy, recognition of employee significance in

Figure 2. Research general characteristics



Source: own compilation.

Table 1. Research sample characteristics

Option	Meaning
Gender	Men – 75%; women – 25%
Type of division	Employees of production departments – 78% employees of non-production departments – 21%
Work experience in the company	Less than 1 year – 4%; up to 5 years – 18%; 5 to 10 – 23%; more than 10 years – 56%
Age	Less than 25 years old – 4%; up to 35 years old – 33%; 36 to 45 years old – 32%; more than 45 years old – 31%
Education	General (school) – 3.7%; secondary vocational – 29%; higher – 67%; academic degree – 0.3%
Position	Managers – 17%; specialists – 39%; workers – 44%

achieving environmental results and application on an ongoing basis of personnel management practices aimed at increasing the competence and engagement of employees in environmental activities (environmental training, environmental performance assessment, development of corporate environmental culture, implementation of socio-environmental measures, etc.). The research sample volume is 10% of the total number of employees of the enterprises. Table 1 presents the sample characteristics.

We collected data by anonymous questioning of employees using our own questionnaire containing 19 questions-statements developed on the basis of indicators of the elements of employee environmental responsibility (see Fig. 1) including:

1) environmental competence includes three groups of indicators for assessing the knowledge (environmental knowledge – EK), activity (environmental actions – EA) and value (environmental values – EV) characteristics of an employee;

2) environmental engagement is represented by questions-statements to assess the level of:

– normative engagement (NE), which reflects the manifestation of employee environmental behavior within the framework of employee's job responsibilities;

– voluntary engagement (VE), which determines the employee's participation in additional environmental activities that go beyond the requirements of job descriptions and work instructions;

– potential engagement (PE), which reflects potential employee's readiness to solve environmentally significant tasks through the support and promotion of environmental proposals and innovations.

Table 2. Component indicators of employee environmental responsibility (fragment)

Variable	Index	Indicators
ECO-COMPETENCE	Environmental knowledge (EK)	An employee knows the measures necessary in their professional activity to prevent a negative impact on the environment and natural resource conservation
	Environmental values (EV)	An employee understands their personal responsibility for the impact of their activities on the environment
	Environmental action (EA)	An employee studies the information and weighs their actions in the workplace if they can lead to negative effects for the environment
ECO-ENGAGEMENT	Normative engagement (NE)	An employee fulfills the established obligations and environmental requirements for the professional activity
	Voluntary engagement (VE)	An employee on their own initiative takes part in environmental actions aimed at improving the environment
	Potential engagement (PE)	An employee shows interest and willingness to participate in working groups to address environmental issues
Source: own compilation.		

Table 2 presents the characteristics of the component indicators of employee environmental responsibility.

We carried out the assessment of the elements of employee environmental responsibility on a five-point Likert scale in values from 4.0 (the answer is "I completely agree") to 0 points (the answer is "I do not care"). We checked the validity and reliability of the questionnaire using Cronbach's alpha and the average variance extracted (AVE) indicators, whose values did not exceed the critical 0.7 and 0.5, respectively. Discriminant validity value according to the Fornell – Larcker criterion (AVE square root) exceeded the correlation coefficients of each variable. Thus, we can talk about the consistency and high reliability of the analysis tool.

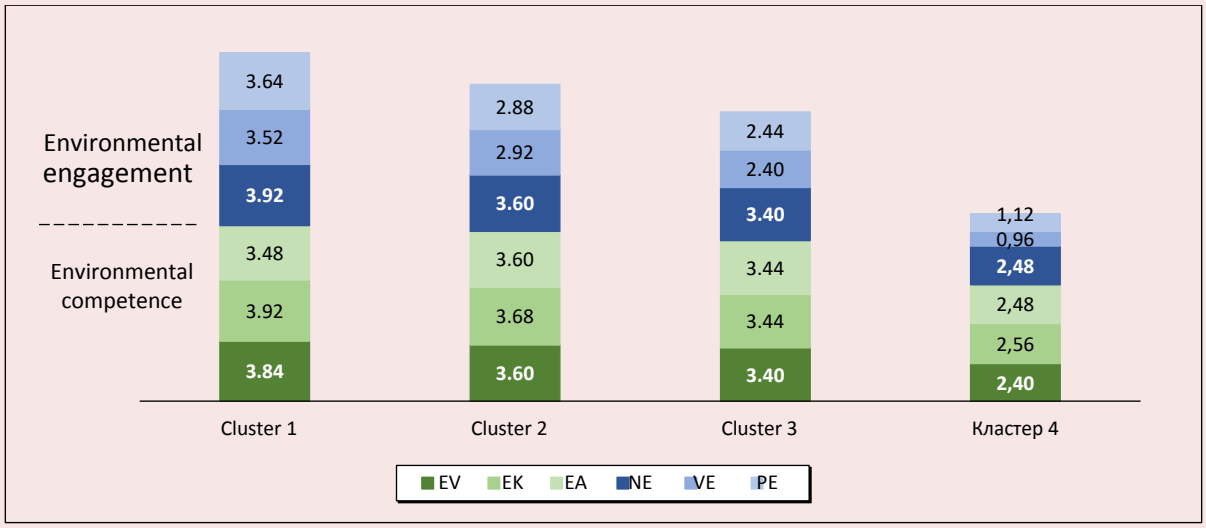
To identify employee groups, we used cluster analysis with the k-means method with preliminary allocation of the optimal number of clusters using the construction of a hierarchical model by Ward's method. We carried out cluster analysis using the SPSS Statistics software product. We implemented the characteristics of the role models of employee environmental behavior and employee segmentation by the type of employee environmental responsibility on the basis of a detailed analysis of respondents' answers to questionnaire questions and an assessment of average responses in clusters.

Results and discussion

Based on the survey results, we divided all 1,522 respondents into 4 clusters by the components of employee environmental responsibility. Belonging to clusters was checked in the range from three to five. We verified the reliability using F-test, the values of which show that the features used for clustering make a significant contribution to differentiation with the allocation of four clusters. *Figure 3* presents the results of the cluster analysis.

Cluster 1 united 34.8% of respondents who are characterized by a high level of environmental competence (97%) and a slightly less noticeable rate of environmental engagement (91%). These employees are distinguished by an equally high development level of all components of eco-competence (knowledge, values, skills of eco-oriented activities), which indicates the formation of the required individual qualities necessary to perform eco-oriented professional activity. This is also evidenced by the high level of regulatory engagement (98%). Representatives of cluster 2 (24.1% of respondents) are also characterized by a balanced high level of environmental competence

Figure 3. Cluster analysis results (average answers of respondents)



Source: own compilation.

in all three components (91%), but less noticeable eco-engagement (79%) than in cluster 1. These respondents strictly and timely fulfill their official duties (NE – 90%). The level of voluntary (VI) and potential engagement (PE) among employees of this segment was in the range of 73–75%, which confirms their readiness to participate in environmental programs and events, as well as to take initiatives with environmental effect. Respondents in cluster 3 (34.6%) show a lower level of environmental engagement (69%), while it is worth noting that this indicator is formed due to a significant decrease in voluntary and potential involvement (61 and 60%, respectively). This group of employees is also characterized by the availability of the necessary knowledge and skills to make proposals for improving environmental performance (eco-responsibility level is 83–86%). Cluster 4 united 6.5% of respondents with the lowest level of environmental competence (at the level of 62%) and engagement in environmental activities (38%).

Cluster analysis proved that the employee's role behavior is not related to the position or department specialization, since representatives of the four clusters are among all employee categories, both production and nonproduction services of the enterprise (*Tab. 3*).

Table 3. Cluster analysis results by employee categories

Classification	Employee category	Share in the sample, %			
		Cluster 1	Cluster 2	Cluster 3	Cluster 4
Position	Managers	45.8	30.5	21.8	1.9
	Specialists	27.8	34.8	30.9	6.5
	Workers	36.5	36.2	34.6	8.2
Type of division	Production	36.3	34.3	22.8	7.6
	Nonproduction	28.8	34.6	29.5	1.2
Source: own compilation.					

Summarizing the results of cluster analysis and respondents' assessments of the proposed questions on the components of employee environmental responsibility allowed identifying specific models of employee environmental behavior (EEB): conservative, pragmatic, active and proactive (*Tab. 4*).

According to the selected types of environmental behavior, we have identified four types of employees: eco-conservatives, eco-pragmatists, eco-activists, eco-proactivists (*Tab. 5*).

Eco-conservatives do not interested in the company's environmental activities, partly due to the fact that their job responsibilities require minimal eco-competence, and environmental indicators are not included in the performance assessment. Such employees show low commitment to the company's environmental values and goals, which can become an environmental risk factor due to a lack of understanding of the effects of their actions or inaction both in their daily work and in

Table 4. Employee environmental behavior models (EEB)

Conservative	*Pragmatic*
Passive attitude toward environmental responsibilities, activities and innovations, lack of interest in environmental activities and company's development	Strict compliance with environmental requirements within the framework of official and work duties, without delving into the essence and significance of these requirements, in order to achieve personal environmental results and company results
Active	*Proactive*
Conscious participation in the environmental life of the company, support for environmental changes and making suggestions for improving environmental protection activities	High initiative in the field of environmental protection, due to deep commitment to the company's environmental values, willingness to take responsibility for environmental results and act as "environmental leaders"
Source: own compilation.	

Table 5. Typology of employee environmental responsibility

Option	Eco-conservatives	Eco-pragmatists	Eco-activists	Eco-proactivists
Attitude to environmental values and company's activities	Neutral or indifferent	Adoption of environmental values at the level of pragmatic justifications (encouragement, reward, praise)	Share company's environmental values and strive for the best environmental results	Perceive company's environmental values as their own
Compliance with mandatory environmental requirements	Ignoring and violating (intentional and unintentional)	Execution in strict accordance with the requirements	Conscious responsibility, personal and collective initiative on environmental issues	
Environmental competence	Minimum, within the framework of professional activity requirements	Within the framework of professional activity requirements	General and specialized environmental competencies	
		Additional knowledge and skills related to the position or role	Competencies in related fields of professional activity, experience in solving specific environmental issues and problems	
Voluntary environmental activities	Avoid participation in additional eco-activities, do not show initiative	Take part in eco-enterprises and can take the initiative, provided that mandatory requirements are fixed or material incentives are provided.	Active participants of eco-events, initiatives within the framework of direct environmental responsibilities, can be members of working teams to solve environmental problems	Actively participate in eco-events and initiate their implementation, make proposals to improve the environmental performance of their work, work in related fields and companies, attracting colleagues
According to: Arzamasova G.S. Formation of eco-integrated human resource management model: Candidate of Sciences (Economics), thesis. Perm.				

a critical situation. Eco-pragmatists are employees, characterized by a high level of normative engagement. In order to attract employees of the second type to environmental activities that are not part of their professional duties, additional incentive measures are required or the transfer of participation in events to the plane of "mandatory" requirements. As a rule, employees with a pragmatic behavior type do not always see opportunities to improve their activities from an environmental point of view, but taking into account the necessary knowledge and skills, as well as a high degree of diligence, they can take the initiative provided additional incentives, primarily material. Eco-activists and eco-proactivists are the employees most interested in the environmental activities of the enterprise, who are ready to give their energy and strength to improve it. Eco-activists may need formal and informal support from the outside, expressed in financial incentives, support from management, engagement in working groups to solve environmental significant tasks, various forms of recognition of their contribution to achieving environmental performance (honor boards, media publications, etc.). Eco-activists can be considered as managers of environmental projects, working groups, representatives of the company at external eco-events. These employees, as a rule, act as drivers of environmental innovations in their departments and can be considered as environmental leaders.

Conclusion

In the wake of the growing interest in improving the environmental efficiency of business, the task of measuring and evaluating employee environmental responsibility, which ensures the real participation of employees in achieving the environmental goals of the organization, is rather relevant, but the least studied from a scientific and practical point of view. The presented study offers an empirically based typology of employee environmental responsibility, combining, on the one hand, the personal mechanisms of employee environmental responsibility, and on the other hand, their manifestation in real practical activities with an environmental effect. This approach allows forming new approaches to the study of the mechanisms and factors of formation of employee environmental responsibility, thereby contributing to the development of ideas about its nature and methods of its management.

From the point of view of practice, the results obtained can be applied by specialists in the field of personnel management to analyze employee environmental responsibility in order to develop appropriate HRM practices for the formation of eco-friendly behaviors and maximize the use of the "ecological" potential of employees in the context of the company's environmental policy and strategy.

Our study has a number of limitations. The survey was conducted at enterprises of one industry with a high level of environmental responsibility, a developed system of environmental management and practices of working with personnel, which, first, narrows the significance of its results within the framework of one industry; second, it is obvious that at enterprises with less developed environmental policy and environmental protection activities, there are other (rather borderline) types of employee environmental behavior.

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Impact of the COVID-19 Pandemic on the Consumer Market in Russia and China

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Abstract. For many decades, Russia and China have been major trade and economic partners, whose close and effective cooperation is of particular importance in the context of Western sanctions. New strategic guidelines of Russian-Chinese relations determine the scientific relevance and practical significance of studying the consumer markets of the two countries. It is especially important to study the features and trends of changes in consumer markets in the conditions of the epidemiological crisis. The purpose of this work is to analyze the impact of the COVID-19 pandemic on four areas of the consumer market in China and the Russian Federation: e-commerce market, luxury goods market, food delivery market and online education market. Studying the impact of crisis processes on the consumer markets of individual countries seems to be very relevant for the development of effective measures to overcome similar situations in the future. To achieve the research goal, we use methods of analysis and synthesis of statistical data. The research results prove that the COVID-19 pandemic has had a significant negative impact on the consumer market in Russia and China. A large-scale epidemiological crisis has led to deterioration in the material well-being and consumer opportunities of both countries. At the same time, the COVID-19 pandemic has also led to a number of positive changes in certain sectors of the consumer market in Russia and China: further rapid development of distance trading, growth of the goods delivery market, acceleration of the trend of online education development. Such positive trends will contribute to further information and innovation development, economic growth of Russia and China. The scientific

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novelty of the research is to identify the consumer market areas that have felt the greatest impact of the pandemic in terms of accelerating their development, as well as a comparative analysis of these areas in cross-country comparison.

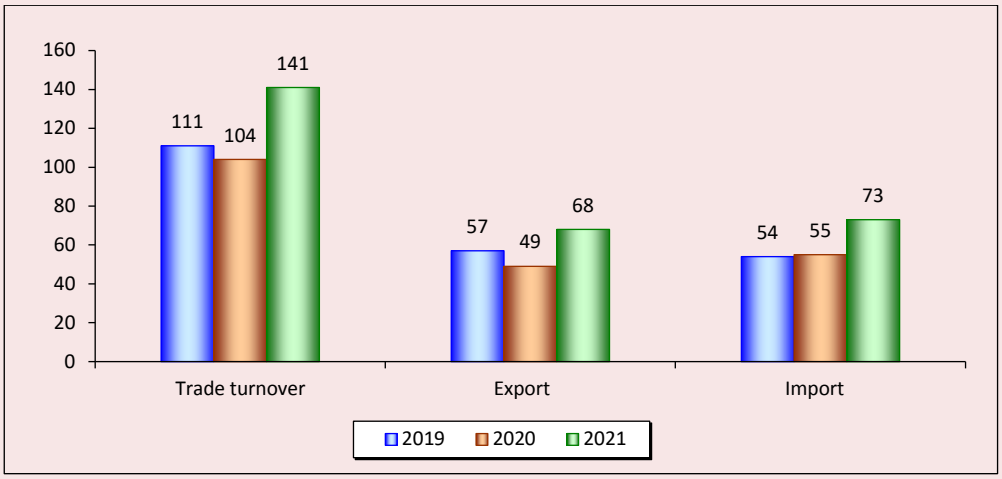
Key words: consumer behavior, economic digitalization, online retail, coronavirus pandemic, retail turnover.

Introduction

Relations between Russia and China – the largest states in the world – have a centuries-old history. Today, more than 30 agreements have been signed between the Russian Federation and the People's Republic of China, which contribute to the development of trade, economic and political cooperation. On July 16, 2001, an agreement on good neighborliness and friendship was signed, which marked the beginning of mutually beneficial long-term partnership relations between the Russian Federation and China (Nagornyi, 2015). Since 2010, China has become Russia's largest trading partner. According to the Federal Customs Service, China ranks first among the most important trading partners in the total volume of exports and imports of Russia. In 2021, compared with 2020, the trade turnover between the countries increased by more than a third and exceeded 140 billion dollars (*Fig. 1*). Russian exports to China increased by 38% in 2021 and exceeded 68 billion dollars, while imports from China increased by 33% and amounted to 73 billion dollars. Moreover, Russia and China intend to reach a trade turnover of 200 billion dollars by 2024. Russia supplies goods with a low degree of processing, such as non-ferrous metals, oil, wood, and China supplies light industry goods, high-tech engineering products, electrical engineering[1].

Under the conditions of Western sanctions, the relations of the Russian Federation with China are of great importance for replacing enterprises and

Figure 1. Structure of trade turnover between Russia and China in 2019–2021 (billion dollars)



Source: Rosstat data. Available at: https://rosstat.gov.ru/statistics/incomparisons

[1] Russia and China – strategy of interaction – the geopolitical strategy of the Russian Federation. Available at: http://www.worldpolit.ru/index.php?option=com_content&task=-view&id=141&Itemid=55

companies that have left the Russian market. China is ready not only to export its final products, but also to create new jobs and localize its technologies in Russia. In addition, under the sanctions influence of the West, China will be able to fill the national market with high-tech equipment, machinery and vehicles, as well as other necessary goods (Madiyarova, 2022).

In June 2019, the Chinese President Xi Jinping and the Russian President Vladimir Putin signed a Joint Statement of the People's Republic of China and the Russian Federation on the development of a Comprehensive strategic partnership in a new era, which raised bilateral relations to a new level (Madiyarova, 2022).

The new strategic guidelines of Russian-Chinese cooperation determine the scientific relevance and practical significance of studying the consumer markets of the two countries. It is especially important to investigate the features and trends of changes in consumer markets in the context of the COVID-19 pandemic, which radically changed many socio-economic processes at the international and national levels, had a significant impact on the mechanisms of development and functioning of the consumer sphere.

Analysis of scientific publications on the research topic

The problems of the COVID-19 pandemic influence on the world economy, the socio-economic situation of individual countries, and the development of national consumer markets are of high scientific interest among Russian and foreign researchers. Numerous works of scientists are devoted to the study of various areas of functioning of the Russian and Chinese economies in the context of the pandemic.

The works (Minakir, 2020; Smotritskaya I.I., 2020, Li Zhimeng, et al., 2022) present variant calculations of economic and financial damage, estimate parameters of economic dynamics and changes in consumer behavior in connection with the restrictions imposed, and substantiate the principles, priorities and vectors of post-crisis economic recovery. In the joint study, the researchers characterize the state of business activity in the manufacturing and non-manufacturing sectors of the national economy, summarize the main measures of the anti-pandemic policy of the Chinese and Russian governments, examine the dynamics of functioning in the conditions of the COVID-19 pandemic offline spheres of the economy aimed at personal communication (tourism, catering, retail trade, transport, culture, entertainment), as well as online spheres involving human-computer interaction (online retail, express delivery, remote work, telemedicine) (Li Zhimeng, et al., 2022).

The scientific literature, devoted to studying the influence of the epidemiological crisis directly on the consumer market, pays significant attention to the consideration of such aspects as the formation of new patterns of consumer behavior, changes in the functioning of the food market in order to ensure food security, the development and mass dissemination of modern technologies and digital innovations in the field of consumption, and the transformation of the consumer lending market.

For instance, the works of E.K. Karpunina, N.N. Gubernatorova, T.G. Sobolevskaya, and M.D. Beletskii determine the pandemic effects that influenced the behavior of the Russian consumer. The authors systematize new patterns determining the nature of consumer behavior of Russians during the pandemic. The emphasis is placed on noticeable changes in the subjective perception of socio-economic processes by the population, a surge in consumer inflation expectations, which led to an increase in the share of food products in the general structure of consumption and intensive development of the FMCG segment of the e-commerce market, active use of free food delivery services and widespread use of non-cash payment instruments. The works substantiate the

impact of changing consumer behavior on the production and marketing activities of enterprises. The research determines the role of the state in overcoming the pandemic effects (Karpunina, et al., 2022). Changes in consumer behavior of Russians on the market in the pandemic are also characterized in the works of A.R. Ishniazova, S.A. Andronova, I.I. Yunusova. The studies note the focus of consumers on health-saving goods and environmentally friendly food, and substantiate the dependence of consumer market trends on the implemented strategies of citizens' behavior under the threat of the coronavirus infection (Ishniazova et al., 2021).

N.V. Gribova examines the dynamics and key trends in consumption of Chinese households, the main factors of consumer behavior of families, assesses the impact of the pandemic on the state and prospects of consumer demand in China. The consumer behavior model of Chinese households has its own characteristics and features and is constantly changing under the influence of various factors. The most important among them are the level of family income, demographic structure, consumer habits and preferences, as well as the widespread use of digital technologies. The pandemic and restrictive measures have had a negative impact on the income and consumer spending of households in the country. At the same time, they contributed to the formation of new consumer priorities, which, according to the author, will continue in the future and promote new consumption models in China (Gribova, 2021).

The research of Russian scientists (Zyukin, Reprintseva, 2022) also examines the impact of the pandemic and related changes in consumer behavior on the grocery retail market. We should also note that attention is focused on the functioning of the Russian consumer lending market, the analysis of factors that caused both the growth and the decline of the market under the influence of the pandemic, the assessment of dynamic changes in key indicators that determine the state of this economic sector (Glushchenko et al., 2020). In the work of a foreign author (Nuerzhada, 2021) devoted to the development of consumer loans in China, it is shown that in a crisis, consumer credit can increase effective demand and stabilize economic growth, while stimulating early consumption, thereby leading to a structural transformation of the economy.

In a large number of works, the topic of the development of e-commerce is touched upon. For instance, the studies (Rossinskaya, Mamayeva, 2020; Plotnikov, 2021; Revinova, Tretiakova, 2021) determine the influence of information technologies on the sphere of consumption in the context of the pandemic, justify the need to intensify the functioning of online trading platforms and services in order to increase the efficiency of interaction of market participants, and emphasize the high potential of online commerce for the Russian market of goods and services. The study of I.N. Dement'eva and Sheng Fangfu analyzes the state of online retail trade in China and Russia, presents a comparative analysis of the differences in the development of online consumption in the two countries in the context of modern socio-economic transformations. The paper proves that the coronavirus pandemic acts as a catalyst for the development of distance trading. The economic downturn against the background of the coronavirus, quarantine restrictions and the transformation of lifestyle and consumer behavior have contributed to a sharp and thorough transition to the use of the latest technologies in retail in China and Russia (Dement'eva, Sheng Fangfu, 2022).

In general, despite the wide range of problems raised in the works of foreign and Russian researchers, the insufficiently developed issues are those related to the assessment of the state and development of individual sectors of the consumer market of Russia and China in conditions of changing social reality under the influence of the global epidemiological crisis, which served as the basis for this study.

The purpose of our work is to analyze the impact of the COVID-19 pandemic on four areas of the consumer market in China and the Russian Federation: the e-commerce market, the luxury goods market, the food delivery market and the online education market. The choice of these four areas is resulting from the fact that the restrictions imposed on the population movement in Russia and China have led to the growth of distance services: not being able to move freely within urban spaces, the population of the two countries began shopping online more often, ordering food at home, and also using the services of online teachers. To achieve the goal of the research, we consider the following issues: how the pandemic affected the consumer patterns of the population of the two countries and why the change in consumer behavior led to the growth of the four selected market areas for research. We analyzed data for 2020 – the first half of 2022.

Research methodology and data resources

To solve the research tasks, we have used general scientific methods and techniques (dialectical method, statistical analysis method, generalization, systematization, comparison method).

The information and empirical base of the study includes official data of the Federal State Statistics Service (Rosstat), the National Bureau of Statistics of China, data from sociological research of the International Institute of Marketing and Social Research "GfK", the research agency in the field of e-commerce "Data Insight", the British audit and consulting and research companies "EY", "Euromonitor International", international consulting companies "McKinsey & Company", "Bain and Company", the world's leading consulting agency in the field of mobile Internet "IIMEDIA Research Group", the Moscow School of Management "Skolkovo", the Chinese company "China Youth Daily", the Russian Association for Electronic Communications (RAEC).

Research results

Changes in consumer behavior in Russia and China during the COVID-19 pandemic

Numerous studies show that the most important determinants defining consumer behavior and influencing the development of the consumer market are the population incomes and prices of goods and services. According to Rosstat, in the context of the pandemic, the real disposable income of Russians in 2020 decreased by 1.4%, while consumer spending decreased by 4.7%. Based on the results of the first half of 2020, the disposable incomes of the Chinese population in real terms decreased by 1.3% in the country as a whole, real consumer spending per capita decreased by 9.3% (Gribova, 2021). As a result, by the end of 2020, retail trade turnover in Russia decreased by 4.1% compared to 2019 in comparable prices, retail sales of consumer goods in China decreased by 3.9%.

Against the background of the deterioration of the financial situation and the reduction of the purchasing power of the population's income, significant changes are taking place in consumer behavior, habits and preferences of residents of Russia and China are changing.

The audit and consulting agency "EY" conducted a study of the consumer behavior of Russians in conditions of increased economic uncertainty, during which four consumer groups were identified according to the criterion of the impact of the pandemic on the incomes and expenses of Russians: they have not suffered and are not worried (33%), they are holding up normally, but they are adapting (13%), they face difficulties and worry (34%), they have suffered a lot, but remain optimistic (20%)[2]. Interestingly, the main criteria that guide Russian consumers to reduce

[2] Russian consumer: Restrained optimism and new habits. Available at: https://www.ey.com/ru_ru/consumer-products-retail/russian-consumer-behavior-changes

the impact are price, health benefits, availability of goods, quality of service and environmental friendliness.

The COVID-19 pandemic has led to improved technological solutions and the growth of online commerce in Russia. The research of the Moscow School of Management "Skolkovo" notes[3] that since the beginning of the pandemic, there has been a transition of Russians from free consumption to thrift (interestingly, promotions and bonuses from manufacturers and distributors of goods and services began to have a greater impact on consumers), but it is obvious that the pandemic contributed to an increase in the share of online purchases from total retail sales. Also, Skolkovo analysts say that online purchases are cheaper than offline, both in the perception of the population and in fact. Among Russian consumers, there was a trend toward a sharp reduction in impulsive purchases due to the transition to online, a decrease in the attendance of hypermarkets and shopping centers[4].

The pandemic has also affected the consumer habits and preferences of Chinese citizens. For the convenience of the analysis, we propose the following classification of Chinese consumers by demographic criterion. Consumers who were born before the 1960s grew up in difficult times for the country, so the share of savings from disposable income in this consumer group is the highest. For representatives of this category, the price of the product and its quality are very important. Consumers, born in the period 1966–1976, (the years of the "Cultural Revolution" in China) are balancing between "old" and "new" consumer habits; they are also strongly inclined to accumulate funds, it is important for them to accumulate funds for raising a child and for medical expenses. Millennials who have received a good education and are open to new experiences, like to support new trends and technologies, are more inclined to online shopping than offline. For migrant workers aged 25 to 45, the price is extremely important, they are trying to save money. Wealthy Chinese (with an annual disposable income of more than 1 million dollars) live in big cities; they are willing to overpay for quality goods and prefer imported goods[5].

One of the trends in the pandemic can be called economic nationalism or patriotism, which has spread in China. The idea of economic patriotism assumes a greater importance of state intervention in the economy than the ability of the market to independently regulate the internal economy of the state. According to the study, economic patriotism, due to "commodity-oriented ethnocentric behavior" and isolation due to the pandemic, strongly influenced consumers' willingness to buy local goods and brands, since people believe that the consumption of domestic goods has a positive impact on economic recovery (Verma, Naveen, 2021).

Since the pandemic "regime" in China is still ongoing, the consumption pattern is changing relatively slowly. A survey conducted by researchers among 697 people showed that even in the first wave of the pandemic, most Chinese consumers reduced spending on entertainment, redirecting spending on essential goods, children's education and medical expenses. The survey results, conducted during the second wave, indicated that the trend continues to persist. Despite the fact that the national economy and social life are gradually returning to normal, consumers are still cautious about the pandemic situation in the short term (Yuan et al., 2021).

[3] Russian e-commerce consumers: New consumer habits after reboot. Available at: https://sk.skolkovo.ru/storage/file_storage/96d5b474-4f11-46e1-9d8e-a03f4453c5c6/SKOLKOVO_Full_Report_Russian_Ecommerce_Consumers.pdf

[4] Russia 2021. Moving forward. (2020). Ipsos. Available at: https://www.ipsos.com/sites/default/files/ct/publication/documents/2020-12/ipsos_flair_russia_2021.pdf

[5] Understanding Chinese Consumers: Growth Engine of the World. Available at: https://www.mckinsey.com/~/media/mckinsey/featured%20insights/china/china%20still%20the%20worlds%20growth%20engine%20after%20covid%2019/mckinsey%20china%20consumer%20report%202021.pdf

At the same time, it is interesting to note that the research results showed the propensity of Chinese consumers to offline purchases (during the first wave, 50% of respondents stated that they made purchases offline, during the second wave, 85% already noted their commitment to offline purchases), and the commitment of Chinese residents to preserving traditional consumer habits was also recorded, which were before the COVID-19 pandemic. This trend can be explained by two reasons: first, in many nonurban areas, the e-commerce network is not fully established, which is why the purchase of essential goods in them is possible only in a physical store, and second, during the outbreak of the pandemic, Chinese local authorities imposed restrictions on logistics (Yuan et al., 2021).

Thus, it is possible to identify the same trends in changing consumer habits of the population of China and the Russian Federation. First, in both countries, the pandemic has led to a reduction in the income, which explains the change in the priority of spending, namely, a reduction in spending on entertainment and unnecessary spending and an increase in spending on essential goods, medical expenses, etc. Second, the restrictions imposed by the authorities on movement have led to the growth of e-commerce and various deliveries. Third, in both countries, there was an increase in consumer interest in goods and services of local production in order to support small and medium-sized enterprises, whose operating activities were most affected by the pandemic. Fourth, the increase in commodity prices since the beginning of the pandemic, as well as general uncertainty, contributed to an increase in the percentage of savings from disposable income, that is, the population of both countries realized in conditions of uncertainty that it was necessary to have a financial cushion.

E-commerce and luxury goods market

According to the Statista portal, the number of online buyers in China in 2021 reached 842 million people (about 60% of the population)[6], the number of Russians who made at least one online purchase in 2021 amounted to 64.8 million people (about 45% of the population) [7]. The total volume of the Internet sales in China in 2021 reached 2,639 trillion dollars[8], the volume of the retail Internet trade market in Russia amounted to 4.1 trillion rubles (69.7 billion dollars)[9]. According to these data, we can conclude that the Chinese e-commerce market is about 22 times larger than the Russian one. If we consider the share of online purchases from the total retail sales in the two countries, then in China this figure is 24.5%, in the Russian Federation – 9.2%.

Yandex.Market and GfK Rus conducted a survey among the Russian audience of online stores and identified the most popular categories of goods purchased online: adult clothing and shoes (64.1%), face, body and hair care products (59.3%), smartphones and tablets (54.6%), toys and hobby goods (51.5%), products (except prepared food and alcohol, 49.7%), decorative cosmetics and perfumes (49.3%), household goods and tableware (47.7%), bags, belts, accessories (45.5%), medicines and health supplements (44.8%), small household kitchen appliances (40.6%)[10]:

The survey data showed that during the first wave of COVID-19 and the introduction of self-isolation in Russia, the demand for leisure and entertainment goods, such as books and musical instruments, increased. Users also became more

[6] Number of online shoppers in China from 2011 to 2021 (in millions). Available at: https://www.statista.com/statistics/277391/number-of-online-buyers-in-china/

[7] Analysts have described a portrait of a typical online store buyer. Available at: https://www.rbc.ru/technology_and_media/10/10/2021/61618e229a7947975cf67c04

[8] Retail e-commerce sales in China for 2020 and 2021 with forecasts until 2026 (in billion dollars). Available at: https://www.statista.com/statistics/289734/china-retail-ecommerce-sales/

[9] Marketing research "Online commerce in Russia 2021". Available at: https://datainsight.ru/eCommerce_2021

[10] Development of the online commerce in Russia, 2021. Available at: https://yandex.ru/company/researches/2021/ecomdash; results according to an online survey of Internet users aged 16–55 years living in cities and towns of urban type.

interested in goods for cottages and gardens (an increase of 23%), for animals (by 18%), computer equipment (by 15%). At the same time, the demand for clothing, shoes and accessories fell by 30%.

The most popular categories of goods among the Chinese are cosmetics (55%), handbags (40%), women's clothing (40%), women's shoes (35%), accessories (35%), home decoration products (25%), perfumes (20%), lingerie (18%), men's clothing (15%), and men's shoes (15%)[11].

According to Euromonitor International, the luxury goods market in Russia decreased by 18% in 2020, from 14.7 billion dollars to 12.1 billion dollars. The markets of fine wines and spirits and premium and luxury cars suffered the least, in 2020, compared with 2019, having decreased by 17.3 and 5.7%, respectively. The personal luxury goods market suffered the most, decreasing by 30% in 2020 compared to 2019. Interestingly, if we consider the categories of goods, the smallest decline was recorded in sales of decorative and care cosmetics (21.1%)[12].

However, at the same time, the growth dynamics of the luxury goods market was noted in China. According to a joint report by Bain and Company and Tmall Luxury, the growth of the luxury goods market in 2020 was expected to grow by 48% and reach almost 346 billion yuan (53 billion dollars). The global luxury goods market shrank by 23% in 2020, and China's share increased from about 11% in 2019 to 20%. In this report, the authors assumed that by 2025 China would account for the largest share of the global luxury goods market[13]. During the pandemic, the growth of online sales of luxury goods amounted to more than 150%. Experts identified four reasons for this phenomenon: the return of Chinese emigrants back to China, the increasing involvement of representatives of generations Y and Z in the consumption of luxury goods, deepening digitalization and the development of duty-free shops in Hainan. It is interesting to note that sales at duty-free shops in Hainan jumped by more than 230% in July 2020, after the government tripled the quota for purchases to 100 thousand yuan (810 thousand rubles or 14.9 thousand dollars) for each buyer.

The pandemic has also affected the online retailers themselves, whose goal was to attract as many people as possible to their site. For example, in China, the second outbreak of the development of online streaming aimed at the sale of goods and services has been recorded. All major Chinese online platforms (Taobao, JD.COM , Kwai, TikTok, etc.) began actively promoting broadcasts conducted by bloggers and celebrities. According to the Chinese Internet Information Center, by the end of 2020, the number of viewers of Internet broadcasts reached 617 million people, an increase of 10% compared to 2019, accounting for 66.2% of the total number of buyers shopping online, and the volume of goods purchased through online broadcasts amounted to more than 30% of the total number of purchases on the Internet (Deng, 2021). After the beginning of the pandemic, when offline traffic moved online, new channels of interaction between sites and end users continued developing: online broadcasts, micro-applications inside large applications. For example, many additional applications have been created in the Chinese social network "WeChat" to increase sales, and such techniques of interaction between sites and consumers as influencer marketing and SMM marketing have become the norm. Similar trends can be noted among Russian retailers. For example, the Ozon platform has launched Ozon Live, which allows making online broadcasts with products presented on the marketplace. It is worth noting that Russian goods were also sold in China

[11] Top 15 most purchased products online in China. Available at: https://ecommercechinaagency.com/most-purchased-items-online-marketplace-china/

[12] The future of luxury: How the luxury goods market will change by 2025. Available at: https://pro.rbc.ru/demo/5c6bfce09a79477119f8e4f6

[13] China's unstoppable 2020 luxury market. Available at: https://www.bain.com/globalassets/noindex/2020/bain_report_chinas_unstoppable_2020_luxury-market.pdf

with the help of online broadcasts. So, during the broadcast, which took place in November 2020 at the TMall site, Russian goods worth 1.8 million dollars were sold in half an hour.

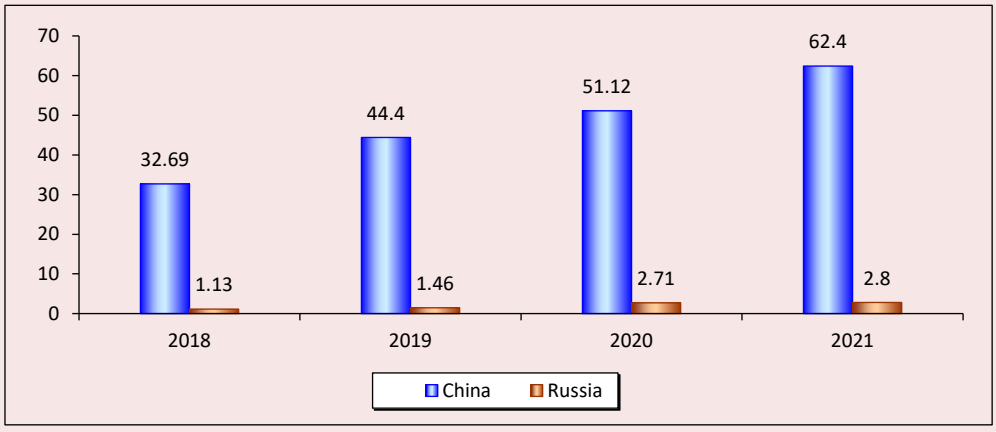
In general, against the background of the pandemic, new consumer practices have been formed related to the active use of the Internet for shopping in both countries. The luxury goods category has become one of the subgroups of goods most affected by the pandemic. However, in China, the growth dynamics of the luxury goods market was noted, which indicates the confidence of Chinese consumers about their financial prospects.

Food delivery market

The pandemic and, first of all, the regime of restriction or prohibition of the population movement have affected the rapid growth of the food delivery market at home. According to a survey conducted in 2019 in Russia, 65% of respondents over the age of 18 have used food delivery services from restaurants over the previous three months, and for people aged 18–44, this figure was 75%[14]. A survey conducted by the Chinese company "China Youth Daily" demonstrated that in 2018, 64.9% of respondents buy takeaway food at least twice a week in restaurants[15]. If we analyze the volume of the ready-made food delivery market, then in 2021 in Russia it amounted to 329 billion rubles (2.8 billion dollars), in China it was 811.7 billion yuan (62.4 billion dollars). It is obvious that the Chinese food delivery market is much larger (it is expected that in 2022 the Chinese market will become the largest in the world) than the Russian one. At the same time, it is important to note that in the last four years, the trend of growth of the food delivery market in both countries has continued (*Fig. 2*).

The food delivery market is a duopoly dominated by Chinese tech giants Alibaba and Tencent, which own Ele.me (饿了么) and Meituan (美团) respectively. Together, these two delivery apps control 95% of the food delivery market in China. Ele.me occupies 26% of the Chinese food delivery market, and Meituan – 69%. It is important to note

Figure 2. Volume of the ready-to-eat food delivery market in Russia and China, billion dollars



Source: own calculation based on Statista and RAEC data.

[14] Food delivery market in Russia: What is ordered, how often and who is the segment leader. Available at: https://new-retail.ru/business/rynok_dostavki_edy_v_rossii_chto_zakazyvayut_kak_chasto_i_kto_lider_segmenta2841/

[15] Over 60% of Chinese eat takeout at least twice a week. Available at: http://www.chinadaily.com.cn/a/201803/29/WS5abcac35a3105cdcf6515215.html#:~:text=More%20than%2060%20percent%20of,China%20Youth%20Daily%20reported%20Thursday

that Meitan offers more non-food delivery services than Ele.me, such as flowers, stationery and more[16].

According to iiMedia Research report, such a volume of the Chinese food delivery market is due to the frequency of customer orders; 27% of Chinese consumers order food from six to ten times a month, 14.3% – from 11 to 20 times a month. It is noteworthy that only 18.5% of respondents said they never order food online17. In China, there is a change in the main consumer of the food delivery market: in 2015, about 63% of users of online food delivery applications were white-collar workers, and 30.5% were students. However, in 2022, 83% are white-collar workers and only 10% are students. If we consider consumers by gender and age, then women make up 51% of users of food delivery apps. Users are mostly young, 85% are between the ages of 18 and 40. It is important to note that the total number of online food delivery orders made by representatives of the generation of homelanders has increased by almost 20%.

Such popularity of food delivery services in China can be explained by the relative cheapness. The extreme availability of food delivery in China is due to fierce competition between providers of these services. Due to intense competition between delivery applications, Chinese consumers receive large discounts and coupons when placing an order, and there is often a situation in which ordering food at home becomes cheaper than cooking it yourself at home. It is worth noting that for example, the company Meituan became profitable only in 2020; it means that nine years after it appeared on the market (its unprofitability is due to subsidies provided to customers in order to attract as many new customers to the service as possible).

In Russia, the pandemic has also affected the growth of the food delivery market. According to Tinkoff Data, which takes into account all transactions of Tinkoff Bank customers, sales of ready-made food and foodstuffs via the Internet in Russia increased more than 4 times in 2020. The main players in the ready-to-eat food delivery market in 2020 in the Russian Federation were Delivery Club (17.6%), Yandex.Food (10.1%), Dodo Pizza (7%), Domino's Pizza (1.5%), Local Kitchen (1.4%)[18].

According to a survey conducted by OMI in 2019, married respondents order food more often than others (70%)[19]. The presence of children in the family also affects the frequency of delivery orders. The more children there are, the more likely it is to use the service: 76% of families with one child, 79% with two and 81% with three children ordered food through some service in the last three months. The most common sum per person is from 300 to 500 rubles (43% of respondents). In Moscow, the average sum in the order is higher – 500–700 rubles (36%).

The Marilyn platform highlights the following trends in the food delivery market: more and more restaurants are trying to create their own delivery services, as aggregators take from 20 to 30% commission from the order value; the development of "dark kitchen" (a shadow format of cafes and restaurants that work exclusively for delivery, without seats in the hall); delivery of personalized food sets for several days; development of delivery of food sets for self-cooking; reduction of delivery speed and development of accelerated delivery;

[16] China's duopoly food delivery market. Available at: https://daxueconsulting.com/o2o-food-delivery-market-in-china/

[17] Food delivery industry data analysis: 35.2% of Chinese consumers ordered food delivery on average 1–5 times a month in 2021. Available at: https://www.gushiciku.cn/dl/0pwve

[18] Studying the largest players in the food delivery and catering market in Russia. Available at: https://vc.ru/food/173407-issledovanie-krupneyshie-igroki-na-rynke-dostavki-edy-i-obshchepita-v-rossii

[19] Food delivery market in Russia: What is ordered, how often and who is the segment leader. Available at: https://new-retail.ru/business/rynok_dostavki_edy_v_rossii_chto_zakazyvayut_kak_chasto_i_kto_lider_segmenta2841/

development of services that provide combined delivery services from different restaurants and shops[20].

If we consider the delivery market in Russia as a whole, then food and FMCG products, as well as ready-made food, are the most popular categories of goods among consumers. Fifty-four percent of the surveyed consumers order the delivery of food and FMCG goods, 42% – the delivery of ready-made food from cafes and restaurants. Most consumers are satisfied with the delivery services; 82% of respondents rated their experience of using the services as positive or rather positive. Home delivery is the most popular, half of the surveyed consumers use it[21].

It is important to note that in the first quarter of 2022, there was a decrease in the number of orders of ready-made food and cooking kits by 38.3% in annual terms. From March 1 to March 20, 2022, the number of orders of ready-made food from restaurants decreased by 12–15% compared to the same period in February, the online turnover of ready-made food delivery decreased by 18% in monetary terms, and the number of orders decreased by 16%[22]. Due to the sanctions imposed against Russia, the range of products began shrinking, there were problems with logistics. Some experts assumed that by October – November 2022 there would be mass closures of businesses in the catering sector. However, the withdrawal of many brands from the Russian market may cause rapid growth in the development of their own trademarks of Russian companies.

In general, the pandemic has significantly accelerated the migration of sales of goods from regular stores to online channels, while increasing the demand for fast and reliable delivery. Similar trends are typical for both China and Russia.

Online education market

As the country with the largest population in the world, China has an extensive education system: about 282 million people studied in schools and universities in China in 2021 and about 17.32 million teachers taught. In total, the country's educational system has almost 530 thousand educational institutions. Online learning has become an important channel of teaching and learning for teachers and students, and it looks like it will be the "new normal" of education after the pandemic. In addition, as competition in the workplace becomes tougher, an increasing number of working people are seeking to improve their skills through online training.

According to the UNICEF report, students in China faced the following problems during the pandemic[23]:

– lack of self-learning skills (almost half (46.95%) of all high school students surveyed had significantly decreased academic performance, while 34.68% maintained stable results, and 18.36% noted improvement (Guo et al., 2022);

– use of digital devices has led to the possibility of harm to health (primarily vision);

– lack of computers and the Internet in rural areas has limited students' access to education (as the latest statistics show, the number of Chinese households with Internet access is only 47.4%).

If we consider the online education market in China, the COVID-19 pandemic has only accelerated the trend of its development. If in 2016

[20] Trends of the food delivery market in 2021. Available at: https://mymarilyn.ru/blog/marketing/trendy-rynka-dostavki-edy-2021-goda/

[21] RAEC and HSE research: Work in the delivery of ready-made food and foodstuffs is an affordable and convenient way of additional earnings for Russians. Available at: https://raec.ru/live/raec-news/13010/

[22] Russians have lost interest in the delivery of ready-made food. Available at: https://lenta.ru/news/2022/06/09/dosta/

[23] China case study. Situation analysis on the effects of and responses to COVID-19 on the education sector in Asia. Available at: https://www.unicef.org/eap/media/9321/file/Sit%20An%20-%20China%20Case%20Study.pdf

the online education market in China was estimated at 78.7 billion yuan (11.3 billion dollars), then in 2021 its volume increased almost 4 times and amounted to 308.2 billion yuan (44.5 billion dollars). According to forecasts, the volume of the online education market in 2024 may amount to 490.5 billion yuan (70.8 billion dollars)[24].

However, it is important to note that a quantitative increase in the number of online courses does not correlate with their qualitative improvement. According to a study conducted in China, the number of training platforms negatively correlates with the quality of the courses presented, demonstrating a significant negative forecasting effect. The more training platforms, the lower the quality of the courses; however, the number of courses that students take correlates positively with the quality of the courses: the more courses students attend, the higher the probability of improving the assessment of the quality of the course (Jing et al., 2021).

The volume of the online education market in Russia is not growing at the same pace as in China. In 2016, the entire market was estimated at 20.7 billion rubles (340 million dollars); in 2021 this figure amounted to 53.3 billion rubles (873 million dollars). If we consider the structure of the online education market in Russia, we can distinguish the following segments (the shares of the total education market in Russia are indicated): preschool online education (0.3%), general secondary online education (1.5%), additional school online education (6.8%), higher online education (4.4%), secondary vocational online education (1%), additional vocational online education (10.9%), and language online-education (15.9%)[25].

According to a survey conducted in 2021 by Data Insight and Netology, several important trends were recorded[26]:

– public spending on online adult education exceeded spending on offline education and amounted to 226 billion rubles;

– in average, those who receive additional online education study 2–3 programs per year, about a quarter of students (23%) have completed 4 programs or more in a year;

– 70% of those who received online education in the last 12 months studied for professional purposes;

– the majority of respondents (84.6%) have plans to study online in the future; 34.4% of them are beginners who use online education for the first time.

In general, against the background of the COVID-19 pandemic, online education has become an urgent option for organizing training in many countries of the world including China and Russia. The process of switching to distance education in the course of the fight against the coronavirus spread is a unique example of the rapid and high-quality building of a new paradigm for the provision of educational services on a large scale.

Conclusions

The consumer market is one of the most important elements of the modern market economy. Its sustainable development is a determining condition for the well-being, stability and economic security of the territory. The COVID-19 pandemic has had a significant negative impact on the consumer market in Russia and China. A large-scale epidemiological crisis has led to a deterioration in the material well-being and consumer opportunities of both countries. At the same time, the COVID-19 pandemic has also contributed to a

[24] Market size of online education in China from 2016 to 2020 with a forecast until 2024 (in billion yuan). Available at: https://www.statista.com/statistics/1014491/china-market-size-of-online-education/#:~:text=According%20to%20a%20broader%20market,(as%20of%20February%202021)

[25] Research of the Russian market of online education and educational technologies. Netology. Available at: https://estars.hse.ru/mirror/pubs/share/211448255 (accessed: September 10, 2022).

[26] Marketing research "Online Education Market in Russia": Data Insight and Netology Research (2022). Available at: https://datainsight.ru/russian_education_market

number of positive changes in certain sectors of the consumer market in Russia and China.

First, the pandemic is the driver of the development of distance trading. Quarantine restrictions have led to the emergence of new opportunities and additional areas of growth for the e-commerce sector. China, being the absolute leader of online commerce in the world, in 2020 demonstrated the most significant volumes of the Internet sales market. The Russian e-commerce market is the most dynamic, Russia ranks first in terms of the growth rate of online retail (Dement'eva, Sheng Fangfu, 2022).

Second, contrary to global trends in China, we have noted the growth dynamics of the luxury goods market, which is largely due to the confidence of Chinese consumers in their financial prospects, as well as the socio-cultural characteristics of consumers of Chinese society, whose roots go back to traditional values. One of these consumer patterns is a tendency to demonstrative behavior and loyalty to brands (Morozova, Reunova, 2021).

Third, the pandemic and related restrictions have affected the rapid growth of the food delivery market. The Chinese food delivery market is significantly superior to the Russian one. Such popularity of food delivery services in China can be explained by the relative cheapness in conditions of fierce competition between delivery service providers. In Russia, the pandemic has also affected the growth of the food delivery market. The introduction of Western sanctions contributes to the development of Russian companies' own trademarks.

Fourth, the COVID-19 pandemic has noticeably accelerated the trend of online education development in China. However, the quantitative increase in online educational platforms does not correlate with their qualitative improvement. The volume of the online education market in Russia is not growing at the same pace as in China. In the structure of the Russian online education market, the main directions are language and professional online education.

The epidemiological crisis caused by the coronavirus spread has given an additional impetus to the development of certain areas of the Russian and Chinese consumer market. Such positive trends will contribute to further information and innovation development, economic growth of Russia and China.

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Public Opinion Monitoring of the State of the Russian Society

As in the previous issues, we publish the results of the monitoring of public opinion concerning the state of the Russian society. The monitoring is conducted by VolRC RAS in the Vologda Oblast[1].

The following tables and graphs show the dynamics of several parameters of social well-being and socio-political sentiment of the region's population according to the results of the latest "wave" of the monitoring (December 2022) and for the period from December 2021 to December 2022 (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 2022 the assessment of the work of the head of state did not change significantly: the share of positive judgments was 59–60%, negative ones – 24–25%.

We observe positive changes in the longer-term dynamics. Compared to February 2022, the level of approval of the President's activities increased by 12 percentage points (from 48 to 60%); the proportion of negative assessments decreased by 8 percentage points (from 33 to 25%).

Over the past 12 months (in December 2022 compared to December 2021), the share of positive assessments of the work of the head of state increased by 9 percentage points (from 51 to 60%); the proportion of negative ones decreased by 9 percentage points (from 34 to 25%)[3].

[1] The surveys are held six times a year in Vologda, Cherepovets, and in eight districts of the oblast (Babayevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District and Sheksninsky District). The method of the survey is a questionnaire poll by place of residence of respondents. The volume of a sample population is 1,500 people 18 years of age and older. The sample is purposeful and quoted. The representativeness of the sample is ensured by the observance of the proportions between the urban and rural population, the proportions between the inhabitants of settlements of various types (rural communities, small and medium-sized cities), age and sex structure of the Oblast's adult population. Sampling error does not exceed 3%.

More information on the results of VolRC RAS surveys is available at http://www.vscc.ac.ru/

[2] In 2020, four "waves" of the monitoring were conducted. Surveys in April and June 2020 were not conducted due to quarantine restrictions during the spread of COVID-19.

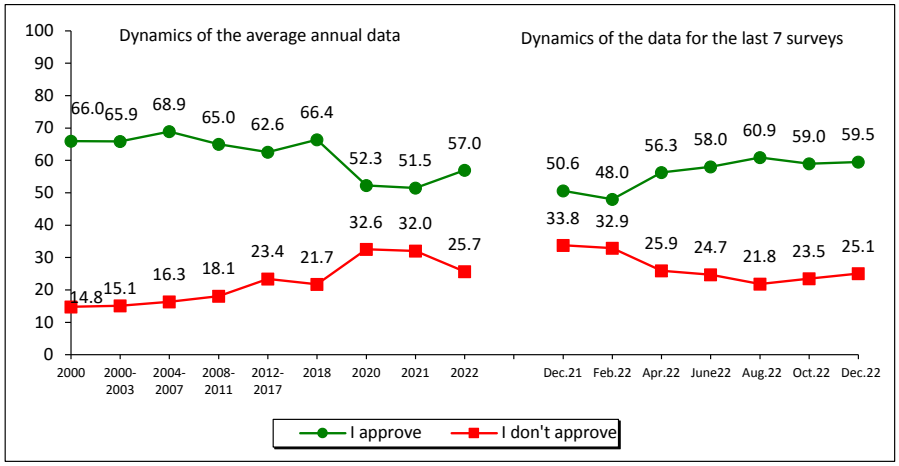
[3] Hereinafter, the results of a comparative analysis of the data from the survey conducted in December 2022 and the results of the monitoring "wave" conducted in December 2021 are given in the frame.

How do 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. 2022 to		
	2000	2007	2011	2012	2018	2020	2021	2022	Dec. 2021	Feb. 2022	Apr. 2022	June 2022	Aug. 2022	Oct. 2022	Dec. 2022	Dec. 2021	Feb. 2022	Oct. 2022
RF President																		
I approve	66.0	75.3	58.7	51.7	66.4	52.3	51.5	57.0	50.6	48.0	56.3	58.0	60.9	59.0	59.5	+9	+12	+1
I don't approve	14.8	11.5	25.5	32.6	21.7	32.6	32.0	25.7	33.8	32.9	25.9	24.7	21.8	23.5	25.1	-9	-8	+2
Chairman of the RF Government*																		
I approve	-*	-*	59.3	49.6	48.0	38.7	39.9	45.4	38.3	37.6	43.6	45.5	47.5	48.1	50.1	+12	+13	+2
I don't approve	-	-	24.7	33.3	31.6	40.4	37.6	32.0	38.9	37.7	32.5	31.4	29.4	31.3	29.9	-9	-8	-1
Governor																		
I approve	56.1	55.8	45.7	41.9	38.4	35.0	36.7	40.9	35.9	33.9	38.2	41.2	43.3	43.0	45.5	+10	+12	+3
I don't approve	19.3	22.2	30.5	33.3	37.6	42.5	40.5	35.8	41.9	41.6	37.3	34.3	32.5	33.9	35.2	-7	-6	+1

Wording of the question: "How do you assess the current work of ...?" According to the survey technique, sampling error does not exceed 3%, so hereinafter changes with a difference of 2 p.p. are not taken into account or are considered insignificant; they are highlighted in blue in the tables. Positive changes are highlighted in green, negative changes are highlighted in red.
*Included in the survey since 2008.

How do you assess the current work of the RF President?
(% of respondents, VolRC RAS data)



Answer option	Dynamics (+/-), December 2022 to Dec. 2021	Feb. 2022	Oct. 2022
I approve	+9	+12	+1
I don't approve	-9	-8	+2

Hereinafter, all graphs show the average annual data for 2000, 2018, 2020, 2021, 2022, as well as the average annual data for the periods 2000–2003, 2004–2007, 2008–2011, 2012–2017, corresponding to the presidential terms.

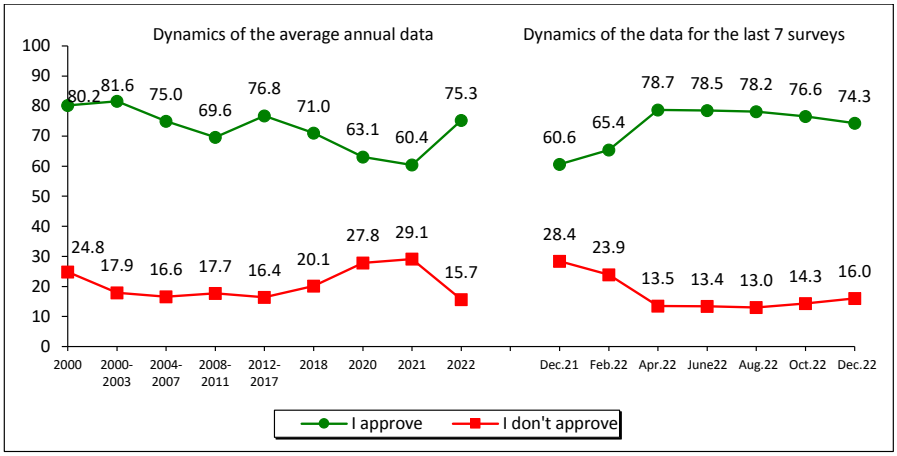
For reference:

According to VCIOM, the level of approval of the President's work in October – December 2022 decreased by 3 percentage points (from 77 to 74%).

Compared to February 2022, the share of positive assessments of the activities of the head of state increased by 9 percentage points (from 65 to 74%).

During the period from December 2021 to December 2022, the level of approval of the President's work increased by 13 percentage points (from 61 to 74%).

In general, do you approve or not approve of the work of the RF President?
(% of respondents; VCIOM data)



Dynamics (+/-), December 2022 to			
Answer option	Dec. 2021	Feb. 2022	Oct. 2022
I approve	+14	+9	-2
I don't approve	-12	-8	+2

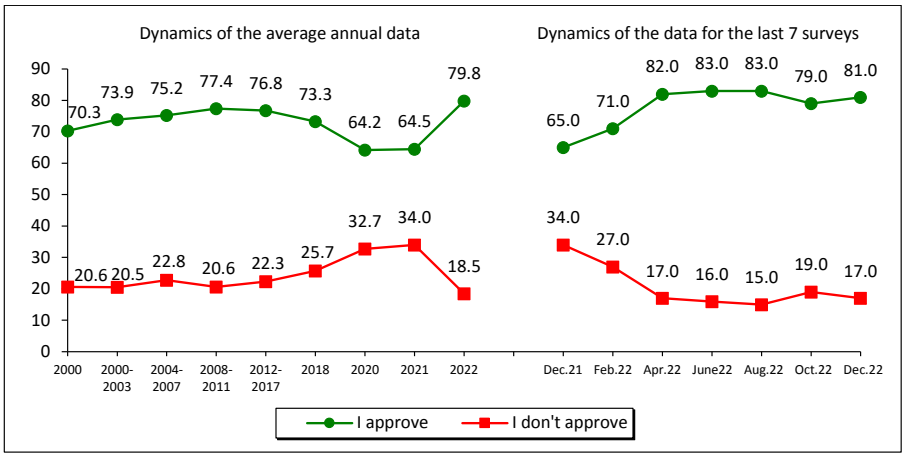
Question: "In general, do you approve or not approve of the work of the President of the Russian Federation?"
Data for December 2022 represent the average for three surveys: (December 4, 11, 18).
Source: VCIOM. Available at: https://wciom.ru/

According to Levada-Center, the share of positive assessments of the President's work in October – December 2022 increased by 2 percentage points (from 79 to 81%).*

For the period from February to December 2022, the share of positive judgments increased by 10 percentage points (from 71 to 81%).

From December 2021 to December 2022, the level of approval of the President's work increased by 16 percentage points (from 65 to 81%).

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 2022 to			
Answer option	Dec. 2021	Feb. 2022	Oct. 2022
I approve	+14	+10	+2
I don't approve	-17	-10	+2

Question: "In general, do you approve or not approve of the work of Vladimir Putin as President of Russia?"
Source: Levada-Center*. Available at: https://www.levada.ru

* Included in the register of foreign agents.

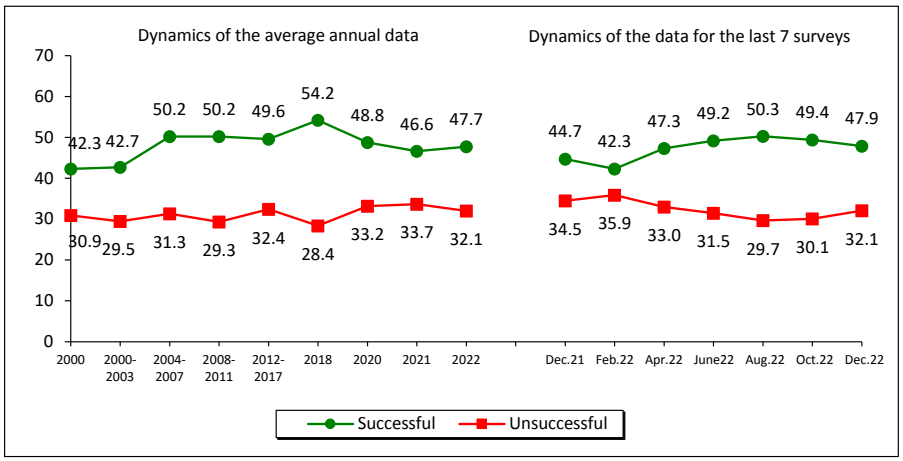
In your opinion, how successful is the RF President in coping with challenging issues? (% of respondents; VolRC RAS data)

Over the past two months, the share of those who consider the RF President's work to strengthen Russia's international positions to be successful did not change significantly (48–49%). The proportion of those who hold to the opposite point of view also increased slightly (by 2 percentage points, from 30 to 32%).

From February to December 2022, the share of positive assessments of the actions of the head of state to strengthen international standing increased by 6 percentage points (from 42 to 48%); negative – decreased by 4 percentage points (from 36 to 32%).

Compared with October 2021, the proportion of Vologda Oblast residents who positively assess the activities of the head of state to strengthen Russia's international positions increased by 3 percentage points (from 45 to 48%). The share of negative judgments decreased by 3 percentage points (from 35 to 32%).

Strengthening Russia's international position



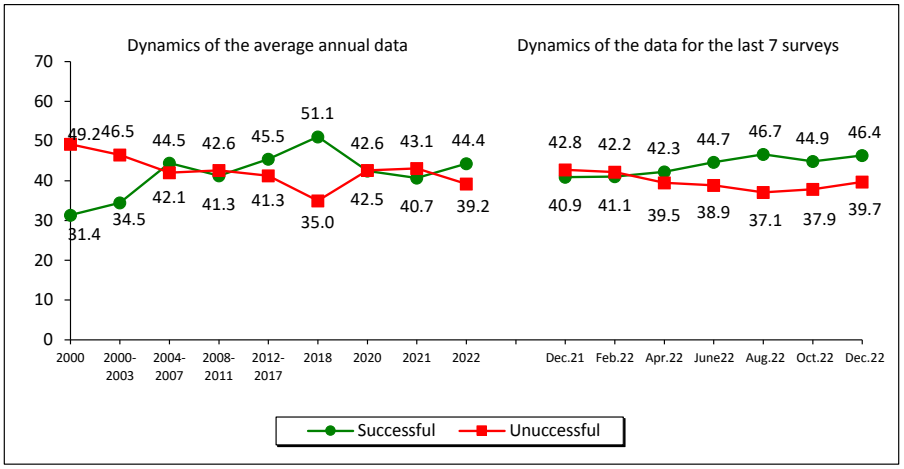
Answer option	Dynamics (+/-), December 2022 to Dec. 2021	Feb. 2022	Oct. 2022
Successful	+3	+6	-2
Unsuccessful	-3	-4	+2

In October – December 2022, the share of Vologda Oblast residents who positively assess the work of the head of state to restore order in the country remained stable (45–46%). The share of negative assessments increased slightly (by 2 percentage points, from 38 to 40%).

In general, for the period from February to December 2022, the share of positive characteristics increased by 5 percentage points (from 41 to 46%); the proportion of negative characteristics decreased by 2 percentage points (from 42 to 40%).

Over the past 12 months, the proportion of Vologda Oblast residents who positively assess the work of the head of state to restore order in the country has increased by 5 percentage points (from 41 to 46%). The share of those who hold the opposite opinion decreased by 3 percentage points (from 43 to 40%).

Imposing order in the country



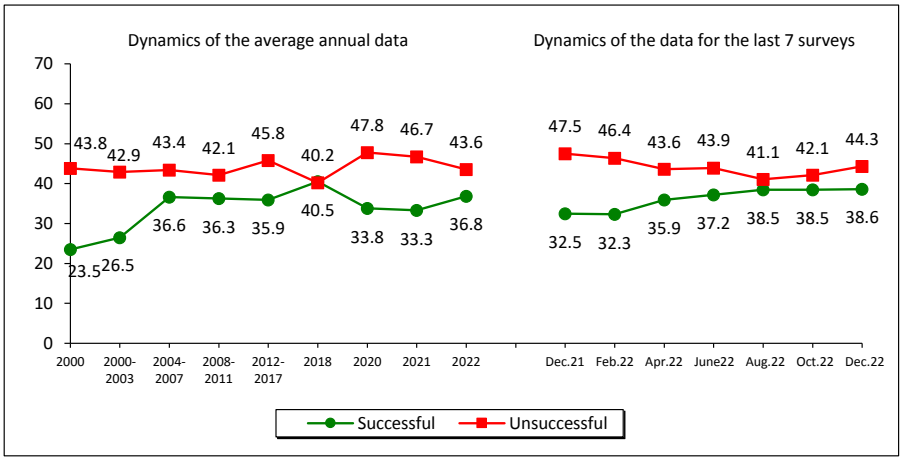
Dynamics (+/-), December 2022 to			
Answer option	Dec. 2021	Feb. 2022	Oct. 2022
Successful	+5	+5	+1
Unsuccessful	-3	-2	+2

In October – December 2022, the share of positive assessments of the success of the President's work to protect democracy and strengthen citizens' freedoms did not change and amounted to 39%. The proportion of negative judgments increased slightly (by 2 percentage points, from 42 to 44%).

We note positive changes for the period from February to December 2022: the share of positive assessments increased by 7 percentage points (from 32 to 39%), the proportion of negative ones decreased by 2 percentage points (from 46 to 44%).

Over the past 12 months (from December 2021 to December 2022), public opinion about the President's efforts to protect democracy and strengthen citizens' freedoms improved: the share of positive assessments increased by 6 percentage points (from 33 to 39%), the proportion of negative ones decreased by 4 percentage points (from 48 to 44%).

Protecting democracy and strengthening citizens' freedoms



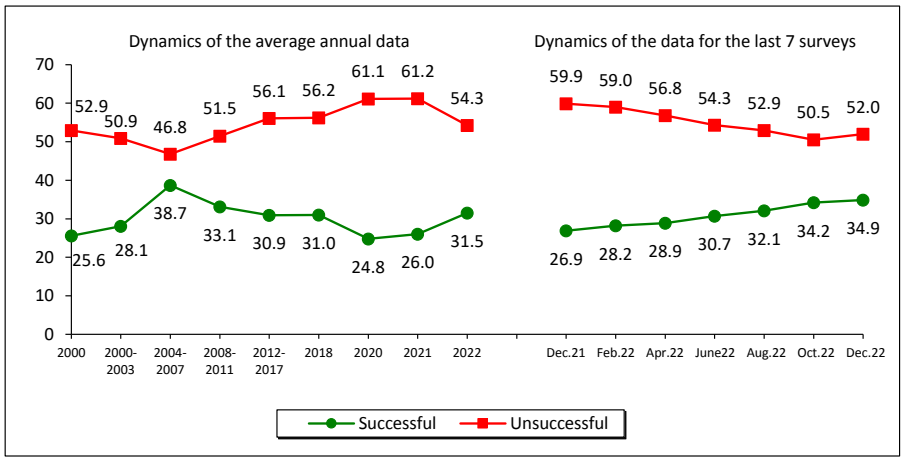
Dynamics (+/-), December 2022 to			
Answer option	Dec. 2021	Feb. 2022	Oct. 2022
Successful	+6	+7	0
Unsuccessful	-4	-2	+2

In October – December 2022, public opinion regarding the President's work aimed at boosting the economy and increasing the welfare of citizens did not change significantly: the share of positive assessments was 34–35%, negative ones – 51–52%.

From February to December 2022, the share of positive judgments increased by 7 percentage points (from 28 to 35%), negative – decreased by 7 percentage points (from 59 to 52%).

During the period from December 2021 to December 2022, we note the following positive changes: the proportion of people who consider the President's efforts to boost the economy and improve the welfare of citizens to be successful increased by 8 percentage points (from 27 to 35%), the share of negative characteristics decreased by 8 percentage points (from 60 to 52%).

Economic recovery and increase in citizens' welfare



Answer option	Dynamics (+/-), December 2022 to		
	Dec. 2021	Feb. 2022	Oct. 2022
Successful	+8	+7	+1
Unsuccessful	-8	-7	+2

The structure of political preferences of Vologda Oblast residents did not change over the past two months: the share of people whose interests are expressed by the United Russia party is 37–38%, the Communist Party – 9–10%, the Liberal Democratic Party – 6%, the Just Russia party – 5%, the New People party – 1–2%.

From February to December 2022, we note an increase in support for the United Russia party (by 7 percentage points, from 31 to 38%).

Compared to December 2021, the share of supporters of the party in power increased by 6 percentage points (from 32 to 38%).

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. 2022		
	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	Dec. 2021	Feb. 2022	Apr. 2022	June 2022	Aug. 2022	Oct. 2022	Dec. 2022	Dec. 2021	Feb. 2022	Oct. 2022
United Russia	18.5	30.2	31.1	33.4	29.1	35.4	38.0	37.9	31.5	49.8	31.7	35.2	31.9	31.1	34.2	34.9	36.2	36.7	38.3	+6	+7	+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	10.5	9.5	11.2	10.2	10.4	9.9	9.3	-1	-1	-1
LDPR	4.8	7.5	7.8	15.4	7.8	10.4	21.9	9.6	9.5	7.6	9.9	7.3	9.9	9.4	7.7	7.8	6.8	6.0	6.3	-4	-3	0
Just Russia – Patriots for the Truth	-	7.8	5.6	27.2	6.6	4.2	10.8	2.9	4.7	7.5	4.7	4.9	6.0	5.7	4.5	4.8	4.9	4.5	4.7	-1	-1	0
New People*	–	–	–	–	–	–	–	–	–	5.3	2.3	1.5	2.3	1.6	1.3	1.6	1.9	1.1	1.5	-1	0	0
Other	0.9	1.8	1.9	–	2.1	0.3	–	0.7	0.5	–	0.2	0.3	0.2	0.7	0.3	0.1	0.1	0.5	0.0	0	-1	-1
None	29.6	17.8	29.4	–	31.3	29.4	–	28.5	34.2	–	33.9	30.6	29.6	32.4	30.8	30.7	29.3	30.6	29.9	0	-3	-1
I find it difficult to answer	20.3	21.2	13.2	–	11.7	12.0	–	11.2	11.1	–	10.0	10.1	9.7	9.6	10.0	9.9	10.5	10.8	9.9	0	0	-1

* The New People party was elected to the State Duma of the Russian Federation for the first time following the results of the election held on September 17–19, 2021.

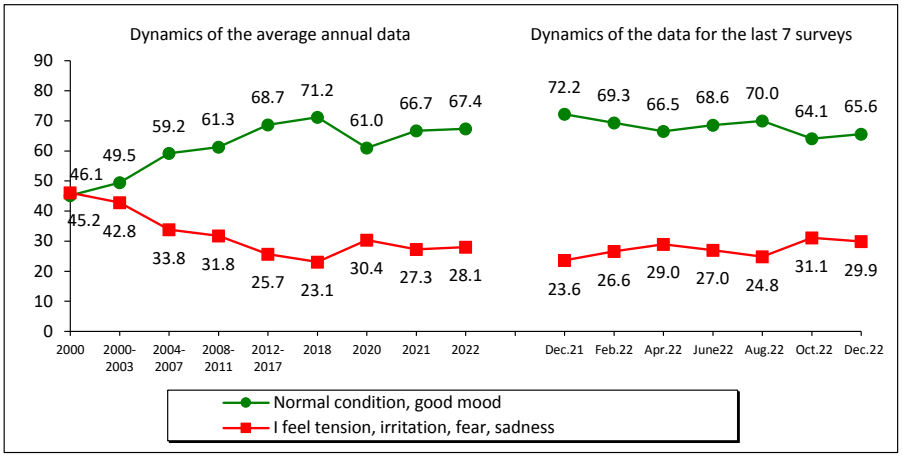
Estimation of social condition
(% of respondents; VolRC RAS data)

Over the past two months, social mood of Vologda Oblast residents improved slightly. The proportion of people describing their daily emotional state as "normal, fine" increased by 2 percentage points (from 64 to 66%). The proportion of those who experience mainly "tension, irritation, fear, sadness" did not change and amounted to 30–31%.

Compared to February 2022, the share of positive assessments of social mood decreased (by 3 percentage points, from 69 to 66%) and the proportion of negative assessments increased (by 3 percentage points, from 27 to 30%).

Over the past 12 months (from December 2021 to December 2022), the share of positive characteristics of social mood decreased by 6 percentage points (from 72 to 66%), negative – increased by 6 percentage points (from 24 to 30%).

Social mood



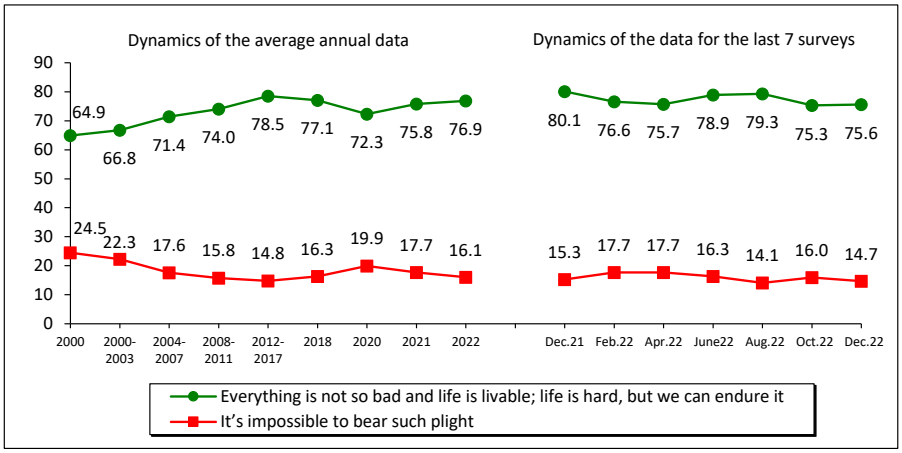
Answer option	Dynamics (+/-), December 2022 to: Dec. 2021	Feb. 2022	Oct. 2022
Usual condition good mood	-6	-3	+2
I feel tension, irritation, fear, sadness	+6	+3	-1

In October – December 2022, the share of those who believe that "everything is not so bad and life is livable; life is hard, but we can endure it" remained stable (75–76%). The proportion of those who note that "it's impossible to bear such plight" did not change as well (15–16%).

From February to December 2022, the share of positive assessments of the stock of patience was 76–77%; at the same time, the proportion of negative assessments decreased by 3 percentage points (from 18 to 15%).

Compared to December 2021, the share of positive assessments decreased by 4 percentage points (from 80 to 76%); the proportion of negative ones did not change significantly (15%).

Stock of patience



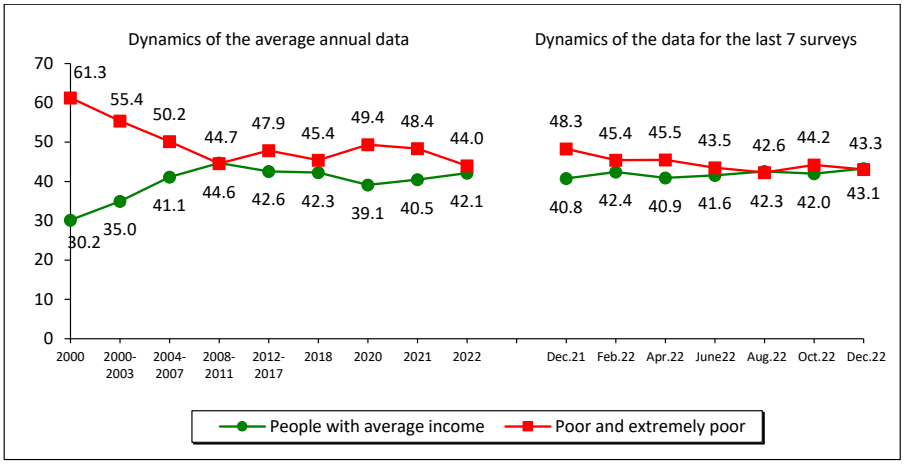
Answer option	Dynamics (+/-), December 2022 to Dec. 2021	Feb. 2022	Oct. 2022
Everything is not so bad and life is livable; life is hard, but we can endure it	-4	-1	0
It's impossible to bear such plight	-1	-3	-1

The proportion of Vologda Oblast residents subjectively classifying themselves as "poor and extremely poor" over the past two months did not change significantly (43–44%); the share of those who subjectively classify themselves as "middle-income people" also remains stable (42–43%).

From February to December 2022, the share of "middle-income" people was 42–43%, while the proportion of the "poor and extremely poor" decreased slightly (by 2 percentage points, from 45 to 43%).

Over the past 12 months (December 2021 – December 2022), mainly positive changes were noted in the dynamics of social self-identification: the share of "poor and extremely poor" residents of the region decreased by 5 percentage points (from 48 to 43%); the proportion of "middle-income people" increased by 2 percentage points (from 41 to 43%).

Social self-identification



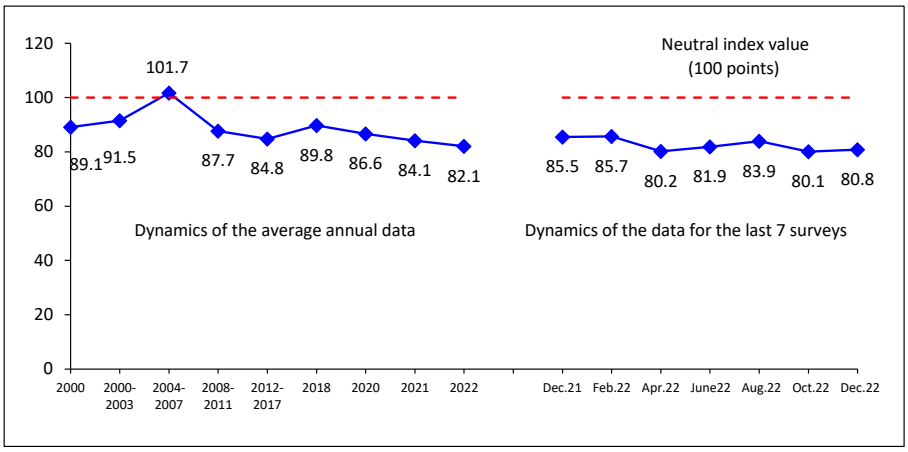
Answer option	Dynamics (+/-), December 2022 to Dec. 2021	Feb. 2022	Oct. 2022
People with average income	+2	+1	+1
Poor and extremely poor	-5	-2	-1

Question: "What category do you belong to, in your opinion?"

In October – December 2022, the Consumer Sentiment Index (CSI) was 80–81 points.

We note a decrease in the CSI for the period from February to December 2022 (by 5 percentage points, from 86 to 81 points), and also for the period from December 2021 to December 2022 (by 5 p.p., from 86 to 81 p.). Thus, the dynamics of the CSI over the past year indicates an increase in people's pessimistic forecasts regarding the future of the Russian economy and their personal financial situation.

Consumer Sentiment Index
(CSI, points; data of VoIRC RAS for the Vologda Oblast)



CSI	Dynamics (+/-), December 2022 to Dec. 2021	Feb. 2022	Oct. 2022
Index value, points	-5	-5	+1

For reference:

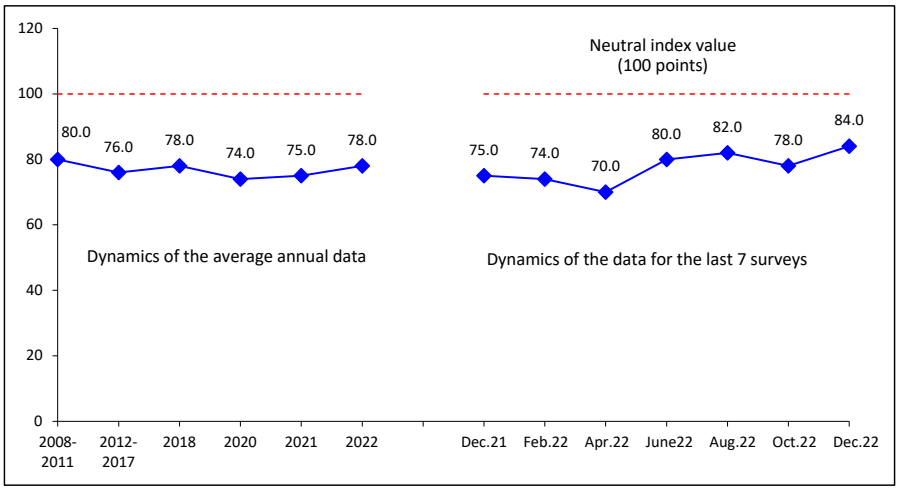
According to the all-Russian surveys conducted by Levada-Center, there are positive trends in the dynamics of the CSI over the past two months (the CSI increased by 6 points, from 78 to 84 p.).*

For the period from February to December 2022, the CSI increased by 10 points (from 74 to 84 p.).

From December 2021 to December 2022 – by 9 points (from 75 to 84 points).

* Included in the register of foreign agents.

Consumer Sentiment Index
(CSI; Levada-Center* data for Russia)



Dynamics (+/-), December 2022 to			
CSI	Dec. 2021	Feb. 2022	Oct. 2022
Index value, points	+9	+10	+6

The index is calculated since 2008.

Latest data are as of August 2022.

Source: Levada-Center*. Available at: https://www.levada.ru/indikatory/sotsialno-ekonomicheskie-indikatory/

The dynamics of social mood for the period from October to December 2022 do not show any negative changes in social mood assessments in any of the main socio-demographic groups. At the same time, the share of positive assessments increased in 6 out of 14 groups: especially among people who, according to self-estimates of income, belong to the category of bottom 20% (by 4 percentage points, from 51 to 55%); among people under the age of 30 (by 4 percentage points, from 75 to 79%) and among people with secondary and incomplete secondary education (also by 4 percentage points, from 59 to 63%).

From February to December 2022, negative changes in social mood assessments are noted in most socio-demographic groups (in 9 out of 14), especially among people over 55 years of age (the share of positive assessments decreased by 8 percentage points, from 65 to 57%) and 20% of the most affluent (according to self-estimates of income level) residents of the Vologda Oblast (by 7 percentage points, from 82 to 75%).

For the period from December 2021 to December 2022, negative changes are observed in almost all major population groups. First of all, the share of those who characterize their mood as “normal, fine, good” decreased among people who, according to self-estimates of income, belong to the top 20% of the region’s residents (by 10 percentage points, from 85 to 75%).

* Included in the register of foreign agents.

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. 2022 to		
	2000	2007	2011	2012	2018	2020	2021	2022	Dec. 2021	Feb. 2022	Apr. 2022	June 2022	Aug. 2022	Oct. 2022	Dec. 2022	Dec. 2021	Feb. 2022	Oct. 2022
Sex																		
Men	50.1	65.9	64.5	69.1	72.8	60.8	65.7	66.8	71.5	65.5	68.3	67.4	69.9	65.0	64.7	-7	-1	0
Women	43.3	61.7	62.0	65.8	69.8	61.2	67.4	67.9	72.8	72.3	65.1	69.7	70.2	63.3	66.5	-6	-6	+3
Age																		
Under 30	59.1	71.3	70.0	72.3	80.0	67.6	73.5	77.6	81.9	75.3	81.8	77.3	77.8	74.5	78.7	-3	+3	+4
30–55	44.2	64.8	62.5	67.9	72.6	61.8	69.5	69.4	75.1	70.7	71.1	68.8	72.0	65.2	68.5	-7	-2	+3
Over 55	37.4	54.8	58.3	62.1	65.2	57.4	60.5	61.1	65.2	65.3	55.2	65.3	64.6	58.7	57.2	-8	-8	-2
Education																		
Secondary and incomplete secondary	41.7	58.4	57.4	57.2	64.8	56.1	62.1	64.6	69.7	68.7	63.0	65.8	68.5	58.9	62.7	-7	-6	+4
Secondary vocational	46.4	64.6	63.6	66.7	72.2	63.5	66.7	68.3	70.1	68.3	69.8	70.5	71.0	65.8	64.3	-6	-4	-2
Higher and incomplete higher	53.3	68.6	68.3	77.0	76.8	63.3	71.5	69.5	77.6	71.5	66.9	69.7	70.8	67.5	70.6	-7	-1	+3
Income group																		
Bottom 20%	28.4	51.6	45.3	51.5	57.3	43.4	54.6	57.0	64.0	60.5	61.5	58.4	55.4	50.7	55.4	-9	-5	+4
Middle 60%	45.5	62.9	65.3	68.7	71.9	62.6	67.3	68.1	71.1	68.8	64.2	70.3	73.2	65.9	66.1	-5	-3	0
Top 20%	64.6	74.9	75.3	81.1	82.9	75.6	79.9	78.3	85.3	81.5	81.9	75.7	77.0	78.7	74.9	-10	-7	-4
Territories																		
Vologda	49.2	63.1	67.1	73.6	71.0	60.9	60.3	59.8	65.7	63.2	60.2	61.0	61.5	55.7	57.2	-9	-6	+2
Cherepovets	50.8	68.1	71.2	76.2	75.8	60.4	71.0	71.2	75.1	72.6	70.1	72.8	74.6	67.9	69.1	-6	-4	+1
Districts	42.2	61.6	57.1	59.8	68.7	61.4	67.8	69.5	74.2	70.8	68.1	70.6	72.3	66.6	68.5	-6	-2	+2
Oblast	46.2	63.6	63.1	67.3	71.2	61.0	66.6	67.4	72.2	69.3	66.5	68.7	70.1	64.1	65.7	-7	-4	+2

RESUME

The results of the next "wave" of surveys conducted in December 2022 allow us to draw the following conclusions.

1. Taking into account the noticeable deterioration in public opinion assessments in August – October 2022 on such important monitoring indicators as the assessment of social mood, stock of patience and the Consumer Sentiment Index (reflecting, respectively, people's psychological well-being at the present time and their ideas about the prospects of the future), we may argue that positive changes can be found in the stabilization of population estimates according to the following indicators in December 2022:

✓ from October to December 2022, the share of positive assessments of social mood increased by 2 percentage points (from 64 to 66%, after a decrease in August – October by 6 percentage points, from 70 to 64%);

✓ the stock of patience in October – December did not change (75%), but it had previously shown a noticeable decrease in August – October 2022 (by 4 percentage points, from 79 to 75%);

✓ the CSI in October – December 2022 amounted to 80–81 points, while according to the results of the previous survey it had decreased by 4 points (from 84 to 80 points).

Apparently, the negative changes in August – October were due to a completely natural reaction of people toward the partial mobilization announced by the President of the Russian Federation on September 21, 2022 (October 28, 2022, Russian Defense Minister Sergei Shoigu told Vladimir Putin that all the events related to the partial mobilization were completed)[4].

2. The level of approval of the President's work has remained stable since June 2022 (58–60%). At the same time, in general, during the period of the special military operation (from February to December 2022), the share of positive assessments of the work of the head of state increased significantly (by 12 percentage points, from 48 to 60%), which indicates that the majority of the population understands and supports the political course implemented by the President.

This is confirmed by the similar dynamics of people's assessments of the success of the Russian President's efforts to address key national problems (the increase in the share of positive judgments for the period from February to December 2022 for all key tasks amounted to 5–7 percentage points), as well as an increase in support for the United Russia party of power over the period of the special military operation (from February to December 2022 – by 7 percentage points (from 31 to 38%)).

3. The fact that throughout virtually the entire year, the approval of the work of the Chairman of the RF Government and the approval of the work Vologda Oblast Governor continue to increase gradually (from February to December 2022, the share of positive assessments increased by 12–13 percentage points), indicates that society positively assesses the work of federal and regional authorities on the practical implementation of measures to support the population in a difficult economic situation (in particular, caused by the current economic sanctions against Russia).

At the same time, a number of changes in the dynamics of public opinion over the period from February to December 2022 arouse caution and require increased attention from management decision makers:

1. During this period, in the majority of the main socio-demographic groups (in 9 out of 14), the proportion of people describing their daily emotional mood as "normal, fine, good" decreased; the changes are quite noticeable:

- ✓ **among people over 55 years of age – by 8 percentage points (from 65 to 57%);**
- ✓ **in the group of 20% of the most affluent (according to self-estimates of income level) residents of the region – by 7 percentage points (from 82 to 75%);**
- ✓ **among women (from 72 to 66%), people with secondary and incomplete secondary education (from 69 to 63%), and residents of Vologda (from 63 to 57%) – by 6 percentage points.**

2. The Consumer Sentiment Index for the period from February to December 2022 decreased by 5 points (from 86 to 81 p.), consequently, Vologda Oblast residents started showing more pessimistic attitudes in assessing the prospects for economic development and their own financial situation.

3. Since the middle of the year (since June), there have been no significant positive changes in the dynamics of the level of approval of the President's work and the assessment of the success of his work in addressing key national problems: the share of positive assessments of the work of the head of state from June to December amounted to 58–60%; the share of positive assessments of the success of addressing key national problems has either remained unchanged or increased by 1–2 percentage points. Relatively stable dynamics of improvement in public opinion assessments is noted only in relation to the activities of the head of state aimed at boosting the economy and improving citizens' welfare (from February to December, the share of positive assessments increased by 7 percentage points, from 28 to 35%; from June to December – by 4 percentage points, from 31 to 35%).

[4] Meeting of the President of the Russian Federation with Defense Minister Sergei Shoigu on October 28, 2022. Available at: http://kremlin.ru/events/president/news/69703

Thus, according to the results of the latest monitoring "wave" and, in general, according to the results of the analysis of the public opinion dynamics for 2022, we can say that the majority of the population "reacted" to the increased threats to national security after the start of the SMO (February 24, 2022) by consolidating around the President and the goals of national development he declared so as to achieve full national sovereignty. At the same time, society supports not only the head of state, but also other authorities, which indicates the effectiveness of public administration in terms of implementing key management decisions taken throughout the year.

At the same time, we should note that the decline in the pace of positive dynamics in a number of key monitoring indicators since the middle of the year, as well as a noticeable deterioration in the assessments of people's social well-being during the period of partial mobilization suggests that public opinion (especially in the current alarming conditions) is quite mobile; people support the actions of the authorities, but quite naturally, they are in the general tense atmosphere that has developed in the external and internal political arena in the context of the SMO.

Perhaps, the quintessence of these processes can be considered one of the key results of the country's development in the context of the SMO, which the President summed up at an expanded meeting of the board of the Ministry of Defense of the Russian Federation on December 21, 2022: "The country, the Government will provide whatever the Army asks for, anything. I hope that the answer will be properly formulated and the appropriate results will be achieved"[5].

Materials were prepared by M.V. Morev, I.M. Bakhvalova

[5] Vladimir Putin's speech at an expanded meeting of the Board of the Defense Ministry. Available at: http://www.kremlin.ru/events/president/transcripts/70159

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