ECONOMIC AND SOCIAL CHANGES:

FACTS, TRENDS, FORECAST

Federal State Budgetary Institution of Science Vologda Research Center of the Russian Academy of Sciences (VolRC RAS), which existed as Vologda Scientific Coordinating Center of Central Economic and Mathematical Institute of RAS until March 2009, is situated on the territory of the Vologda Oblast. V.A. Ilyin, Doctor of Economics, Professor, Honored Scientist of Russia, is the permanent director of the Institute. A lot of great scientists have played an important role in the formation and the development of ISEDT RAS as a scientific institution such as: academicians D.S. Lvov, V.L. Makarov, V.I. Mayevsky, A.D. Nekipelov, Y.S. Osipov. Everything that has been done before and is being done nowadays by the personnel of the Institute, it would be impossible without the constant support of the Vologda Oblast's Government and city leaders.

The formation of the scientific personnel with an active life position, a great demand for Institute's investigation, academic community's support of the new journal published by ISEDT RAS, which combined efforts of the economic institutes of RAS in the Northwestern Federal District, and furthermore development of international ties have become the main outcomes of the last years.

MAIN RESEARCH DIRECTIONS

Due to the Resolution № 96 by the Presidium of Russian Academy of Sciences dated from March 31, 2009 VolRC RAS carries out investigations 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.

INTERNATIONAL TIES AND PROJECTS

In order to integrate scientific activities of the Institute's scholars into global research area, international scientific conferences are held on a regular basis; they result in cooperation agreements with different scientific establishments:

2007 – Cooperation agreement is signed with 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 Institute of Economics of the National Academy of Sciences of Belarus (Minsk, 2010).

2011 − Cooperation agreements are signed with National Institute of Oriental Languages and Civilizations (Paris, 2011), Institute of Business Economy at Eszterhazy Karoly College (Hungary, 2011), Republican research and production unitary enterprise "Energy Institute of NAS" (Belarus, 2011). Protocol of intentions 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 − Cooperation agreement 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 Jiangxi Academy of Social Sciences (China, 2014).

NEW PUBLICATIONS OF VolRC RAS

Ilyin V.A., Povarova A.I. *Public Administration Efficiency. 2000−2015. Contradictory Outcomes − an Expected Result: Monograph*.

While Analyzing the Past, to Think about the Future. Under the scientific supervision of Doctor of Economics, Professor V.A. Ilyin.

Ilyin V.A. *Public Administration Efficiency: Chief Editor's Point of View*.

Strategy and Tactics of Implementation of Socio-Economic Reforms: Regional Aspect: Proceedings of the Seventh Research-to-Practice Conference, Vologda, Russia, December 17−19, 2015.

Shabunova A.A., Guzhavina T.A., Dement'eva I.N., Kozhina T.P., Lastovkina D.A., Afanas'ev D.A. *Regional Civil Society: Development Dynamics: Monograph*.

Global Challenges and Regional Development in the Mirror of Sociological Measurement: Proceedings of the Online Research-to-Practice Conference. Vologda, March 14−18, 2016.

CONTENT

PUBLIC FINANCE

REGIONAL ECONOMY

DEVELOPMENT OF MUNICIPAL FORMATIONS

ENVIRONMENTAL ECONOMICS

FOREIGN EXPERIENCE

SOCIAL DEVELOPMENT

PUBLIC OPINION MONITORING

EDITORIAL

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Revisiting the Issue Concerning the Future of Russian Statehood

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Abstract. National and regional surveys show that the expert community is dominated by pessimistic assessments concerning the prospects of Russia's future. The paper discusses the reasons for such a situation. We provide the data on the results of the gubernatorial elections that were held September 9, 2018 and showed that the support for candidates from the United Russia, the current ruling party, has decreased. In addition, we analyze the open data of official reporting of major corporations from five Russian regions; it allows us to draw a conclusion about the existence of legislative conditions in Russia that make it possible for major taxpayers to minimize the tax base, which leads to significant losses of the budgets of constituent entities of the Russian Federation. The paper concludes that it is necessary for the President to make tough decisions aimed at improving the efficiency of the public administration system.

Key words: forecast, expert evaluation, public administration efficiency, regional elections, budget.

In recent years the Russian expert community has been widely discussing issues related to the quality of administration and the legitimacy of government decisions. It also pays much attention to scandalous facts of corruption and many other manifestations of "capitalism for the elite" in the political system of post-Soviet Russia, to the flaws in statistics and in organizing electoral procedures, to the increasing socio-economic stratification of society, which leads to negative changes in the dynamics of people's psychological state, including various forms of social discontent with regard to the situation in the country. All these topics reflect the degree of public administration efficiency; and a significant number of scientific publications by specialists from different fields (economists, sociologists, public figures, etc.)[1], are the evidence of their relevance in modern Russia.

However, the above problems are united not only by their representativeness in terms of assessing public administration efficiency, but also by the fact that all of them together lead, perhaps, to the main issue – the prospects for the future of the Russian statehood, which becomes especially relevant against the background of Vladimir Putin's last presidential term (according to the current Constitution of the Russian Federation). It should be noted that this issue is important not only from the point of view of such important aspects as the achievement/non-achievement of the targets set out in the May 2018 decree, or with regard to the condition in which Putin will hand the country over to his successor (and in what situation the presidential election of 2024 will be held), but also from a broader perspective, which includes current trends in public attitudes, dynamics of the standard of living and quality of life, global struggle of capitalist and socialist development paradigms, globalization processes and the role of nation states; and the national interests of the country, which is one of the leading participants in geopolitical competition and potentially one of the centers of a multipolar world, which in the coming decades, and maybe centuries will determine the response of the entire human civilization to the global socio-economic and natural-climatic challenges of tomorrow.

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[1] See for example: A.R. Belousov's speech at the Eastern Economic Forum (Vladivostok, September 11–13);

Glazyev S.Yu. *Why the Russian economy is not growing (September 29, 2017)*. Official website of S.Yu. Glazyev. Available at: https://www.glazev.ru/articles/6-jekonomika/54326-pochemu-ne-rastet-rossi-skaja-jekonomika;

Gontmakher E.Sh. Russian social inequality as a factor of socio-political stability. *Voprosy ekonomiki,* 2013, no. 4, pp. 68-82.

Grinberg R.S. Pension reform as self-discreditation of Russian liberalism. *Nezavisimaya gazeta*, 2018, September 24. Available at: http://www.ng.ru/scenario/2018-09-24/10_7317_pensii.html;

Gubanov S.S. Notes on the system foundations of Russia's economic security. *Ekonomist,* 2017, no. 6, pp. 3-12;

Dobren'kov V.I., Ispravnikova N.R. The Russian version of "capitalism for the few": is there a way out of the impasse? *Vestnik Moskovskogo universiteta. Seriya 18: Sotsiologiya i politologiya,* 2013, no. 3, pp. 26-55;

Sulakshin S.S., Bagdasaryan V.E. et al. Is Russia to Expect a Revolution? Issues of Transition to the Post-Liberal Model of Russia (Algorithm and Scenarios). Moscow: Nauka i politika, 2016. 712 p.;

Starikov N.V. From the Belovezha consensus to the Crimean consensus. *Official blog of N. Starikov*. Available at: https://nstarikov.ru/blog/80284;

Titov B.Yu., Shirov A.A. Strategy of growth for Russia. *Voprosy ekonomiki,* 2017, no. 12, pp. 24-39;

Toschenko Zh. T. *Phantoms of Russian Society*. Moscow: Center for Social Forecasting and Marketing, 2015. 668 p.;

Polterovich V.M. Reformers of science lack the necessary qualifications to cope with the task. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz*, 2015, no. 3, pp. 28-31.

Data of large-scale Russian[2], and regional[3] surveys conducted (we emphasize) not among "ordinary" Russians, but among the expert community, that is, among the authoritative experts with specialized knowledge, experience and with a more balanced position, allow us to make one very important conclusion that reflects the prospects of our country in this difficult historical period, which (and here we cannot but agree with V. Putin) is truly of a "landmark nature"[4].

In a five-year term, according to experts, the essential factors **for the desirable development of the situation in Russia** include "rotation of the political elite in the center and in regions", "stability of legislation and the rules of the game", "transparent (with public control) and legitimate elections at all levels of government", "changing the attitude of the state toward the sphere of culture, education and science, abandonment of the plans to commercialize this sector", "strengthening the role of representative bodies, and developing a multiparty system". All

these factors scored more than seven points on a 10-point scale according to the opinions of both national and regional experts, which means that the degree of their "desirability" for the future of Russia is assessed as the highest *(Insert 1)*.

At the same time, both national and regional experts named **the most likely negative factors, which will influence the future of our country.** They are as follows: "reduction in people's incomes, rising prices, falling living standards, unemployment", "prolongation of sanctions of Western countries against Russia; barriers to the imports of critical goods, resources, technologies, and ideas"; "sharp drop in oil and gas prices; crisis of the Russian oil and gas industry; reduction of budget revenues"; "collapse of social infrastructure (health, education, culture), professionals quitting their jobs, reduction of personnel and institutions, collapse of intra-sectoral communications"; "tightening of internal policy, reduction of rights and freedoms of citizens, introduction of formal and/or informal censorship in the media, etc." *(Insert 2)*[5].

We can draw an obvious conclusion based on the data presented above: the desired future of Russia and the actual forecasted situation in it in the medium term (for the next five years) are not just different, but in many ways opposite; and, unfortunately, experts see the situation in the country in the near future as obviously pessimistic.

We should point out that many of the events that had been forecasted by Russian experts in 2015 became a fact in 2018. In particular, this applies to "successful presidential elections"; "extension of sanctions"; "raising the retirement age" (Federal Law No. 350 On amending certain

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[2] The expert survey was conducted by the Institute of Sociology of the Russian Academy of Sciences with participation of ZIRCON Research Group in July – October 2015; 154 experts took part in the survey: 94 from Moscow and 64 from different regions of the country. Five types of specialists were involved in the survey: 1) state and municipal employees, officials, top managers, heads of state universities, 2) representatives (heads) of business structures and business associations, commercial consulting centers, 3) representatives (heads) of public associations, NPOs, independent intellectual organizations, clubs, etc., 4) journalists, publicists, actively speaking in the media with materials on the subject of research, 5) researchers, scientists, specialists from analytical centers, professionally engaged in the study of problems and prospects of development of the country (Source: Gorshkov M.K., Petukhov V.V. (Eds.). *Russian Society and the Challenges of the Time. Book Four*. Moscow: Ves' Mir, 2016. 400 p.).

[3] The survey was conducted by VolRC RAS in the Vologda Oblast in February – March 2018. The sample included established specialists in their fields (heads, their deputies, persons with considerable working experience, candidates and doctors of sciences, etc.), representing those fields that, in our opinion, fully reflect the situation in Russian society: the government, business, third sector (nonprofit organizations), media, and science. From five to seven people were interviewed in each of the five key fields. The total sample size was 30 people.

[4] The President's Address to the Federal Assembly on March 1, 2018. *Official Website of the RF President*. Available at: http://www.kremlin.ru/events/president/news/56957

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[5] All of these positions on a 10-point scale scored from 5 to 7 points (1 point – unlikely, 10 points – most likely). The divergence of opinions between Russian and regional experts manifested itself in relation to only one factor – "a sharp drop in oil and gas prices, the crisis of the Russian oil and gas industry, a reduction in budget revenues". According to Russian experts, the average assessment of the probability of the impact of this factor on the future of Russia is 6.7 points, according to regional experts – 4.6 points.

legislative acts of the Russian Federation on the assignment and payment of pensions" was signed by the President of the Russian Federation on October 3, 2018); "raising taxes and excise duties"[6]... In other words, there is no reason to doubt either the authority of the interviewed experts or the fact that their other forecasts will be implemented with a high degree of probability.

> ...Since we clearly see the workings of the so-called "Anti-Russia Project", the goal of which is geopolitical destruction of Russia, then the forecasting of the country's development scenarios becomes more definite. **There have been no significant changes in the liberal model of the country for many years and even during the crisis of 2014–2015. The commitment to the liberal model becomes even more firm. Accordingly, degradation processes that turn into a crisis also become stable processes.** Personnel policy is extremely conservative. The system of reflection in the management is almost suppressed, the governing center found itself in its own trap of false information. Apparently, the system of initial values and goals has finally abandoned the interests of the country as a whole, the interests of the majority of the population, the goals of sustainable development, Russia's political standing, and its achievements in the classical set of development goals... Thus, the modern historical process, in which Russia is immersed, has become more definite. Based on its qualitative vision, the conservative options that are most likely to happen according to the study cease to be surprising. **This is a scenario of prolongation of the liberal model, a scenario of balancing on the threshold of development sustainability...**[7]

What are the reasons for such pessimistic expert forecasts concerning the future of Russia? The answer to this question is very clear. Experts say that "in accordance with the libertarian attitude, Yeltsin's team and then Putin's team began to carry out unpopular reforms only in the interests of the minority"[8]. Thus, this pessimism is based on the following outcomes of this policy: lingering (for almost 20 years) urgent issues like an inefficient economy in which there are no innovative sources for growth, "manual control mode" of the political system, which instead of a mechanism designed to promote the implementation of national interests increasingly resembles a "boiling pot" in which the ingredients of personal interests of representatives of large capital are mixed with the remnants of the "Yeltsin" political elite; the crisis condition of science and education, depriving Russia of the opportunity to use human and intellectual potential — the main force that will determine the level of development of the country and its position in the international political arena; and to top it all — the increasing gap between government and society, due to the neglect of national interests on the part of the former; and fatigue from corruption, social inequality, social injustice and the inability to influence the current state of affairs in the country on the part of the latter.

> In order to move forward and develop dynamically, we must expand the space of freedom in all spheres, strengthen the institutions of democracy, local self-government, civil society structures and courts, be a country open to the world, to new ideas and initiatives. It is necessary to implement long overdue, difficult, but extremely necessary decisions. It is necessary to eliminate everything that hinders our movement, prevents people from implementing their potential to the fullest extent... If we don't do this, there will be no future neither for us, nor for our children or our country[9].

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[6] Gorshkov M.K., Petukhov V.V. (Eds.). *Russian Society and the Challenges of the Time. Book Four.* Moscow: Ves' Mir, 2016. P. 342.

[7] Sulakshin S.S., Bagdasaryan V.E. et al. *Is Russia to Expect a Revolution? Issues of Transition to the Post-Liberal Model of Russia (Algorithm and Scenarios).* Moscow: Nauka i politika, 2016. Pp. 669-670.

[8] Grinberg R.S. Pension reform as self-discreditation of Russian liberalism. *Nezavisimaya gazeta*, 2018, September 24. Available at: http://www.ng.ru/scenario/2018-09-24/10_7317_pensii.html

[9] The President's Address to the Federal Assembly on March 1, 2018. *Official Website of the RF President*. Available at: http://www.kremlin.ru/events/president/news/56957

Insert 1

Distribution of estimates of the need for different factors (conditions) to achieve the desired situation in Russian society by 2020

(average score on a scale from 1 – "no need" to 10 – "absolutely necessary")*

Data of the all-Russian survey (IS RAS, 2015)		Data of the survey conducted on the territory of the Vologda Oblast (VolRC RAS, 2018)	
1. Rotation of the political elite in the center and in regions	8.5	1. Changing the attitude of the state toward the sphere of culture, education and science, abandonment of commercialization of this sphere	9.8
2. Transparent (with public control) and legitimate elections at all levels of government	8.1	2. Stability of legislation and the "rules of the game"	9.5
3. Stability of legislation and the "rules of the game"	8.0	3. Transparent (with public control) and legitimate elections at all levels of government	9.3
4. Changing the attitude of the state toward the sphere of culture, education and science, abandonment of commercialization of this sphere	7.7	4. Preserving the foreign policy aimed to restore a strong role of Russia in world politics, independence, protection of national interests	9.2
5. Strengthening the role of representative bodies of power; development of a multi-party system	7.2	5. Rotation of the political elite in the center and in regions	8.5
6. Removal of sanctions by Western countries, restoration of dialogue and relations with the West	6.7	6. Strengthening the role of representative bodies of power; development of a multi-party system	7.8
7. Preserving the foreign policy aimed to restore a strong role of Russia in world politics, independence, protection of national interests	6.4	7. Removal of sanctions by Western countries, restoration of dialogue and relations with the West	7.7
8. Strengthening the influence of the Russian Orthodox Church, expanding the network of its parishes	3.6	8. Strengthening the influence of the Russian Orthodox Church, expanding the network of its parishes	4.8
9. Continuing the priority development of the resources sector of the economy, taking into account competitive advantages of Russia in the global division of labor; maintaining relatively low prices for labor and raw materials	3.0	9. Continuing the priority development of the resources sector of the economy, taking into account competitive advantages of Russia in the global division of labor; maintaining relatively low prices for labor and raw materials	4.3

* The factors that scored more than 5 points on a scale of 1 to 10, that is, that experts consider most necessary, are highlighted in green.

Insert 2

**Distribution of estimates of the probability of the factors (conditions),
in the context of which Russian society will develop in the next five years
(average probability score on a scale from 1 – "unlikely" to 10 – "most likely")***

Data of the all-Russian survey (IS RAS, 2015)		Data of the survey conducted on the territory of the Vologda Oblast (VolRC RAS, 2018)	
1. Reduction in people's incomes; rising prices; falling living standards; unemployment	7.7	1. Prolongation of sanctions of Western countries against Russia; loss of opportunity to import critical goods, resources, technologies, and ideas	6.2
2. Prolongation of sanctions of Western countries against Russia; loss of opportunity to import critical goods, resources, technologies, and ideas	7.6	2. Sharp increase in the demand for engineering professions and specialties; increase in the demand for engineering employees; reorientation of the labor market from the service sector toward the production sector	5.4
3. Sharp drop in oil and gas prices; crisis of the Russian oil and gas industry; reduction of budget revenues	6.7	3. Reduction in people's incomes; rising prices; falling living standards; unemployment	5.3
4. Collapse of social infrastructure (health, education, culture), professionals quitting their jobs, reduction of personnel and institutions, collapse of intra-sectoral communications	6.5	4. Collapse of social infrastructure (health, education, culture), professionals quitting their jobs, reduction of personnel and institutions, collapse of intra-sectoral communications	5.1
5. Tightening of internal policy, reduction of rights and freedoms of citizens, introduction of formal and/or informal censorship in the media, etc.	6.4	5. Tightening of internal policy, reduction of rights and freedoms of citizens, introduction of formal and/or informal censorship in the media, etc.	5.1
6. Mass distribution of technologies for tracking citizens' behavior, total loss of privacy	6.3	6. Successful import substitution; development of non-resource sectors; improvement of the investment climate	5.0
7. Man-made and other disasters, major accidents, including those caused by the human factor	5.9	7. Mass distribution of technologies for tracking citizens' behavior, total loss of privacy	4.7
8. Increased terrorist pressure on Russia (terrorist attacks, sabotage, intimidation)	5.1	8. Increased terrorist pressure on Russia (terrorist attacks, sabotage, intimidation)	4.7
9. Sharp increase in the demand for engineering professions and specialties; increase in the demand for engineering employees; reorientation of the labor market from the service sector toward the production sector	4.6	9. Sharp drop in oil and gas prices; crisis of the Russian oil and gas industry; reduction of budget revenues	4.6
10. Large-scale war in Ukraine with direct or indirect participation of Russia and NATO countries	4.5	10. Man-made and other disasters, major accidents, including those caused by the human factor	4.2
11. Reducing the inflow of migrants from Asia; increasing migration (workers, professionals) from Europe	3.7	11. Large-scale war in Ukraine with direct or indirect participation of Russia and NATO countries	3.8
12. Successful import substitution; development of non-resource sectors; improvement of the investment climate	3.7	12. Reducing the inflow of migrants from Asia; increasing migration (workers, professionals) from Europe	3.5

* The factors that scored more than 5 points on a scale of 1 to 10, that is, that experts consider most probable, are highlighted in green.

It should be noted that all subjects of social development have their own ideas about the future: the government, society, academia, business, etc. The ideas of the Russian President about the future (which can be judged by his public speeches) are supported by society, as evidenced by his receiving unconditional support during the election, as well as a significant gap in the level of trust in the President compared to all other governmental and non-governmental institutions.

However, political elites have completely different perceptions of the future (this fact shows the presence of a deep contradiction in the current system of public administration, which in modern conditions must consolidate its efforts in order to implement the prime goal — breakthrough development as the only way to overcome the backward, "vassal" position). These views are quite consistent with the statement that "the government is under no obligation to guarantee the working population any rights"[10], and with the devaluation of human life. Suffice it to recall such statements as "there's no money, but you hang in there!" (Dmitry Medvedev) or the suggestions to "send parents to assisted-living facilities" (German Gref).

> **If the country is preparing a radical change of economic and overall domestic policy, it should all start with a change of Prime Minister.** But currently, there are no changes: everything goes along the way of preservation of the non-initiative work aimed only at maintaining the current life of the state[11].

According to experts, "in his Address to the Federal Assembly the President spoke about the development program, but it is remembered in many ways due to its second part related to foreign policy. As a result, the society had expectations of a rapid socio-economic breakthrough, but had no understanding that it would be necessary to sacrifice something and rebuild everything to achieve the goal… The breakthrough and serious internal changes are promised; society is actually consolidated around the President and this agenda, and the government leadership has changed little, it is associated with the continuation of the existing policy (it is clear that some ministers and deputy prime ministers were changed, but people know them little)"[12].

> We are dealing with a very serious and terrible geopolitical game that is directed against Putin. It involves supporters of the West, America, and the liberals in Russia. They proved much stronger, than many thought they were. It seemed that in recent years Putin thinned them out, shifted the fifth column, and that they represented a minority in the political establishment of Russia. But, as a matter of fact, they still keep their finger on the pulse, they are still in control and manage the main political processes… My forecast is pessimistic: Putin has been captured by a group of people who carry out the order of external centers to block him. He is disoriented and misinformed; he is being blackmailed (and it is a kind of geopolitical blackmail) by representatives of these global circles and their networks, who managed, in fact, to change radically the internal information policy of Russia[13].

In this regard, a reasonable question arises: why at the beginning of his last six-year term in office did the President refrain from carrying out the corresponding personnel changes in the Government? And this question is asked not by experts, but by the broad strata of Russian society, because Putin gave the answer to it in the course of his direct live phone-in session with the nation: "If we cleaned up the entire Government and brought absolutely new people in it, even very competent and well-trained people, then at least

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[10] Ivanov A. Meet the author of the pension reform. *Gazeta "Zavtra"*, 2018, June 24. Available at: http://zavtra.ru/events/avtor_pensionnoj_reformi_znakom_tes_

[11] Bashkatova A. The new Government becomes a Cabinet of one minister. *Nezavisimaya gazeta*, 2018, May 11. Available at: http://www.ng.ru/economics/2018-05-11/1_7222_siluanov.html (according to the Director of the Institute of Contemporary Economy N. Isaev).

[12] Skorobogatyi P. Landmark-2021. *Ekspert,* 2018, no. 41, October 8−14. P. 53.

[13] Dugin A.G. Liberal response to the Russian spring. Izborsk Club. 2014. October 27. Available at: https://izborsk-club.ru/4129

two years would be required to formulate the existing tasks, or set out new ones. We would lose at least two years. We don't have these two years to loose"[14].

Against the background of these unfavorable conditions, the President faces the need to wage war on two fronts: against the relentless hybrid attacks of our "foreign partners" and against the Russian political elite. The rapid start of a new political season and the processes that are taking place around and inside Russia in 2018 suggest that at the beginning of V. Putin's last presidential term, a large-scale war is being launched **against him personally**, and its sole purpose is to ruin the Russian statehood and to try once again what could not be brought to a "victorious end" in 1991.

Let us recall that in early 2018, the President announced the main strategic goals and objectives of Russia's development for the next six years. According to these plans, by 2024, our country should be among the world's leaders on parameters such as life expectancy and economic growth rates. Specific deadlines and resources were identified, at the expense of which it was planned to achieve the goals.

We should also note that a significant part of the President's Address to the Federal Assembly on March 1, 2018 was devoted to the presentation of the latest achievements of the Russian Armed Forces; the fact obviously pursued only one goal — "long-term security"[15]. It is also important that by the beginning of 2018, there was a certain consensus between the government and Russian society, there was a common understanding of development goals and objectives, which was an important factor for achieving the strategic goals. We add to this the last (according to the current Constitution of the Russian Federation) presidential term of V. Putin, that is, the "final

> The U.S. is not going to pit its nuclear strength against Russia's. The experience of the collapse of the USSR has shown that it is much more effective to act through the comprador elite and sanctions... Russia has two main threats:
>
> – an external threat will come from the territory of Ukraine, which the United States turned into its own colony and military base. The Minsk agreements are a trap for Russia and a betrayal of the Russian world. There is no sense and there cannot be any, and the process of the U.S. capturing Ukraine and the division of peoples is actively going on. The U.S. and the West benefit from it. If we lose Ukraine, then we will lose Russia;
>
> – an internal threat – the comprador elite which will sell Putin and Russia for the safety of its own capital and property (the fifth stage), and a short-sighted economic policy of the government, the impossibility of harmonious development of economy under this economic model[16].

lap" in achieving the tasks that he voiced in 1999; and we get a virtually complete set **of readiness and ability of one of the world's leading powers to make a powerful leap forward in the next six years thus outpacing the United States in the framework of geopolitical competition**.

Due to obvious reasons, such a situation could not satisfy the collective West, which continues to pursue (or, we can say, desperately cling to) only one goal — domination in the world arena. At the same time, the experience of information attacks (such as the Skripal case), open armed hostilities (such as the situation in Ukraine) and even economic (sanctions) attacks showed that such measures are unable to become a really serious obstacle to the implementation of Russia's plans.

And then the most powerful weapon available in the arsenal of our "foreign partners" — the liberal part of the Russian political elite itself — was used, which proved its effectiveness twice in the 20th century (in 1917 and 1991).

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[14] "Direct Line" with Vladimir Putin. *Official Website of the RF President*. Available at: http://www.kremlin.ru/events/president/news/57692

[15] The President's Address to the Federal Assembly on March 1, 2018. *Official Website of the RF President*. Available at:: http://www.kremlin.ru/events/president/news/56957

[16] Vasiliev A. Appeal to the Russian authorities. *Zavtra*, 2018, September 12. Available at: http://zavtra.ru/blogs/obrashenie_k_vlasti_rossii

In July 2018, a meeting of the United States Senate Committee on Banking, Housing, and Urban Affairs was held in Washington; at the meeting, the senators unanimously supported the extension of sanctions against Russia. This event once again proved the limitations of U.S. President Donald Trump's ability to establish partnership relations with Russia[17]. However, it would not have attracted our attention (after all, the sanctions against Russia have been imposed before and, most likely, this time is not the last one), if not for the following two points.

First, the sanctions were once again imposed against not all the "close associates of Putin" but only against those who are in his "Patriotic camp". According to experts, "... So far, there are other oligarchs in Russia – from liberals and from the Yeltsin Family. Putin has no control over their money. Mamuts, Fridmans, Shokhins and others like them represent a group of old liberals, their money is not Putin's money and not Russia's money. It is they who refused to give 500 billion for national purposes at the time of the war between Russia and the United States. But it is they whom the U.S. leaves alone. And as for Timchenko, who is called Putin's wallet, and who sold an oil company in Switzerland and invested the money in the infrastructure of the Crimean bridge, is under the sanctions"[18].

Second, Senator Michael McFaul at this meeting actually named the people who, according to experts, can be considered "the main supporting agents of U.S. influence in Russia": "I am well acquainted with Gref, Kostin, and Shuvalov – heads of the three largest state banks. We should involve them in the negotiation process

before the sanctions are imposed, and not after it has been done. When the sanctions are already in place, they cannot affect Putin"[19].

Analyzing McFaul's speech, experts also came to the conclusion that he "counts on the decline of President Putin's popularity due to the "unpopular pension reform"[20]. And, unfortunately, we cannot but admit that is quite a reasonable thought on McFaul's part.

"According to McFaul, the main goal of the United States is to oust Putin and his associates from power... To do this, it is not necessary to disconnect Russia and its key banks from the global payment and settlement system, says McFaul. It's pointless. The threat applied is losing its significance. Disconnection from the dollar system should act as a threat, as a tool of blackmail, rather than be implemented in practice. McFaul says it in plain text: it will be easier for Gref to put pressure on Putin if the threat is not implemented, but only possible. That is, Gref, Kostin, Nabiullina, Kudrin and Shuvalov are the main supporting agents of U.S. influence in Russia; through them, the U.S. intends to exert severe pressure on Putin"[21].

The pension reform project (the most resonant of the Government's first steps in the new political season) required the personal intervention of the head of state, which in itself indicates that the current Government lacks people who have the trust and authority of the general public. However, even the President's direct TV address to the nation on August 29 broadcast on federal TV channels did not significantly affect the situation: according to

[17] Let us recall that on July 16 in Helsinki, the first official meeting of Donald Trump with Russian President Vladimir Putin took place. According to the results of the meeting, experts noted that "the leaders have found common ground. The first step to start a dialogue has been taken" (source: The results of the meeting between Putin and Trump caused real rage in Washington. Vzglyad.ru. Available at: https://vz.ru/politics/2018/7/16/932798.html?utm_referrer=https%3A%2F%2Fzen.yandex.com)

[18] Khaldei A. What are Putin's assets? *Zavtra*, 2018, September 10. Available at: http://zavtra.ru/blogs/kak_amerikantci_protiv_vladimira_putina_sanktcii_vvodili

[19] Khaldei A. How Washington imposed sanctions against Vladimir Putin. Available at: https://regnum.ru/news/2477932.html

[20] Emelyanov E. Banks, energy and technology. The Congress discussed new sanctions against Russia. *Information portal L!fe*. 2018. September 7. Available at: https://life.ru/t/%D0%BF%D0%BE%D0%BB%D0%B8%D1%82%D0%B8%D0%BA%D0%B0/1149862/banki_enierghietika_i_tiekhnologhii_v_konghriessie_obsudili_novyie_sanktsii_protiv_rossii

[21] Khaldei A. How Washington imposed sanctions against Vladimir Putin. Available at: https://regnum.ru/news/2477932.html

VTsIOM, the level of approval of V. Putin's work from January to May 2018 was about 81−82%; at the end of June (when discussions about raising the retirement age began), it fell to 73%; in July − August, it was 64%, as well as in the period from September 2 to 16 (that is, after V. Putin's TV address). According to the public opinion monitoring conducted by the VolRC RAS in the Vologda Oblast, the level of support for the head of state has been steadily declining since June 2018: in June, the share of those who support the President's activities was 70%, in August − 66%, in October − 64%.

> …There are no guarantees that workers who have lived up to the newly established retirement age will receive decent pensions as government officials and individual experts assure. What are decent pensions? Today, as we know, Russians receive an average pension of 200 USD. And 1.5 million of our citizens receive only 100 USD. **So, when the President most seriously promises to increase the average pension by as much as 15 USD per year (!), not everyone rejoices at that.**
>
> If we also recall the indisputable fact that the average Russian of pre-retirement age in the first year of its extension loses the right to receive benefits that had been previously agreed upon with the government in the amount of about 170 thousand rubles (14x12), then the surge of mass outrage over the unpopular, but supposedly imminent reform should not be surprising.
>
> **The pension reform by definition aggravates the already huge financial inequality in Russia, as the increase in the retirement age directly deprives low-income Russians of the income the amount of which is very significant for them**[22].

Regional elections held September 9 were no less revealing. Despite the assurances of United Russia leader and Prime Minister Dmitry Medvedev that "almost all of them (acting

> It is generally believed that at regional elections it is important to talk about the situation at the local level. But the discussion of the federal pension reform itself has led to a number of questions about the quality of life at the local level: **what is the situation concerning the availability of health care after its optimization, the conditions and the market of legal labor, social benefits, real incomes of households in rural areas, where the guaranteed pension of the older generation (even if the pension is not high) is an important source of cash and benefits** (it is no coincidence that banks talk about the increase in the number of loans taken by pensioners). **The advertising campaign on the pension law in the first month seemed to ignore these pressing issues.** From this point of view, it is clear why the discontent at the regional level exceeded the agenda of constructive changes for the regional infrastructure, which was traditionally offered by the United Russia party[23].

governors. *Gazeta.ru*) showed quite good results", experts note that those elections "were held in a mode that the government was not used to"[24]. We are talking not only about the fact that in the Republic of Khakassia, Khabarovsk and Primorsky krais, and in the Vladimir Oblast, a second round of voting was required. Above all, in general, those elections showed extremely low turnout. Thus, according to the official data of the Central Election Commission, the turnout (compared to the previous vote) decreased in 13 of the 21 regions. In general, the number of people who took part in the voting decreased by almost two million in all constituent entities of the Russian Federation, where the election was held in 2018 *(Insert 3)*.

By the way, in August 2018, the Just Russia party proposed to postpone the single voting day from September to October, because "September

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[22] Grinberg R.S. Pension reform as self-discreditation of Russian liberalism. *Nezavisimaya gazeta,* 2018, September 24. Available at: http://www.ng.ru/scenario/2018-09-24/10_7317_pensii.html

[23] Skorobogatyi P. Landmark-2021. *Ekspert,* 2018, no. 41, October 8−14. P. 53.

[24] Vinokurov A. A difficult choice: the United Russia is waiting for the second round. *Gazeta.ru*, 2018, September 10. Available at: https://www.gazeta.ru/politics/2018/09/10_a_11957329.shtml

Insert 3

Turnout at the gubernatorial election, people

Territory	2014*	2018	Dynamics +/–, 2018 to 2014.
Kemerovo Oblast	1882274	1337419	-544855
Nizhny Novgorod Oblast	1533021	1046586	-486435
Samara Oblast	1421746	1143198	-278548
Voronezh Oblast	1072796	831091	-241705
Tyumen Oblast	1467923	1241452	-226471
Primorsky Krai	605200	443199	-162001
Krasnoyarsk Krai	672300	593401	-78899
Ivanovo Oblast	311593	265768	-45825
Orel Oblast	410155	364850	-45305
Novosibirsk Oblast	653136	628945	-24191
Amur Oblast	214017	194752	-19265
Pskov Oblast	213248	195407	-17841
Chukotka Autonomous Okrug	19501	17987	-1514
TOTAL sum of negative changes in regions	*10476910*	*8304055*	*-2172855*
Khabarovsk Krai	350232	354084	+3852
Republic of Sakha (Yakutia)	317501	321536	+4035
Magadan Oblast	34391	38737	+4346
Republic of Khakassia	147279	160090	+12811
Altai Krai	658808	683339	+24531
Vladimir Oblast	339121	372616	+33495
Moscow oblast	2101697	2144961	+43264
Omsk Oblast	528167	666627	+138460
TOTAL sum of positive changes in regions	*4477196*	*4741990*	*+264794*
Total result in regions	***14954106***	***13046045***	***-1908061***

* Source: calculated with the use of data from the website of the Central Election Commission of the Russian Federation. Ranked by the dynamics in 2018 to 2014.

Insert 4

Results of the gubernatorial election, people

Territory	2014*				2018				Dynamics +/–, 2018 to 2014 (thousand people)			
	United Russia	KPRF	LDPR	Just Russia	United Russia	KPRF	LDPR	Just Russia	United Russia	KPRF	LDPR	Just Russia
Kemerovo Oblast	1818087	9840	33411	6889	1084392	66005	66537	44853	-733.7	+56.2	+33.1	+38.0
Nizhny Novgorod Oblast	1328867	-	40124	86429	708807	174037	68035	45559	-620.1	-	+27.9	-40.9
Samara Oblast	1362676	58963	25237	16833	829118	114090	65362	29900	-533.6	+55.1	+40.1	-
Tyumen Oblast	1269069	-	91093	78560	816253	159081	161068	71569	-452.8	-	+70.00	-6.9
Voronezh Oblast	952271	82030	12081	-	602638	113655	51953	18471	-349.6	+31.6	+39.9	-
Moscow Oblast	1655479	161969	52938	38315	1338029	278148	123542	98995	-317.5	+116.2	+70.6	-
Primorsky Krai**	466654	76345	28731	-	206300	109129	41066	21416	-260.4	+32.8	+12.3	-
Amur Oblast	108363	31822	60545	-	108245	51715	-	15307	-118.0	+19.9	-	-
Vladimir Oblast**	253343	36063	13147	-	135633	-	116135	65105	-117.7	-	+103.0	-
Altai Krai	480086	73808	33958	49577	366277	-	110694	96617	-113.8	-	+76.7	+47.0
Khabarovsk Krai**	223542	34020	66920	13943	126018	55695	126693	19426	-97.5	+21.7	+59.8	+5.5
Ivanovo Oblast	250048	24386	19951	8988	174449	31619	25086	13984	-75.6	+7.2	+5.1	-
Krasnoyarsk Krai	425017	94067	36011	11448	356820	-	138364	73037	-68.2	-	+102.4	+61.6
Republic of Khakassia**	93324	12740	14621	5321	51771	71553	-	17930	-41.6	+58.9	-	+12.6
Pskov Oblast	166613	23859	5637	11230	138020	27011	10525	-	-28.6	+3.2	+4.9	-
Novosibirsk Oblast	423855	-	122757	88000	405722	-	109076	21300	-18.1	-	-13.7	-66.7
Chukotka Autonomous Okrug	15563	-	1911	1449	10398	2200	3319	1292	-5.2	-	+1.4	-0.157
Magadan Oblast	25127	5101	1829	1569	31598	3915	1810	-	+6.5	-1.2	-0.019	-
Republic of Sakha (Yakutia)	186471	16850	10121	-	229314	38648	19962	21139	+42.8	+21.8	+9.9	-
Omsk Oblast****	316527	148501	19372	-	-	-	56659	-	-	-	+37.3	-
Orel Oblast	-***	365392	15310	6661	-	304801	10609	17671	-	-60.6	-4.7	-
Sum by regions (abs.)	*11820982*	*1255756*	*705705*	*425212*	*7719802*	*1601302*	*1306495*	*693571*	*-4101.2*	*+345.6*	*+600.8*	*+268.4*

Ranked by changes in votes cast for representatives of the United Russia party in 2018 as compared to 2014.
Methodological notes on Insert 1 and Table 1:

* The goal of Insert1 is to compare the results of the September 9, 2018 election with the results of the previous election. In most regions, it was held on September 14, 2014, but in the Republic of Khakassia, Khabarovsk Krai, Chukotka Autonomous Okrug and in the Vladimir, Magadan and Moscow oblasts, the last election was held on September 8, 2013; in the Kemerovo, Amur and Omsk oblasts – on September 13, 2015.

** According to the results of the election held on September 9, 2018 in the Republic of Khakassia, Primorsky and Khabarovsk krais, as well as in the Vladimir Oblast, a second round of voting was required. This table presents the results of the first round, because we were interested in the primary expression of the will of the voters.

*** The "–" mark indicates the absence of a candidate from the relevant party.

**** KPRF and United Russia refused to nominate their candidates and stated their support for the acting Governor Burkov. He is a self-nominated candidate.

is an extremely inconvenient month for voting. Many Russians at this time have not yet returned from vacation. In addition, those who have private subsidiary plots are busy working there and just don't think about elections"[25]. However, the Cabinet of Ministers rejected the proposal.

As for the results of the vote compared to the previous elections, the share of votes cast for the candidates from United Russia decreased in 16 out of 21 constituent entities of the Russian Federation. According to our calculations, in absolute terms, the party in power lost more than four million votes *(Insert 4)*. According to experts, **"society is waiting for changes, but with an emphasis on social justice: on progressive taxation, and self-restraint of the elites,** and in perception of the general public, this does not coincide with what was proposed by the Government and advocated by United Russia this summer... United Russia is responsible for the Government's decisions in the socio-economic sphere... but now United Russia itself is beginning to be perceived as a party that carries out unpopular economic transformations"[26].

The reaction of society to the decisions made by the Government (especially in recent months) is understandable. Back in the 2000s, scientists noted that "non-involvement rather than protest vote is becoming the most common means by which citizens express their political discontent"[27]. Describing the situation around the single voting day in September 2018, experts also say that "the protest did not stay on the street, but was brought to the election", which, however, can be interpreted positively for the political system as

a whole, because "this means that the institution of elections performs the function of public feedback with the government. And the election results themselves should strengthen people's opinion that it is possible to change the local government through voting, rather than through protest actions"[28].

However, how can we characterize the reaction of officials to the decrease in turnout? E. Pamfilova commented on the situation with the turnout at a particular polling station in the Moscow region in Istra: "There is a certain amount of people who shall definitely come and vote. We will deal with that. It means these are active and responsible citizens who do care about what is happening in the country and the region"[29]. Such a statement can be called at least strange; after all, when the opinion of 60% of citizens (who did not vote in the election on September 9) is ignored, then it is difficult to talk about any kind of orientation of the government toward national interests (the situation was the same when the opinion of 90% of Russians concerning the pension reform was ignored, too). However, on the other hand, everything becomes quite logical if we consider that "at a lower turnout, the share of the controlled electorate voting for the "party of power" and its candidates is greater"[30]. Therefore, for example (as experts note), "the tactics of reducing the turnout was consciously used by the authorities in the elections to the State Duma of the sixth convocation"[31] (we note that due to this fact the United Russia party obtained a constitutional majority in Parliament and eventually implemented the pension reform).

[25] Zayakin A. The Cabinet of Ministers did not approve the transfer of the single day of voting to October. *Ekspress gazeta,* 2018, August 1. Available at: https://www.eg.ru/politics/588579-kabmin-ne-odobril-perenos-edinogo-dnya-golosovaniya-na-oktyabr-062299/

[26] Skorobogatyi P. Landmark-2021. *Ekspert*, 2018, no. 41, October 8–14. P. 54.

[27] *Twenty Years of Reforms Through the Eyes of Russians (an Experience of Long-Term Sociological Measurements): Analytical Report of the Institute of Sociology of the Russian Academy of Sciences in Cooperation with Friedrich-Ebert-Stiftung in the Russian Federation*. Moscow, 2011. 304 p. Available at: http://www.isras.ru/files/File/Doklad/20_years_reform.pdf.

[28] Skorobogatyi P. Landmark-2021. *Ekspert*, 2018, no. 41, October 8–14. P. 56.

[29] Head of the CEC Ella Pamfilova voted in the gubernatorial election in the Moscow Region in Istra. *Nedelya v okruge*, 2018, September 9. Available at: http://nedelya-v-okruge.ru/index.php/nedelya-v-okruge/4048-glava-tsika-ella-pamfilova-progolosovala-na-vyborakh-gubernatora-v-podmoskove-v-istre

[30] Lyubarev A. (an expert at the Committee of Civil Initiatives): Low turnout saved the United Russia party. *Information portal "Gazeta.ru"*. 2016. October 16. Available at: https://www.gazeta.ru/comments/2012/10/16_x_4813741.shtml

[31] *Ibidem.*

Thus, if there are American "agents in Russia"[32] and if their goal is to destroy the "Putin regime" from within, then in this context the unpopular reforms of recent months that are lobbied by the liberal bloc of the Government and that go against national interests (VAT increase, the draft pension reform and at the same time – abolition of fines for non-return of foreign exchange earnings, and establishment of de facto offshore zones in Russia) are quite logical and understandable. **However, they have nothing in common with the officially declared goal of raising the standard of living and improving the quality of life.**

Along with specific representatives of political and economic elites, there is another actor whose actions, if not directly, then at least indirectly, increase the gap between the President and society, thus playing into the hands of Western strategists. We are talking about the influence that major corporations, which are the main taxpayers of the budget system, exert on the Government in order to create the most favorable conditions for themselves to evade paying taxes to the budgets of the regions and the country as a whole.

Ensuring the conditions necessary for the functioning of the system of social services and improving the quality of life are among the main tasks of the government, which are carried out with the help of the budget. However, on the basis of official statements of major corporations in five Russian regions, we can say that due to the fact that major taxpayers use all possible ways to minimize the size of the tax base, the endowment of the population of the subjects of the Russian Federation with their own income is significantly reduced: in the Vologda Oblast, for example, it is reduced by 102.1 thousand rubles per capita; in the Lipetsk Oblast – by 72 thousand rubles, etc. *(Tab. 1).*

Further calculations on the primary documentation of major corporations have shown that if an extensive list of tax benefits granted to them is limited, then **the per capita security of the budget with own revenues could be higher than the average Russian level, as it should be in regions where major taxpayers are situated.** In particular, in the Vologda Oblast – by 94.4 thousand rubles (or in 2.6 times), in the Lipetsk Oblast – by 58 thousand rubles (in 2 times), etc. *(Tab. 2).*

We should also note that over the past 10 years, the share of tax revenues from major metallurgical corporations has increased only by 8%, and the fortune of their owners – by 79% *(Tab. 3)*. If in 2007, the fortune of corporate owners exceeded the share of taxes they paid to the budget in 19 times (which in itself is a very impressive indicator), then by 2016 this "gap" was 31 times.

All this "accounting" of major taxpayer corporations, despite its being in open access for anyone, in fact, says little to the vast majority of Russians, voters. It is the duty of the Government, the Federation Council and the State Duma to monitor these statistics and respond in time to negative changes in their dynamics. And it is extremely important that the reaction of responsible persons was adequate and timely, because it is a necessary condition that helps avoid negative changes in the quality of life as shown, for instance, by the following indicators of sociological surveys:

✓ about a third of the population (30–33%) negatively assess their material well-being and negatively characterize the situation in the Russian economy;

✓ about 40% of the population "has enough money at best to buy food"; 50% have enough money "to buy necessary goods", and only 10% can afford "to buy various goods without any difficulties";

✓ about 47–50% of the population subjectively identify themselves as "the poor and extremely poor" (and their number exceeds the number of people with "average income" – 43%).

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[32] Lyubarev A. (an expert at the Committee of Civil Initiatives): Low turnout saved the United Russia party. Information portal *"Gazeta.ru"*. 2016. October 16. Available at: https://www.gazeta.ru/comments/2012/10/16_x_4813741.shtml

Table 1. Sources for optimization of own revenues of the budgets of regions, in which
metallurgical corporations are located, RUB per capita per year*

Sources	Vologda Oblast	Lipetsk Oblast	Krasnoyarsk Krai	Chelyabinsk Oblast	Irkutsk Oblast
Lost taxes on export earnings	1488	1479		1176	1031
Increase in commercial, administrative, interest expense	25780	25685	13490	6320	1921
Understated tax rate on income of top managers and owners of corporations	30392	25536	31026	17263	
Write-off as a loss the expenses on forming the provisions for impairment of financial investments in foreign companies and liquidation of these companies	28434	5907	4455	2822	
Netting of profits and losses of the participants of the CTG, with the aim of tax optimization	11974	3248			
Export VAT refund	4040	10118	4990	1875	966
Total amount of own revenues lost	**102108**	**71973**	**53961**	**29456**	**3918**
* Data as of 2017.					

Table 2. Estimated provision with own budget revenues in the constituent entities of the Russian
Federation, if tax incentives used by major metallurgical corporations were abolished, 2017

Indicator	Vologda Oblast	Lipetsk Oblast	Krasnoyarsk Krai	Chelyabinsk Oblast	Irkutsk Oblast
Average annual population for 2017, people	1180274	1153211	2875899	349767	2406548
Own budget revenues in 2017, million RUB	62522	54147	210964	151017	142100
Provision with own budget revenues, RUB per capita in 2017	52972	46953	73356	43176	59047
To the national average (60706 RUB for 2017), %	**87.3**	**77.3**	**120.8**	**71.1**	**97.3**
Estimated increase in the provision with own revenues taking into account the optimization of tax benefits provided to major metallurgical corporations, RUB per capita	155081	118746	127317	72632	62965
To the national average (60706 RUB for 2017), %	**255.5**	**195.6**	**209.7**	**119.6**	**103.7**

Table 3. Inflow of taxes from metallurgical production to the budget and the state of
the owners of the largest metallurgical corporations in 2007-2016, billion rubles

Indicators	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016 to 2007, %
Inflow of taxes	218	196	15	112	143	123	126	175	240	235	
Fortune of owners	4097	880	2817	4367	3300	3417	3373	3750	4737	7333	179.0
To the taxes received by the budget, times	19	4	188	39	23	28	27	21	20	31	+ 12
Federal Tax Service, *Forbes Magazine*. Available at: http://www.forbes.ru/raiting/bogateishie; VolRC RAS calculations.											

According to experts, for the period from 2012 to 2017 "average per capita income of citizens at the exchange rate of the ruble to the dollar decreased from 730 to 480; average monthly salary — from 860 to 600 USD. **In other words, over five years, citizens' incomes, expressed in US dollars, decreased about 1.5-fold**. The drop in household consumption expenditure was comparable: in five years, it fell from 406 USD to 260 USD per household member per month"[33]. At the same time, along with the decline in the standard of living of "ordinary Russians", the number of billionaires continues to increase, as well as their personal fortune: for the period from 2006 to 2016, the number of billionaires increased by 60% (from 60 to 96 people), and their fortune increased by 50% (from 152.8 to 230 billion rubles)[34].

Taxation of income of individual entrepreneurs is arranged in such a way that when their income reaches 300 thousand rubles and more, they get a reduced tax rate; **that is, the more they earn, the smaller the share of their income transferred to the state treasury.** And if they manage to earn more than 18 million rubles a year, they will be fully exempt from participation in the replenishment of the Pension Fund. In general, as they say, the rich get richer. But **this is exactly the case when instead of social equalization there is an increase in the already existing and socially dangerous inequality**[35].

Thus, we are talking not only about the pension reform, which, although it caused a wide public response and a negative reaction from almost all major social groups *(Insert 5)*, is still

only the "tip of the iceberg". In fact, we are talking about deeper, long-term trends of public discontent; first of all, about how fair the modern Russian society is. The latest data of long-term sociological studies conducted by VolRC RAS show that **in three years (from 2015 to 2018) the proportion of people who believe that modern Russian society is unfair has increased in all socio-demographic groups. Today, this view is shared by more than 50% of representatives of all major social groups, and in half of them — by more than 60%** *(Insert 6)*.

It is worth recalling our historical experience. It convincingly proves that each "comprador" reform, since the privatization of property and liberalization of prices, was accompanied by a deafening stream of empty words about universal values, freedom and democracy, prosperity, and concern about people's welfare. In fact, each "reform" was a systemic war of the comprador clan against the people and the country, leaving behind devastation, poverty, backwardness, loss of social gains, bondage, and mass mortality.

Is the "pension reform" in its "milder" version that we see in the address of the Russian an exception? Or is it continuing the trend that can lead to a national catastrophe? Does the increase in the retirement age indicate a crisis of "the top management"? Does it indicate the fact that they cannot live in a new way, without comprador interests? The questions are worth to be considered[36].

We can assume that individual representatives of Russia's political and economic elites act (as many experts note) directly in the interests and under the dictation of the West, or they have become accustomed to the irresponsibility and irremovability of managerial personnel that they have ceased to fear for their future; therefore, cases when Russians suffer from their actions are becoming more and more outrageous. One way or another, we can only say that the situation in

[33] Bashkatova A. Russians lost their consumer potential. *Nezavisimaya gazeta*. Available at: http://www.ng.ru/economics/2018-01-31/1_7162_potencial.html

[34] Ilyin V.A., Morev M.V. Oligarchic capital and social injustice. *Vestnik Instituta ekonomiki Rossiiskoi akademii nauk,* 2018, no. 4, p. 50. (calculated with the use of Forbes Magazine data).

[35] Grinberg R.S. Pension reform as self-discreditation of Russian liberalism. *Nezavisimaya gazeta,* 2018, September 24. Available at:http://www.ng.ru/scenario/2018-09-24/10_7317_pensii.html

[36] Gubanov S.S. Aggravation of tension around pensions: what it means and what it can lead to. *Ekonomist,* 2018, no. 9, p. 24.

Insert 5

**What is your attitude toward the decision to raise the retirement age —
positive, negative or indifferent?** (percentage of respondents)

Population groups	Positive			Negative		
	Aug. 18	Oct. 18	Dynamics (+/–) Oct. 18 to Aug. 18	Aug. 18	Oct. 18	Dynamics (+/–) Oct. 18 to Aug. 18
Sex						
Men	8.8	10.2	+1	69.6	71.1	+2
Women	5.2	7.2	+2	75.7	76.9	+1
Age						
Under 30	8.4	9.0	+1	70.6	65.1	-6
30–55	6.2	7.1	+1	73.9	77.4	+4
Over 55	6.8	10.1	+3	72.8	74.8	+2
Education						
Secondary and incomplete secondary	5.4	5.8	0	68.7	78.0	+9
Secondary vocational	8.1	10.9	+3	72.6	73.7	+1
Higher and incomplete higher	6.4	8.4	+2	77.7	71.0	-7
Income groups						
Bottom 20%	4.7	7.4	+3	69.7	69.5	0
Middle 60%	7.3	9.7	+2	73.6	73.3	0
Top 20%	7.9	7.4	-1	71.8	77.6	+6
Territories						
Vologda	3.8	8.5	+5	82.2	71.0	-11
Cherepovets	4.7	5.2	+1	68.2	79.7	+11
Districts	9.7	10.5	+1	70.4	73.2	+3
Vologda Oblast	*6.8*	*8.5*	*+2*	*72.9*	*74.3*	*+1*

In your opinion, is Russian society fair or unfair in general? (percentage of respondents)

Population groups	Fair					Unfair				
	Dec. 15	Feb.16	Oct.18	Dynamics (+/–) Oct.18 to …		Dec.15	Feb.16	Oct.18 Dec.15	Dynamics (+/–) Oct.18 to …	
				Dec.15	Feb.16				Dec.15	Feb.16
Sex										
Men	18.2	11.9	14.7	-4	+3	49.4	59.2	56.7	+7	-3
Women	14.0	10.0	13.7	0	+4	52.3	55.8	62.7	+10	+7
Age										
Under 30	19.7	16.1	15.3	-4	-1	43.8	53.5	54.9	+11	+1
30–55	16.6	10.0	12.5	-4	+3	51.2	57.9	61.7	+11	+4
Over 55	12.6	9.0	15.7	+3	+7	55.0	58.7	60.4	+5	+2
Education										
Secondary and incomplete secondary	18.1	10.8	10.9	-7	0	45.1	52.9	61.2	+16	+8
Secondary vocational	13.9	9.5	14.4	+1	+5	51.0	57.8	59.3	+8	+2
Higher and incomplete higher	15.9	12.6	17.1	+1	+5	56.7	61.9	60.0	+3	-2
Income groups										
Bottom 20%	11.2	7.6	10.3	-1	+3	42.1	47.1	53.3	+11	+6
Middle 60%	15.8	10.5	12.3	-4	+2	54.8	59.1	62.9	+8	+4
Top 20%	16.6	13.7	25.7	+9	+12	53.3	63.5	57.7	+4	-6
Territories										
Vologda	15.9	9.5	15.5	0	+6	56.5	64.8	62.5	+6	-2
Cherepovets	14.1	11.9	7.2	-7	-5	68.5	68.9	74.9	+6	+6
Districts	16.8	11.0	17.4	+1	+6	37.7	46.4	50.1	+12	+4
Vologda Oblast	*15.9*	*10.9*	*14.1*	*-2*	*+3*	*51.0*	*57.3*	*60.1*	*+9*	*+3*

Russia in the first months of the new political season does not yet have the optimistic scenarios of the future, which the President outlined in his election speeches and which Russians have been waiting to see for many years.

> Having adopted the pension reform, the government, firstly, aroused a very serious discontent in society. And second, the so-called "Crimean consensus", which was formed in 2014–2015, was destroyed. People were told: "We must suffer, because we are surrounded by adversaries, we are living under the sanctions and so on, and we must use all the available resources to protect our homeland!". And now people see that it is not so, that everything is done in the interests of the rich, and any consensus is out of the question[37].

Perhaps, therefore, against the background of the reforms lobbied by the liberal bloc of the Government in the first months of the new political season, we see an increasingly tough position of experts who focus on the priority implementation of national and social interests. A demonstrative example can be found in the fact that during the Fourth Eastern Economic Forum, held September 11–13 in Vladivostok, Presidential Advisor A. Belousov made an extremely tough and very clear statement (it obviously showed his emotional state, which can be described as "a cry from the heart"): "Indeed, we have created a cool system in which crooks and criminals feel comfortable. That is, we have created a system of control and supervisory activities, when people who are engaged in illegal business, which, in fact, is persecuted by the law, feel more comfortable, and nothing can be done to them"[38].

> I single out three categories of "stakeholders". **The first category** is state-owned and large private banks. State-owned banks are fueled by the Central Bank and will always survive in any case. Large private banks are fueled from abroad, they get loans there and live in peace…
>
> **The second group of the beneficiaries** of the monetary policy is currency speculators. When the Central Bank left the currency and financial market, large currency speculators came to dominate the market and began to swing the exchange rate of the ruble in order to make profit out of the destabilization the economy. We calculated that when the ruble fell to 80 rubles per US dollar in 2014, speculators gained up to 40 billion UDS in profits on exchange rate fluctuations.
>
> **The third group of "bloodsuckers"** includes exporters of raw materials, who take advantage of the lack of currency control and the devaluation of the ruble and receive excess profits, leaving them abroad. They have ensured that the non-return of foreign exchange earnings is no longer fined. This is despite the fact that the excess profits from the export of metals and hydrocarbons today exceed a reasonable rate of return very much.
>
> These three groups of beneficiaries are extremely influential. They control the press, hold large-scale "economic" forums, force the economic expert community to dance to their tune. As an economist, I will honestly say that the main body of information that is issued on behalf of economic science is serving the interests of these groups of the ruling elite.

Presidential Advisor S. Glazyev in one of his articles specifies those beneficiaries who "support the most ridiculous dogmas imposed by Washington financial organizations on other countries to deprive them of opportunities for independent development"[39].

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[37] Ushko: both the CEC and the left opposition supported the abolition of the municipal filter in the elections (D. Agranovsky's opinion). *Zavtra*, 2018, September 28. Available at: http://zavtra.ru/word_of_day/ushko_2018-09-28

[38] Belousov A.R. Speech at the Eastern Economic Forum (Vladivostok, September 11–13). Source: RIA-novosti. 2018. September 12. Available at: https://ria.ru/economy/20180912/1528347713.html)

[39] Glazyev S.Yu. Beneficiaries of the current economic policy. Part 2. *Argumenty nedeli*, 2018, September 6. Available at: http://argumenti.ru/society/2018/09/584670?typelink=openlink

Finally, as experts note, the President himself holds meetings with the ministers in such a way that leads to the conclusion that "in the Kremlin, they are up to something. There is reason to believe that Putin, observing the balance of power and the consensus of the elites, is not content with what this risk-free group of smug unsinkable officials did in three months to the fruits of his many years of effort. If one believes that Putin will watch their actions dispassionately, one must be totally ignorant of who Putin is. The resignation of the government may occur earlier than planned ... The State Council is the structure in which Vladimir Putin exercises strategic leadership in achieving Russia's global goals. If necessary, this structure can become the basis of the system of power in Russia, and the functions of the President can be changed in the direction of increasing the powers of the Chairman of the State Council". At the same time, "Putin personally manages ministers and governors, bypassing the Administration of the President and Dmitry Medvedev" and shows that he knows "the details of the topic under discussion; he is attentive to details, informed more than any interlocutor, sees through the ministers at once when they are inaccurate, and there is no opportunity to hide from him one's unreadiness to answer a question"[40].

> ...the only reasonable alternative to the current Russian 'elected autocracy' is a union of liberals, that is, people who care about freedom **for everyone and not just for themselves,** and socialists **who care about justice,** without sacrificing such a great value as freedom. But what awaits the country, if the former are confidently moving toward complete self-destruction, and the self-organization of the latter remains in embryonic state for a quarter of a century?[41]

Thus, at the new round of the ongoing political season in Russia, we see how the struggle between the representatives of the patriotic and liberal blocs in the internal political elite of the country breaks out with new force. In fact, what is at stake is the sovereignty of the country and the possibility to implement an independent course of economic, social, foreign policy, etc. Unfortunately, we cannot but admit that in the first months of this "final lap" before the 2024 election the liberal bloc managed to do a lot of things it had in mind (implement unpopular reforms in society, "drive a wedge" between the people and the President). However, this "lost battle" does not mean "the end of the war"; it only makes the issue concerning the quality of the decisions taken by Putin more important. According to its major geopolitical advantages, the Russian Federation has been and remains one of the leading powers in the world, which means that the negative characteristics of the quality of life of the Russian population (as evidenced by the results of sociological surveys) do not depend on any losses in the available resources, but on the reduction in the efficiency of their management.

The President should listen to the opinion of the experts who are concerned about national interests, rather than their own welfare or the interests of our "foreign partners". Because without appropriate tough management decisions it will be impossible to achieve a "decisive breakthrough in the preservation of the people of Russia and the well-being of our citizens"[42], or ensure social stability in the country.

"It is obvious that the "bottom groups" do not want to live as they do now, in a hateful and hopeless economic system; it is evidenced by the accumulated protest potential. The question is whether the "top groups" can live in a new way, whether they are ready to decide in favor of establishing a new economic system instead of

[40] Khaldei A. Putin destroyed Siluanov. *Zavtra,* 2018, September 13. Available at: http://zavtra.ru/blogs/putin_unichtozhil_siluanova

[41] Grinberg R.S. Pension reform as self-discreditation of Russian liberalism. *Nezavisimaya gazeta*, 2018, September 24. Available at: http://www.ng.ru/scenario/2018-09-24/10_7317_pensii.html

[42] The President's Address to the Federal Assembly on March 1, 2018. *Official Website of the RF President*. Available at: http://www.kremlin.ru/events/president/news/56957

the old one. It is this issue that is now crucial for our country, which has once again found itself at a critical stage with an intricate balance of social forces and difficult social dynamics. The system crisis has reached its final phase, but it has not yet evolved into an internal political crisis. Therefore, the fate of the country now depends on whether the "top" allows the system crisis to shift from the economic to the political plane, brings the matter to a domestic political crisis or is able to show historical responsibility and yield to the highest state interests"[43].

References

1. Gontmakher E.Sh. Russian social inequality as a factor of socio-political stability. *Voprosy ekonomiki=Issues of Economics*, 2013, no. 4, pp. 68-82. (In Russian).

2. Gubanov S.S. Notes on the system foundations of Russia's economic security. *Ekonomist=Economist*, 2017, no. 6, pp. 3-12. (In Russian).

3. Gubanov S.S. Aggravation of tension around pensions: what it means and what it can lead to. *Ekonomist=Economist*, 2018, no. 9, pp. 10-24. (In Russian).

4. *Dvadtsat' let reform glazami rossiyan (opyt mnogoletnikh sotsiologiche-skikh zamerov): analiticheskii doklad Instituta sotsiologii RAN v sotrudnichestve s predstavitel'stvom Fonda imeni Fridrikha Eberta v Rossiiskoi Federatsii* [Twenty Years of Reforms Through the Eyes of Russians (an Experience of Long-Term Sociological Measurements): Analytical Report of the Institute of Sociology of the Russian Academy of Sciences in Cooperation with Friedrich-Ebert-Stiftung in the Russian Federation]. Moscow, 2011. 304 p. Available at: http://www.isras.ru/files/File/Doklad/20_years_reform.pdf. (In Russian).

5. Dobren'kov V.I., Ispravnikova N.R. The Russian version of "capitalism for the few": is there a way out of the impasse? *Vestnik Moskovskogo universiteta. Seriya 18: Sotsiologiya i politologiya=Moscow State University Bulletin. Series 18. Sociology and Political Science*, 2013, no. 3, pp. 26-55. (In Russian).

6. Ilyin V.A., Morev M.V. Oligarchic capital and social injustice. *Vestnik Instituta ekonomiki Rossiiskoi akademii nauk=Bulletin of the Institute of Economics of the Russian Academy of Science*, 2018, no. 4, pp. 921-932. (In Russian).

7. Polterovich V.M. Reformers of science lack the necessary qualifications to cope with the task. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast,* 2015, no. 3, pp. 28-31. (In Russian).

8. Gorshkov M.K., Petukhov V.V. (Eds.). *Rossiiskoe obshchestvo i vyzovy vremeni. Kniga chetvertaya* [Russian Society and the Challenges of the Time. Book Four]. Moscow: Ves' Mir, 2016. 400 p.

9. Sulakshin S.S., Bagdasaryan V.E. et al. *Rossiyu zhdet revolyutsiya? Voprosy perekhoda k postliberal'noi modeli Rossii (algoritm i stsenarii)* [Is Russia to Expect a Revolution? Issues of Transition to the Post-Liberal Model of Russia (Algorithm and Scenarios)]. Moscow: Nauka i politika, 2016. 712 p.

10. Titov B.Yu., Shirov A.A. Strategy of growth for Russia. *Voprosy ekonomiki=Issues of Economics*, 2017, no. 12, pp. 24-39. (In Russian).

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[43] Gubanov S.S. Aggravation of tension around pensions: what it means and what it can lead to. *Ekonomist*, 2018, no. 9, p. 24.

SOCIO-ECONOMIC DEVELOPMENT STRATEGY

Potential Opportunities for the Growth of the Russian Economy and the Monetary Policy of the Bank of Russia*

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Abstract. The paper considers the role and place of monetary policy in ensuring the reproduction of modern economy. Monetary policy conducted by the Bank of Russia is based on the IMF's universal recommendations, which are inconsistent both with the conditions of reproduction of the Russian economy and with specific features of the current period of structural changes in the world economy. The ongoing change of technological and world economic orders is accompanied by fundamental changes in the composition of the industries that determine economic growth, as well as in the system of institutions for managing economic reproduction. The resulting opportunities for a breakthrough in the development of the Russian economy can be implemented only in conditions of an appropriate monetary policy focused on lending to promising areas of economic growth within the existing production factors. The goal of the present paper is to substantiate the mismatch between the monetary policy and the potential opportunities for the growth of the Russian economy in the conditions of changing technological and global economic orders. The paper criticizes the draft major directions of the unified state monetary policy for 2019 and for the period of 2020−2021 and proves that they are inconsistent with modern knowledge about the laws of economic development and growth opportunities of the Russian economy.

Key words: monetary policy, economic policy, economic growth, reproduction of the Russian economy, change of technological modes, economic development.

Introduction. Achievement of the goal of "breakthrough scientific, technological and socio-economic development" set out by the President of Russia [1] requires a systemic macroeconomic policy aimed at stimulating investment in promising areas of growth of the new technological mode. Its most important component is monetary policy, which provides the financial component of expanded reproduction of the economy.

Modern economic growth cannot do without constant expansion of credit to finance innovation and investment activity of economic entities. At its core, the credit created by the state is intended to advance production growth; without its consistent expansion, the development of the economy is impossible. At the same time, the interest rate should not exceed the profitability of production. J. Schumpeter called interest rate as a tax on innovation [2]. Otherwise, the credit created by the state will be used to finance speculation to the detriment of real economy sector development. This is what is happening in the Russian economy.

Overestimation of interest rates above the level of profitability of most enterprises in the real sector leads to a reduction in production and investment, and it leads to the flow of money to currency and financial speculation. The outflow of money from the real sector to the banking sector creates the illusion of a liquidity surplus, which is sucked out of the economy by the Central Bank (CB). In contrast to the generally accepted two centuries-long world practice of creating credit resources by national central monetary authorities, the Bank of Russia withdraws money from the economy, thus artificially compressing the lending to the production sector. Thus, it blocks the growth of investment and innovation activity, making it impossible to develop the economy.

In order to assess the policy of the Bank of Russia properly, it is necessary to understand the role and place of monetary policy in promoting the reproduction of modern economy.

The importance of credit for economic development. Credit expansion is especially important in times of structural changes in the economy, when economic entities do not have the ability to update rapidly aging fixed assets. That is why in 2014–2018 all the leading world countries have been rapidly increasing the volume of money supply *(Fig. 1)*, providing loans for modernization and growth of production at nominal interest rates *(Fig. 2)*. Thus, they stimulate investment and innovation activity of their economic entities, making it easier for them to create industries of a new technological mode [3] and ensure its advanced growth.

Money emission is the source of this rapid expansion of credit in advanced and successfully developing countries; this emission is directed to financing the priority directions of social and economic policy established by the state.

Monetary authorities of the leading countries have learned to create money for debt obligations of the state and business to finance expanded reproduction of the economy. Today, in the context of the structural crisis, they use significant issue of money to stimulate investment in the development of a new technological structure. Its main channel is the purchase of low-income debt obligations of the state by the Central Bank in order to finance budget deficit. As part of "quantitative easing", the U.S. Federal Reserve System and the European Central Bank also issue money to purchase obligations of large banks and corporations. China and other successfully developing countries issue money taking into consideration the investment plans of economic agents in accordance with centrally established priorities *(Fig. 3–6)* [4, 5].

Figure 1. Growth of money supply in different countries
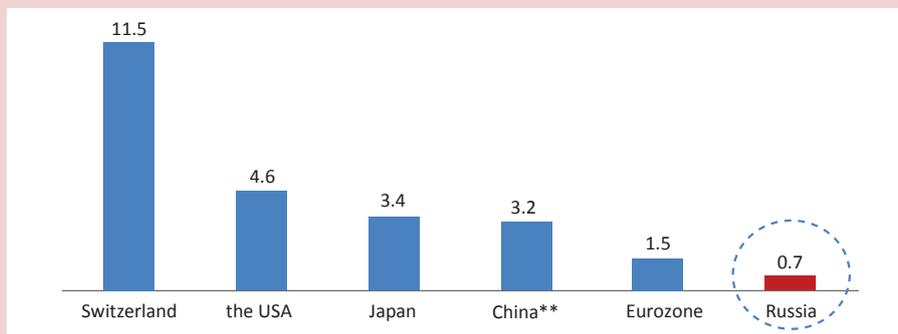
A. Growth of the monetary base for certain currencies, 2007–2015, times*
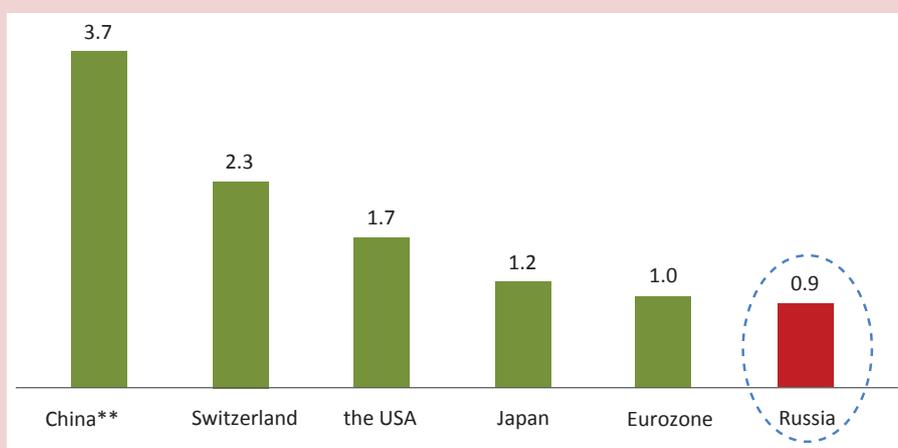
B. Growth of money supply (M2), 2007–2015, times*

* Calculated in US dollars at the appropriate exchange rate.
** Data as of 2017.
Source: Central banks of the countries under consideration.

Figure 2. Real level of the key rates of central banks in several countries (as of September 27, 2018, %)
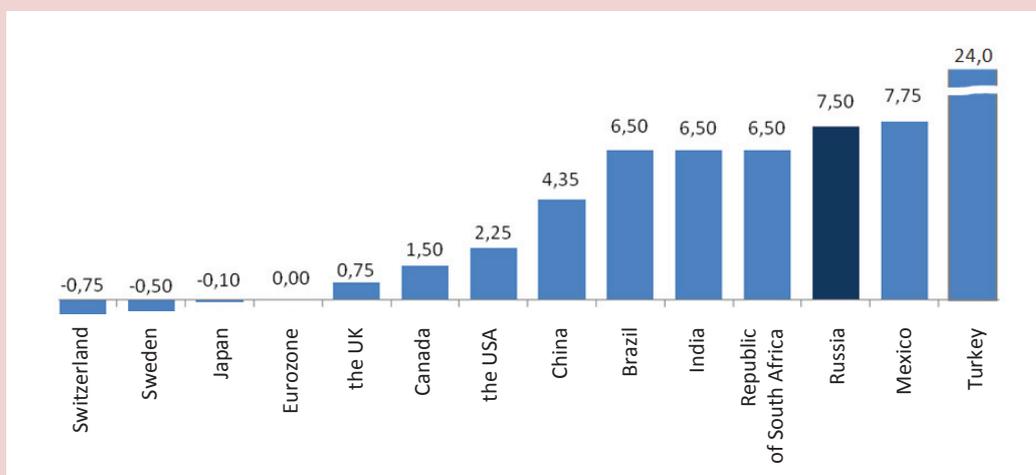
Figure 3. Money emission in the U.S.

2015: dollar emission (monetary base generation) based on purchase of state securities
Similar mechanisms are applied in many developed countries

Monetary supply (M2)

Multiplier   Multiplier

MONETARY BASE (100%)
Budget tools+ securities of federal agencies (95%)   Other 5%
inclusing long-term state securities (61%)

Money

Sale of bonds

MINISTRY OF FINANCE
(TREASURY)   Sale of bonds

Money   CERTIFIED BANKS   Federal Reserve
(MARKET)   System

FEDERAL AGENCIES
Currency
emission

Sale of bonds

Source: Ershov M. according to the U.S. Federal Reserve System.

Figure 4. Mechanism of formation of money supply, European Central Bank

Monetary supply

Monetary base

Multiplier   Multiplier

European Central Bank	Securies for monetary policy 53%	Re-financing of commerical banks 30%	Other tools 17%
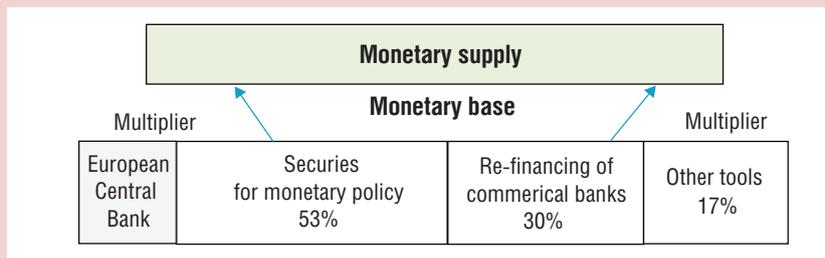
Source: Ershov M. according to the ECB.

Figure 5. Organization of money supply in China

Exchange market

Purchase of dollars
by the People's Bank of China

People's Bank of China

1. Monitoring of reserve and marketability through open market operations

5. Investment in corporate bonds

Banks   Capital markets

2. Evergreen loan   8. Repayment   4. Deposits   5. Purchase of bonds and stocks   6. Monetary supply of the capital market

A   3. M1   B   C   7. M1   D

7. M1   5. Long-term loan

5. Long-term loan

Source: Yu Yonging, 2017.

Figure 6. Formation of money supply by the Bank of Japan

Monetary supply			
Multiplier	**Monetary base**		Multiplier
Bank of Japan	Bonds of the Japanese governmnet 85%	Lending support program 10%	Other tools 5%
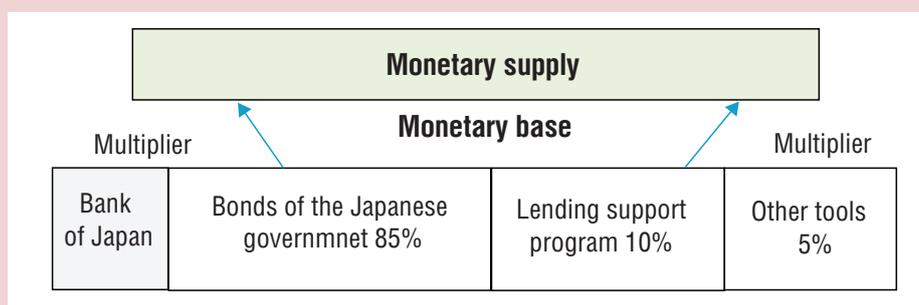
Source: Ershov M. according to the Bank of Japan.

Unlike the Bank of Russia, central banks that issue reserve currencies provide a wide range of cheap credit resources at quasi-zero interest rates. This does not lead to inflation because the loans are directed to finance investment in modernization and production growth; as a result, costs are reduced and supply of goods is increased, and therefore, the purchasing power of money grows, as well.

China's experience demonstrates the possibility of using money emission for issuing loans aimed at the growth of investment and production without inflationary consequences. For instance, the 10-fold GDP growth in China from 1993 to 2016 was accompanied by the 28-fold increase in investment, 19-fold increase in the money supply and 15-fold increase in bank loans to the manufacturing sector. The unit of GDP growth accounts for almost three units of investment growth and about two units of growth of the money supply and the volume of credit. This illustrates the mechanism of growth of the Chinese economy: the increase in economic activity measured by GDP is provided by a rapid increase in investment, most of which is financed by expanding the credit of the governmental banking system. Despite the fact that the increase in money supply exceeds manifold production growth, inflation in China remained in the range of 4–7% for the entire period of rapid economy monetization.

Low inflation was ensured by a continuous increase in the efficiency and volume of production of goods due to the retention of cash flows in the following circuit: credit issue – growth of investment – increase in the volume and efficiency of production – growth of the mass of goods with a decrease in unit costs of their production and the unit price of consumer value – increase in income – expansion of savings – growth of investment. This was achieved by linking the credit of state-owned banks to investment projects of production development and by complying with foreign exchange restrictions on capital transactions, "end-to-end" responsibility of public authorities for the achievement of the indicators of production and investment growth, and by implementing anti-corruption measures.

Similar methods of using the issue of fiat money to credit the investment growth are successfully used in Japan, India, Vietnam, Korea, Malaysia, Singapore and other successfully developing countries. Their characteristic feature is the outstripping increase in the targeted credit issue for financing investments in accordance with the priorities determined by the state. Due to this,

a sharp increase in the rate of accumulation was achieved with low incomes and savings of the population. Targeted credit issue has been and still remains the major source of financing for capital investments in the development of all countries that have performed an economic "miracle".

Invalidity of the basic assumptions *of the main directions of the unified state monetary policy*. Judging by the published draft of the *main directions of the unified state monetary policy (hereinafter "the Directions")* [6] until 2021, the management of the Bank of Russia is unfamiliar with the laws of long-term economic development and modern practice of advanced and successfully developing countries in the use of monetary policy tools to ensure economic growth. It also does not have a clear picture of the actual opportunities for development of the Russian economy and reduces its potential to the current volume of production. This is due to very popular, but superficial and unrealistic ideas about the development of the economy and the interdependence of money supply, inflation and production growth. Based on these views, the Directions will hinder development of the Russian economy and condemn it to growing technological backwardness and degradation.

The logic of the Directions is based on the "Concept of the equilibrium state of the economy and the deviations of the main macroeconomic variables (gaps) from it" in which "the economy can remain indefinitely in the absence of various shocks that lead to short-term deviations of the economy from it" (p. 25; hereinafter we provide a reference to the relevant page of the draft Directions for the 2019–2021 period). According to this concept, "in the long-term equilibrium, all key indicators in the economy are growing at a constant pace, which is determined by

fundamental factors. That is, long-term equilibrium is not a specific point, but a stable trajectory along which the economy is moving. When conducting monetary policy within the framework of the inflation targeting regime in the long-term equilibrium, consumer prices grow at a rate corresponding to the target level of inflation, and the growth rate of the economy is equal to the potential growth rate and is determined by the growth rate of productivity of the factors of production, as well as the speed of technological development" (p. 25).

This view is as far from reality as the political economy of socialism that was popular in the USSR, or the theory of optimal functioning of the economy. The authors of the Directions accept this view as an absolute truth that requires no proof. In reality, the state of long-run equilibrium does not exist. Economic development is non-linear, non-equilibrium and often uncertain. Under the influence of science and technology progress new technological opportunities are constantly opening up, pushing the previous restrictions on economic growth. The suitable way to describe the long-term development of the economy is not a stable trajectory, but a wave-like movement in which the stages of rapid growth in ascending phases of the long Kondratiev waves are interspersed with structural crises that mediate the change of technological structures.

Business, investment, research and production cycles are studied thoroughly in economics; the key role of science and technology progress and innovations in ensuring economic development is proved [7]; their introduction causes deviations from the hypothetical state of equilibrium and creates new attractors of economic movement. The economy moves from one attractor to another, never reaching equilibrium under the influence of innovations continuously

generated by economic entities. In the modern view of the innovative economic development, the equilibrium state looks like a ridiculous speculative abstraction, theoretically possible in the static economy of the Middle Ages, in which there was no credit and the innovators were persecuted by the Inquisition.

For more than 50 years, the concept of the equilibrium state of economy has been rejected by academic science because it was looked upon as failing to reflecting reality and misleading decision-makers. None of the developed and successfully developing countries applies this concept in practice and uses it for ideological purposes to justify the necessary large-scale capital policy of deregulation of the economy [8]. Proving the harmfulness of government intervention, which allegedly interferes with the equilibrium economic growth, financial capital brings under its control the factors of production in order to maximize profit and does so, among other things, by establishing monopolies contrary to the concept of equilibrium.

The concept of equilibrium is laid down in the mainstream of economic thought, which imposes a scientific idea of the reasonableness and consistency of liberal globalization on the public consciousness. This approach is characteristic of religious thinking, which in this case has its carriers of "absolute knowledge" represented by the IMF and other international organizations and regulators that implement global interests of the financial capital of the U.S. and other countries that issue world currencies in limitless expansion by limiting national credit in other countries. The practical application of this approach in Russia and other post-socialist countries, as in many countries in Africa and Latin America, has invariably led to the degradation of the economy and subordination of its reproduction to the interests of transnational corporations refinanced by issuers of the US dollar and other world currencies.

Misinterpretation of economic growth opportunities. The inadequacy of theoretical ideas about the development of the economy entails erroneous assessments of its actual state and development opportunities. The authors of the Directions believe that "in an open economy, temporary deviations from the equilibrium can be associated with the changes in domestic economic conditions and the changes in the external economic situation. The reaction of macroeconomic policy and monetary policy to the implementation of the shocks makes it possible to minimize their impact on the economy and facilitate its speedy return to its long-term equilibrium" (p. 25). However, since it exists only in the imagination of the authors, the measures planned in the Directions do not return the economy to a state of equilibrium, but are aimed at maintaining its current state, which is interpreted by the authors as equilibrium. Thus, the authors of the document believe that "the increase in domestic and external demand provided economic growth at a level corresponding to the long-term potential, taking into account its current structure. According to the Bank of Russia, the annual GDP growth rate in 2018 will be 1.5−2%" (p. 42). They also conclude that "the growth of the Russian economy has continued at a pace that is estimated by the Bank of Russia as corresponding to its long-term potential" (p. 36). And then, moving on to the forecast, the authors write: "Under the influence of all these factors, the growth rate of the economy at the end of 2019 will be 1.2% and 1.7%, remaining close to the potential growth rate" (p. 52).

The hypothetical equilibrium growth of the economy, imagined by the authors, is included in the target forecast under which monetary

policy measures are planned and which thus becomes self-fulfilling. Evaluating the effectiveness of the current policy, the authors of the Directions argue that "...economic growth occurred without excessive buildup of inflationary pressures; such a growth was promoted by monetary policy. Changes in the key rate ensured the continued attractiveness of ruble savings and the growth of lending to the economy in accordance with the increase in income. The resulting increase in the consumer and investment demand did not get ahead of the opportunities to expand the supply" (p. 36).

In fact, the growth of the economy, which was within the statistical error, was visible only to the authors of the Directions. Due to the sharp rise in the cost of credit and the preservation of credit conditions unaffordable for most industrial enterprises, there was a fall in investment and income of the population; all this led to a decline in production much below the potential level [9]. Contrary to the opinion of the authors of the Directions, the possibilities of expanding the supply of goods and services are very significant, amounting to at least 25% of GDP growth given the current state of the factors of production.

According to statistics, the load of fixed assets in the industry does not exceed 60%, including new capacity introduced in the last five years *(Fig. 7)*.

There are still significant opportunities to expand the use of land and water resources. Available data from the surveys of enterprises indicate the existence of significant hidden unemployment, which could help increase the output by 20−25% without resorting to a corresponding increase in the number of personnel, due to the growth of labor productivity and increase in the load of idle capacities. The limitless supply of labor from the former Soviet states of Central Asia, as well as the influx of highly skilled workers from Ukraine exceeds the current demand for labor from Russian employers. The Russian economy also has no restrictions on the growth of the resource base: output can be increased in several times in the complex processing of currently exported commodities [10]. Scientific and technological potential is not a constraining factor, since hardly a third of it is used, judging by the volume of R&D.

Thus, judging by the load of the main factors of production, the growth potential of the

Figure 7. Level of capacity utilization, in %
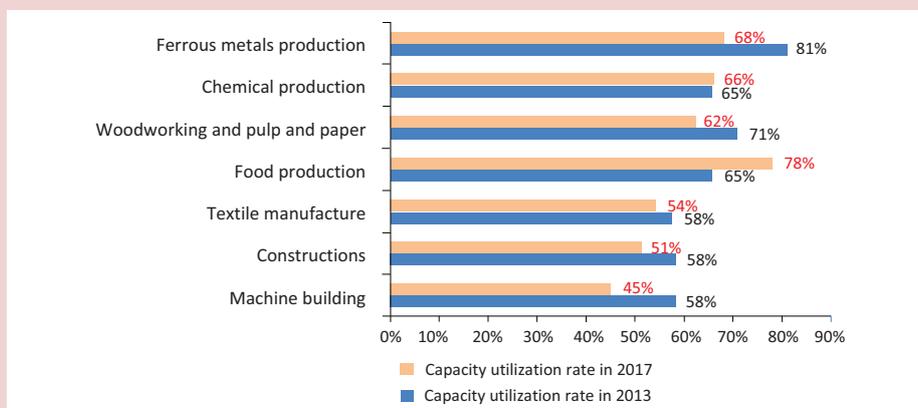
Source: RAS Institute of Economic Forecasting.

Russian economy at the expense of extensive expansion is as follows: increase in industrial production by 40%, increase in the production of engineering and chemical products by more than 50%; increase in agricultural production by at least 20%; increase in the provision of transport and construction services by 15%. With the intensification of the use of production resources at the expense of science and technology progress, GDP could be doubled within a decade. In other words, the Russian economy can grow at a rate of at least 7% of annual GDP growth in the short term, and if the increase in investment is 15%, then the economy can grow in the long term. The main limiting factor is the artificially created shortage of credit resources, which does not contribute to linking unused factors of production in the production process. This is evidenced by the linear statistically significant correlation that has developed in the Russian economy between the growth of GDP and the growth of the money supply *(Fig. 8)*.

If the volume of credit were not the factor that limits growth, then the dynamics of the money supply would not correlate with such a high statistical significance with GDP growth and would not form a liquidity surplus with the increase in interest rates.

An imaginary liquidity surplus. As a result of unacceptably high interest rates that exceed the level of profitability for most manufacturing industries *(Fig. 9)*, capacity utilization falls as enterprises repay loans and reduce their working capital.

Focusing on the key rate, banks do not reduce interest rates and reduce lending to manufacturing enterprises. As a result, they have excess funds that are perceived by the authors of the Directions as structural liquidity surplus, which the Central Bank is going to withdraw: "In terms of the liquidity surplus of the banking sector, the Bank of Russia used deposit auctions for a period of one week as the main instrument of monetary policy. In 2018, the volume of funds raised for them

Figure 8. Correlation between Russia's GDP and the real money supply

$$y = 18601\ln(x) - 108419$$
$$R^2 = 0.9956$$
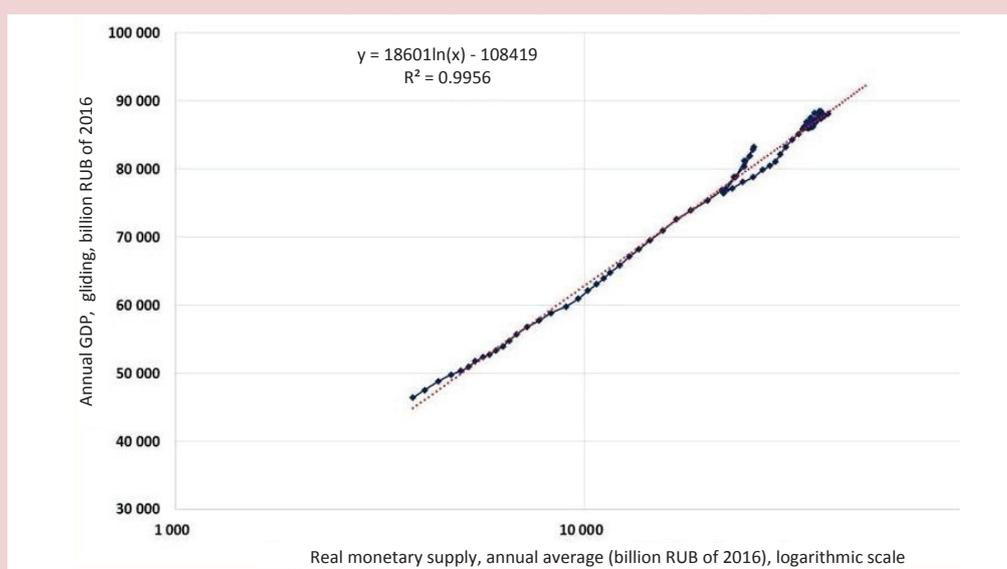
Source: Central Bank, Rosstat, S. Blinov's calculations [11]

Figure 9. Level of return on sales by type of activity and interest rates on loans (as of the end of 2017)

Type of activity	Value
Pharmaceuticals for medical purposes	25,
Mineral extraction	24,6
Tabacco	23,6
Metallurgy	20,8
Paper and paper products	19,3
Chemicals and chemical products	19,
Real estate operations	18,5
Agriculture and forestry	16,
Computers, electronics and optics	15,
Communications	12,
Other transport vehicles and equipment	11,6
Beverage production	10,8
Metalware, excluding machines and equipment	10,7
Leather and leather products	9,3
Transport	9,
Other non-metal mineral products	9,
Printing and copy of data storage device	8,7
Electric power, gas and water	8,3
Textile products	8,3
Rubber and plastic products	8,1
Coke and oil products	8,
Machine and equipment maintenance and assembly	7,9
Electrical equipment	7,9
Clothing	7,7
Food products	7,7
Machines and equipment of other types	7,6
Woodworking, woodware and cork products excluding furniture	6,7
Total for economy	6,7
Furniture	5,3
Other finished products	5,
Trade	4,1
Constructions	3,8
Hotels and restaurants	3,4
Motor vehicles, trailers and semi-trailers	2,6

Average rates for small and medium business

Average rates for economy

Source: RAS Institute of Economic Forecasting.

increased significantly. Thus, in 2017, the average volume of funds raised at weekly deposit auctions amounted to 0.8 trillion rubles, and in January—August of the current year — about 2.5 trillion rubles. The volume of placement of coupon bonds of the Bank of Russia for a period of three months also increased... At the beginning of 2018, the volume of the coupon bonds in circulation was 0.4 trillion rubles, and as of September 1, 2018 — already 1.4 trillion rubles" (p. 14).

Thus, the Bank of Russia withdrew about four trillion rubles from the economy, and it is planning to continue this practice in the next three years. In total, since 2014, as we have shown above, the Central Bank has withdrawn more than 10 trillion rubles from the economy and actually ceased to refinance commercial banks. Accordingly, there was a reduction in the working capital and investments of enterprises, which were financed via bank loans. This policy led to the reduction of production and the cessation of economic growth [12, 13]. At the same time, the authors of the Directions do not see an obvious link between the increase in the interest rate above the level of the average profitability of the real sector of the economy and the liquidity surplus. Contrary to common sense they do not see the "...evidence of the impact of bank liquidity on the transactions of banks at the credit and deposit markets" (p. 87). This is like ignoring the signs of hunger amid large-scale malnutrition of the population and explaining such an ignorance with the fact that on the shelves there is a surplus of excessively expensive goods.

While being immersed in their own ideas about the alleged equilibrium development of the economy near its long-term potential level, the authors of the Directions deny the possibility of the Central Bank "to influence the productivity of production factors and the adoption of technologies with the help of monetary policy tools" (p. 6). The authors write that "attempts to stimulate economic growth by monetary policy measures in the current conditions through an unreasonable reduction in the key rate can entail large-scale negative consequences. In the short term, the reduction in the key rate will create incentives for the growth of lending and increase investment and consumer demand. This growth should not be ahead of the possibility of expanding production, otherwise it will have inflationary consequences. It is currently impossible to increase production significantly at the expense of existing capacities, as the economy operates at a level close to its potential level [14]. Faced with increasing demand, companies will compete for labor and will raise wages. This will also contribute to the expansion of consumer demand. In this case it will take time to increase fixed assets in many industries through the implementation of investment projects. As a result, an increase in domestic demand in the absence of domestic opportunities to meet it will lead to a significant acceleration of inflation..." (p. 6).

In fact, as shown above, the economy is operating well below its potential level, and there are huge opportunities to increase production without going beyond the existing resource constraints. In this situation, economic science recommends increasing the money supply, which results in an increase in output and a decrease in inflation. Conversely, adherence to the Directions leads to higher costs due to lower capacity utilization, which leads to higher prices with falling output of goods, as well as a decline in the competitiveness of the national economy, which results in the devaluation of the ruble.

Unfortunately, the authors of the Directions are guided by superficial ideas about the relationship between the dynamics of the money supply, inflation and production, which result in incorrect judgments about the causal mechanisms of monetary policy.

Misinterpretation of the interdependence of macroeconomic parameters. The authors of the Directions proceed from a superficial understanding of a linear and direct proportional relationship between the money supply and inflation. This dependence occurs only for a hypothetical equilibrium state of the economy, in which "...in the conditions of increasing demand (due to wages and loans) amid a lack of supply of domestic goods, the prices for them will increase" (p. 6). The authors believe that "monetary policy affects the deviation of the growth rate of the economy from its potential growth rate, and does not affect the economic potential itself" (p. 6). However, as mentioned above, the economy is never in a state of equilibrium, and in reality the relationship between the money supply and inflation can be the exact opposite and can change depending on the management of cash flows. And when the money issue is used to lend money to productive investments, then monetary policy has a direct impact on the increase in productive capacity.

If we exclude from the previously quoted fragment of the Directions the erroneous statement that "it is impossible to increase production at the expense of available capacities", then the logic of reasoning about the inflationary consequences of credit expansion changes to the opposite. If credit is directed toward replenishing working capital related to the existing demand for manufactured products, then the result will be the expansion

of production of goods and the reduction in fixed costs of their production; due to this fact, ceteris paribus, there will be a decrease in prices. A similar effect will be achieved with the use of credit to finance investment for the expansion and modernization of production. These are the consequences that have taken place in recent years in the agricultural market as a result of the expansion of lending to its production at a reasonable interest rate that did not exceed its profitability.

International experience of successful economic development demonstrates the key importance of expanding credit for financing productive investment. All the countries that made a breakthrough in their development started it with large-scale lending of investments in the development of advanced technologies in promising areas of economic growth. *Tables 1* and *2* illustrate the positive feedback between credit expansion and investment growth in the countries that have performed an economic miracle in recent decades. Having correctly determined the priority directions of development of the national economy, monetary authorities of these countries provided targeted low-interest long-term loans to their economic entities

Table 1. Scale of lending to the economic breakthrough in the world

Year	South Korea	Singapore	China	Hong Kong	India
1950	x	x	x	x	15.6
1955	x	x	x	x	18.9
1960	9.1	x	x	x	24.9
1963	16.6	7.2	x	x	25.8
1970	35.3	20	x	x	24.8
1978	38.4	30.7	38.5	x	36.4
1980	46.9	42.4	52.8	x	40.7
1990	57.2	61.7	86.3	x	51.5
1991	57.8	63.1	88.7	130.4	51.3
2000	79.5	79.2	119.7	136	53
2009	109.4	93.9	147.5	166.8	72.9
2010	103.2	83.9	172.3	199	76.2
Source: Ya. Mirkin [15].					

Table 2. Increase in the rate of accumulation during periods of economic leap

Year	Japan	South Korea	Singapore	Malaysia	China	India
1950	x	x	x	x	x	10.4
1955	19.4	10.6	x	9.2	x	12.5
1960	29	11.1	6.5	11	x	13.3
1965	29.8	14.9	21.3	18.3	x	15.8
1970	35.5	25.5	32.6	14.9	x	14.6
1975	32.5	26.8	35.1	25.1	x	16.9
1980	31.7	32.4	40.6	31.1	28.8	19.3
1985	27.7	28.8	42.2	29.8	29.4	20.7
1990	32.1	37.3	32.3	33	25	22.9
1995	27.9	37.3	33.4	43.6	33	24.4
2000	25.2	30	30.6	25.3	34.1	22.7
2005	23.3	28.9	21.3	20.5	42.2	30.4
2009	20.6	29.3	27.9	20.4	46.7	30.8
2010	20.5	28.6	25	20.3	46.1	29.5
Source: Ya. Mirkin [15].						

for investment in advanced technologies. The subsequent expansion in the production of world marketable goods has led to an increase in income and savings, which have provided the basis for further investment. At the same time, inflation in these countries remained moderate, and in some periods prices even declined, despite the rapid growth of the money supply. Thus, during the period of particularly rapid growth in China (up to 10% of annual GDP growth), the money supply grew to 40% per year with falling prices for household appliances and other industrial goods.

Results and conclusions. Monetary policy creates conditions for economic growth and increases economic potential through credit expansion. Naturally, to implement it, the economy must have free resources; in order to get them in the production process, entrepreneurs attract loans. In the Russian economy, all the resources needed to expand production are abundant. Judging by the scale of refinancing compression by the Bank of Russia and the decline in production and investment that happened after the sharp increase in interest rates, the deficit of credit resources for expanding production to a potential level is about 14 trillion rubles. If this money will be used for lending to production growth, we can expect an increase in GDP growth to 10% in 2019−2021, while keeping inflation close to the target level of 4%.

But even if the economy uses all the productive resources and operates at the potential level, the expansion of credit for the development and introduction of new technologies can increase this potential level. This is how an economy moves from extensive to intensive economic growth, the main factor of which is science and technology progress. This factor provides the major part of output growth in developed countries. The expansion of its supply is achieved by increasing the

expenditures on R&D, education, development of information infrastructure, half of which is financed via credit. Therefore, monetization of the economy increases with the level of technological development of the countries that use an extension of credit for the financing of innovation. At the same time, the more effective the system of targeted lending to investment and innovation activity, the faster is the non-inflationary expansion of credit emissions and the higher is the level f monetization *(Fig. 10)*.

In response to the global crisis that began in 2008, all developed and successfully developing countries started to pursue a policy of quantitative easing in order to maintain economic and investment activity; the policy was accompanied by a sharp increase in the monetary base with interest rates falling to zero. This allowed them to avoid the depression typical for such periods of structural crises of the economy that mediate the change of technological structures. At the same time, inflation remained low.

Among the top 20 countries Russia was the only country that responded to the crisis by tightening its monetary policy, which resulted in a stagflationary trap. The increase in interest rates and the contraction of credit led to a decline in output and an increase in production costs, as well as a sharp decline in investment, resulting in a decline in the competitiveness of the economy and the devaluation of the ruble; this was exacerbated by the manipulations of speculators after the exchange rate of the ruble moved to a free-float regime. As a result, an inflationary wave was formed, which could be extinguished only three years later by artificially compressing the demand at the cost of terminating the development of the economy and reducing people's incomes. Some time after the crisis, Brazilian monetary authorities adopted such a policy with the same consequences; it resulted in an acute

Figure 10. Dependence of GDP growth and inflation on monetization of the economy (averaging over 203 countries, 1992–2012)
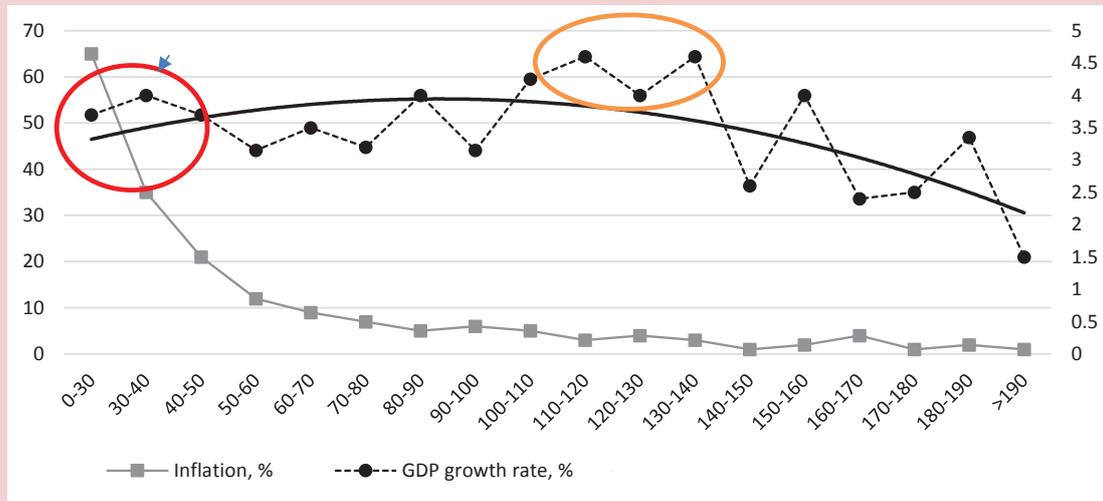
Source: IMF [16, 17].

socio-political crisis accompanied by the impeachment of the head of state.

The authors of the Directions do not understand that inflation can grow not only with an increase in the money supply in the conditions of the full use of economic potential, but also with a decrease in the money supply in the real economic conditions. This happens when the costs increase and capacity utilization declines; it is followed by the devaluation of the national currency due to the decline in the competitiveness of the national economy caused by the reduction in the investment in its development. Statistical research on the relationship between the dynamics of the money supply and inflation [18] conducted in a large number of countries show that inflation can grow both with an increase and a decrease in the volume of the money supply *(Fig. 11)*. This suggests that for each state of the economy there is an optimal level of monetization at which minimum inflation is achieved. It corresponds to the needs of the economy in lending for the purposes of its expanded reproduction within

the existing resource constraints.

Contrary to the opinion of the authors of the Directions who think that reducing inflation to the target level automatically creates conditions for sustainable economic development, in fact, for each economic system there is a level of inflation at which the maximum rate of economic growth is achieved *(Fig.12)*.

It can depend on the efficiency of economic regulation, its technical level, competitiveness, and inflation expectations. Low inflation really makes it easier for business entities to plan investments and contributes to the accumulation of savings. However, if their volume is insufficient for expanded reproduction of the economy, there can be no economic growth.

There are many examples of countries with low inflation and low economic growth and, vice versa, there are many examples of countries with double digit inflation and high economic growth. At the same time, there is a fairly high inflationary background, which cannot be suppressed by monetary policy

Figure 11. Relationship between the rate of inflation
and the volume of money supply in Russia and the world

A. Relationship between the rate of inflation and the volume of money supply in Russia, 2001–2015
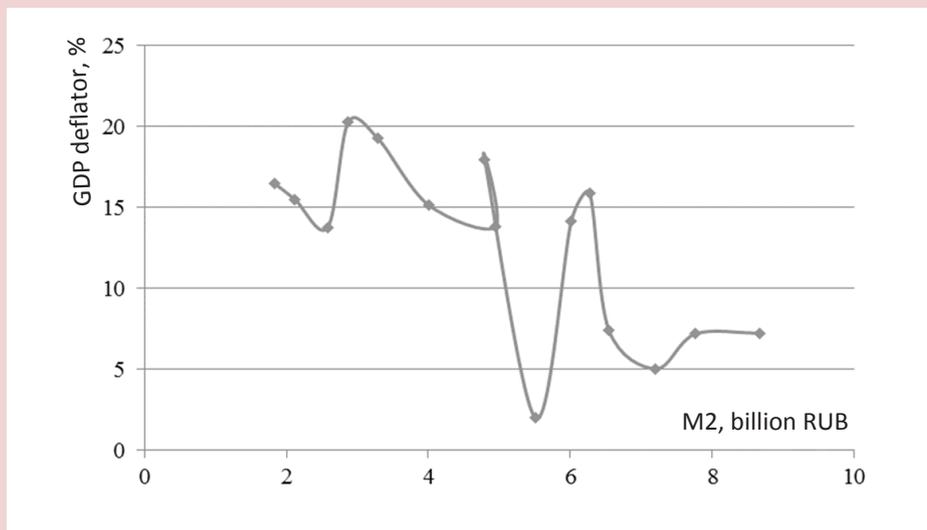
B. Relationship between the rate of inflation and the volume of money supply in the world, 2001–2014
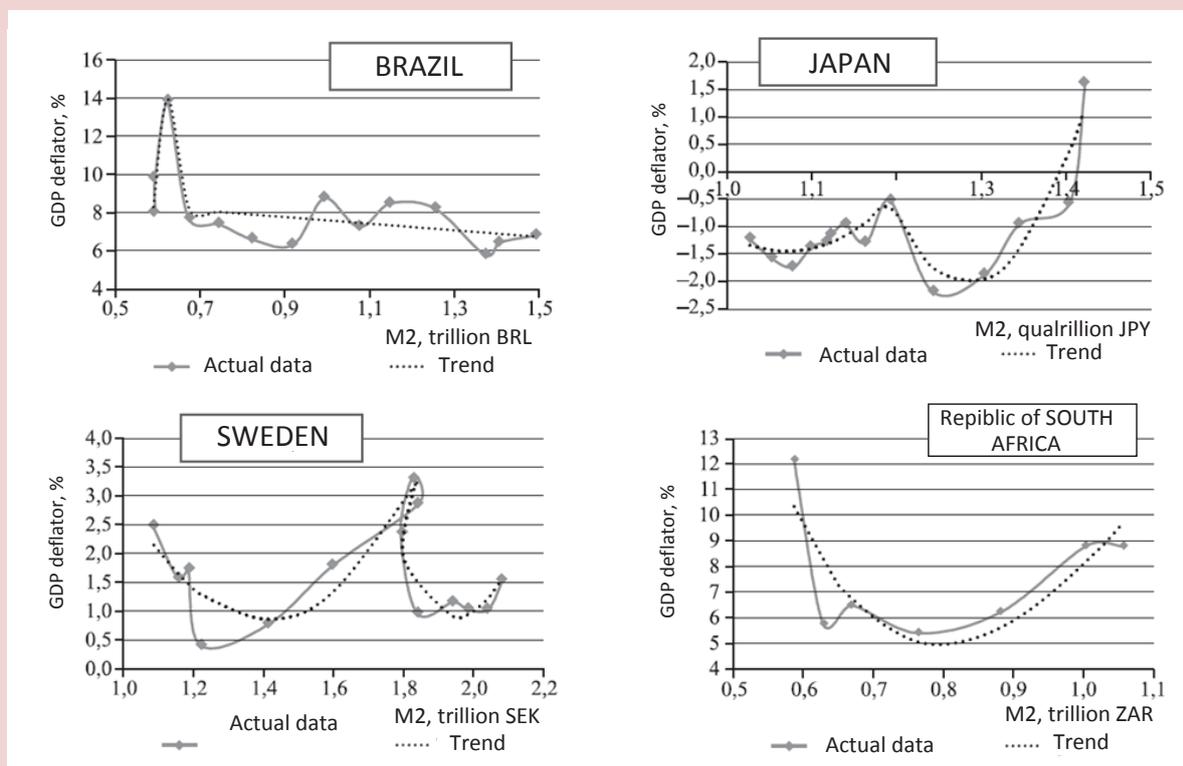
Source: R. Nizhegorodtsev, N. Goridko [19].

Figure 12. Quadratic dependency of the GDP growth rate on the inflation level in Russia and Canada

A. Quadratic dependency of the GDP growth rate on the inflation level in Russia, 2001–2010
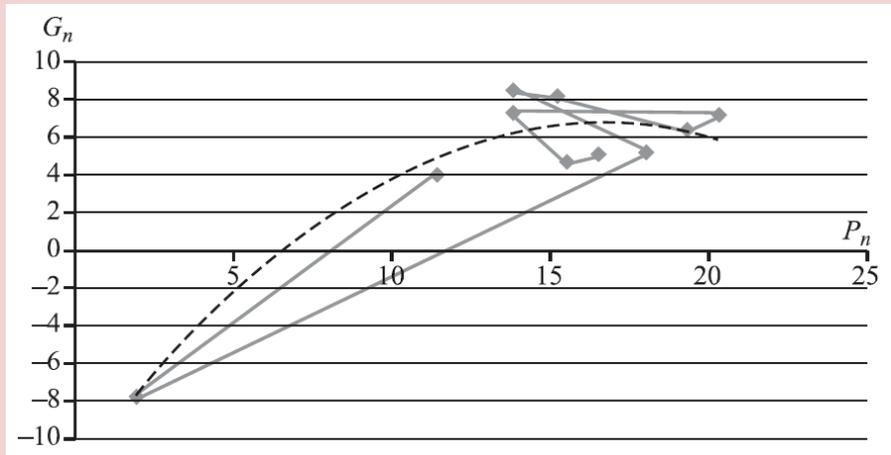
B. Quadratic dependency of the GDP growth rate on the inflation level in Canada, 2001–2010
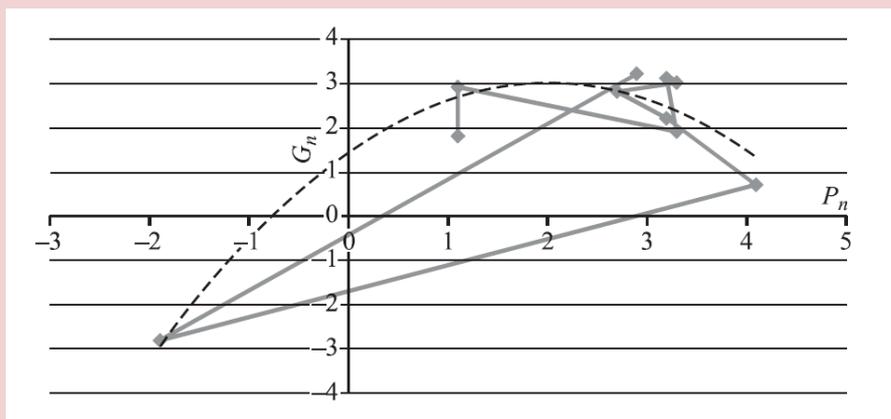
Source: R. Nizhegorodtsev, N. Goridko [20].

measures. Thus, high corruption in public administration is usually accompanied with high inflation. Increased credit emissions in the context of a corrupt public sector and weak currency control can lead to grown currency speculation and capital outflows. In this case, as Russian experience of the 2008 credit issue expansion shows, in order to save large banks that bought foreign currency at the expense of received loans from the Central Bank, the rise in money supply promotes inflation and does not boost investment and production. To achieve

transformation of loans into investment, it is necessary to monitor their use in terms of compliance with lending objectives and investment effectiveness.

Although the Directions authors argue that "to work out the forecast, the Bank of Russia uses a modern macroeconomic model" (p. 8), there are no references to the description of these models. It seems that these are standard econometric general equilibrium models that have long been rejected by the scientific community as inadequate to real economic dynamics and unsuitable for reliable

forecasting. As the Directions authors are persistent in ignoring the fact of low production capacity utilization, most likely, they use models interpreting unemployment as an indicator of economy proximity to a hypothetical equilibrium level. Thus, all assessments of operational objectives and monetary policy tools can not be considered valid. They only reflect the authors' subjective assessment, supported by the calculated primitive models that do not reflect a real situation, adjusting calculations to the desired results in order to give a scientific character of the argument.

Inadequacy of operational objectives and tools to advanced economic development goals. The targets economic growth laid out in the Directions are clearly not consistent with the RF President's instruction to encourage breakthrough development of the country's economy. Even under the optimistic scenario "the GDP growth rate in 2019 will be slightly higher than baseline scenario rates and amount to 1.5–2%" (p. 59). This is significantly lower than a projected 3.9% of the global average economic growth rate and more than threefold lower than in China and other Southeast Asian countries that become the world economy center.

As shown above, the fixed assets of Russian economy are loaded by 60%, and it has no growth restrictions on any production factor. The negative output gap is not less than 25%, and the potential economic growth rate is from 7 to 10% of the annual GDP growth for the period up to 2021, depending on the choice of a reproduction model – extensive or intensive.

The restrictive monetary policy, pursued by the Board of Directors of the Bank of Russia due to the subjective views on the Russian economy growth possibilities, hinders the fulfilment of the RF President's objective to promote advanced development. It primarily caused the recession, followed by prolonged

stagnation of the economy and growing decline of investment in fixed capital on the background of significantly increased production of investment goods since 2014. The annually observed 50% difference in growth rates of these indicators (p. 42) reveals that it is not objective restrictions on production factors enlargement, but restrictions on credit emissions artificially created by the Bank of Russia that became a key reason for hindering economical growth in Russia.

Unfortunately, the Directions do not include scientifically sound approaches to monetary policy implementation, though different from subjective perceptions of the Bank of Russia authorities, "The Bank of Russia considers two main scenarios of the medium-term economy development forecast: the baseline and the one with unchanged oil prices" (p.46).

According to the Directions, "growth in loans in the economy and then in money supply will correspond to the baseline scenario estimates, amounting to 8–12% in 2019 and 7–12% in the medium term" (p. 59); "in 2019–2021 the requirements to the economy and money supply will increase at the annual rate of 7–12%" (p. 54); "the growth rate of requirements to organizations in 2019–2021 will be 6–10%" (p. 55); "...the annual growth rate of gross fixed capital formation will amount to 3–3.5% in 2020 and 3.5–4.5% in 2021" (p.53).

This increase is to be achieved without a rise in loans from the Bank of Russia. The latter will remain a net borrower of the banking system, extorting 3–5 trillion rubles from it: "The Bank of Russia will continue to absorb excess funds through deposit auctions and coupon bonds" (p.17). Taking into account the Government stabilization funds, the monetary authorities withdraw 16–26 trillion rubles from the economy in different years of the

forecast period. At the same time, we observe termination of commercial banks refinancing and special refinancing tools that finance loans to small and medium-sized businesses, preferential loans for non-resource export expansion and investment projects guaranteed by the Government, "As the availability of market funding increases, the Bank of Russia plans to continue implementing its exit strategy from the use of specialized refinancing tools" (p.49).

The monetary authorities' net contribution to the Russian economy development corresponds to the amount of withdrawn money and is about 20 trillion rubles of the artificially reduced economic activity. We get a similar assessment by calculating the output gap between potential and actual GDP based on the load of key production factors. Compared to potential GDP growth, the Directions implementation will cause a 5% artificial slowdown of economic growth, which corresponds to 5 trillion rubles of non-produced goods in the coming year and 18 trillion rubles in the next three years. At the same time, during the entire forecast period, investment in fixed assets remains below the level of 2014, when the Bank of Russia switched to the credit contraction policy. A steady 7-year decline in investment, with its volume remaining half of the 1990 level and clearly insufficient even for simple economic reproduction, will have disastrous consequences for Russia. A growing technological gap not only from the advanced, but also developing Asian countries will soon entail another round of ruble devaluation and a new inflationary wave [21]. Within the framework of the principles laid down by the Directions, the monetary authorities will respond to this with a new cycle of tightening monetary policy with the same negative consequences: a fall in

economic activity and population's income. The Directions doom Russia to slide down a spiral tapering of reproduction due to a built-in negative feedback: raised interest rates – credit contraction – fall in investment – technological degradation of the economy – reduction in its competitiveness – ruble devaluation – inflation – raised interest rates... Along with that long-term negative feedback between monetary policy and economic development there is a short-term negative relationship: rise in interest rates – credit contraction – reduction in working capital of enterprises – decline in production – decrease in revenues – reduction in demand – fall in production – rise in costs – increase in inflation – increase in interest rates.

Adjustment of the Directions in accordance with the rapid economical development objectives. The transition to a monetary policy focused on investment growth and advanced economic development is necessary to break the vicious circle of shrinking reproduction and Russian economy degradation. According to scientifically proved recommendations, based on knowledge of economic development laws and real opportunities for production growth in Russia, it should provide for a targeted increase in loans to finance investment in promising development areas of the Russian economy in the amount of at least 10 trillion rubles a year. The provision of these funds to economic entities should be carried out in the format of private-public partnership through special investment contracts in accordance with strategic and indicative plans for social and economic development stipulated by the Federal law "On strategic planning in the Russian Federation" (June 28, 2014, No. 172-FZ). The intended use of this money can be monitored with the help of modern digital technologies that control its circulation through cryptographic means and blockchain.

References

1. On national goals and strategic objectives of Russia's development up to 2024. *Presidential Decree no. 204*, dated 07.05.2018.

2. Schumpeter J. *Teoriya ekonomicheskogo razvitiya* [The Theory of Economic Development]. Moscow: Progress, 1982.

3. Glaz'ev S.Yu. The discovery of regularities of change of technological orders in Central Economics and Mathematics Institute of the Soviet Academy of Sciences. *Ekonomika i matematicheskie metody=Economics and the Mathematical Methods*, 2018, no. 3, pp. 17-30. (In Russian).

4. Ershov M.V. Growth opportunities amid monetary failures in Russia and economic bubbles in the world. *Voprosy ekonomiki=Voprosy Ekonomiki*, 2015, no. 12, pp. 32-50. (In Russian).

5. Ershov M.V. Russia and the world: How sustainable is economic growth? Risks and barriers. *Voprosy ekonomiki=Voprosy Ekonomiki*, 2017, no. 12, pp. 63-80. (In Russian).

6. *Basic areas of single state monetary policy for 2019 and 2020–2021.* Project dated 01.10.18. Central Bank of Russia. Moscow, 2018. Available at: http://www.cbr.ru/Content/Document/File/48125/on_2019(2020-2021).pdf

7. Sukharev O.S. Economic growth of the rapidly changing economy: theoretical aspect. *Ekonomika regiona=Region's Economy*, 2016, vol. 12, no. 2, pp. 359-370. (In Russian).

8. Glaz'ev S.Yu. On a new paradigm in the political economy. *Ekonomicheskaya nauka sovremennoi Rossii=Economics of Contemporary Russia*, 2016, no. 3, pp. 7-17, no. 4, pp. 10-22. (In Russian)

9. Glaz'ev S.Yu., Gorid'ko N.P., Nizhegorodtsev R.M. The critics of Irving Fisher's formula and some illusions about contemporary monetary policy. *Ekonomika i matematicheskie metody=Economics and Mathematical Methods*, 2016, vol. 52, no. 4, pp. 3-23. (In Russian).

10. *Strukturno-investitsionnaya politika v tselyakh obespecheniya ekonomicheskogo rosta v Rossii* [The structure-investment policy to ensure Russia's economic growth]. Moscow: Nauchnyi konsul'tant, 2017. 195 p.

11. Blinov S. *Real'nye den'gi i ekonomicheskii rost* [Real Money and Economic Growth]. Available at: https://mpra.ub.uni-muenchen.de/67256/1/MPRA_paper_67256.pdf. (In Russian).

12. Russian Federation: 2015. Article 4. *Consultation IMF Staff Country Report no. 15/211.*

13. Crozet M., Hinz J. *Collateral Damage: The impact of the Russia Sanctions on Sanctioning Countries` Exports. Research and Expertise on the World Economy*. CEPII Working Paper. 2016-16-June.

14. Obstfeld M., Shambaugh J., Taylor A. *Monetary Sovereignty, Exchange Rates, and Capital Controls: The Trilemma in the Interwar Period*. IMF Staff Papers, 2004, special issue, vol. 51.

15. Ya.M. Mirkin (Ed.). *Finansovye rynki Evrazii: ustroistvo, dinamika, budushchee* [Financial risks of Eurasia: composition, dynamics, future]. Moscow: Magistr, 2017.

16. *Global Financial Stability Report, April 2018: A Bumpy Road Ahead*. USA: International Monetary Fund. DOI: https://doi.org/10.5089/9781484338292.082. Available at: https://www.elibrary.imf.org/view/IMF082/24893-9781484338292/24893-9781484338292/24893-9781484338292.xml

17. Adrian T., Laxton D., Obstfeld M. *Advancing the Frontiers of Monetary Policy*. USA: International Monetary Fund, 2018. DOI: https://doi.org/10.5089/9781484325940.071. Available at: https://www.elibrary.imf.org/view/IMF071/24708-9781484325940/24708-9781484325940/24708-9781484325940.xml

18. Ilyin V.A., Morev M.V. The disturbing future of 2024. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 2018, vol. 11, no. 3, pp. 3-24. DOI: 10.15838/esc.2018.3.57.1. (In Russian)

19. Goridko N.P., Nizhegorodtsev R.M. Elaborating of long-run lag regressional models of Cobb-Douglas type. *Problemy upravleniya=Control Sciences*, 2012, no. 3, pp. 55-63. (In Russian).

20. Goridko N.P., Nizhegorodtsev R.M. *Sovremennyy ekonomicheskiy rost. Teoriya i regressionnyy analiz* [Contemporary Economic Growth: Theory and Regression Analysis: Monograph]. Moscow: Infra-M Publ., 2016. 343 p. DOI: 10.1237/7711. (In Russian).

21. Dementyev V.E. Structural factors of technological development. *Ekonomika i matematicheskie metody=Economics and Mathematical Methods*, 2013, no. 49 (4), pp. 33-46. (In Russian).

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MODELING AND FORECAST OF SOCIO-ECONOMIC PROCESSES

Opportunities to Promote Economic Growth in Russia at a Rate Not Lower Than the World Average*

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Abstract. The article considers economic growth in Russia in the context of fundamental concepts that include the formalization of the mechanisms of economic development from the standpoint of determining the relationship and substantiating the optimal ratio of production factors for Russia's GDP. In the framework of the study, we address four problems. First, we substantiate the model of production of Russia's GDP, expressing the functional relationship between the volume of GDP, on the one hand, and the production factors such as labor (number of people employed in the Russian economy) and capital (investment in fixed capital). The model is consistent with the initial statistical data, so that the coefficient

of determination between the model data and real data is more than 99%. Second, we substantiate the optimal ratio between investment and employment for the purpose of increasing Russia's GDP. Third, we analyze in detail how these optimal ratios correspond to the real processes of GDP production. On this basis, we identify the fundamental problems and possibilities of economic growth in the current economic model, taking into account the impact of the pension reform. We prove that the increase in GDP in Russia, given the current structure of the economy, is possible mainly due to the growth of investment. Fourth, on the basis of modeling, we consider the possibility of increasing Russia's GDP through investment (compliance of the model with the initial data is good, the coefficient of determination is more than 98%). Our assessment shows that in order to provide GDP growth at the level not lower than 3% per year, which is set out in the May 2018 Decree of the President, the growth of investments in fixed capital should be at least 5.4% per year.

Key words: Russia, economic growth, modeling, gross domestic product, labor, capital, optimal ratios.

Introduction

In recent years, the relevance and impact of research aimed at finding opportunities to promote economic growth in Russia on the basis of optimal relations between the factors of production have increased significantly both from the standpoint of the theoretical economy and from the standpoint of management practice. Thus, the use of real statistical data and correlations provides the basis for the natural development of fundamental concepts that formalize the mechanisms of economic growth. From the standpoint of management practice, the importance of assessing the opportunities and problems of economic growth within the existing structure of the economy is determined by at least two factors. First, it is the obvious necessity to address daily issues of economic growth, requiring the use of reliable and unambiguous tools of macroeconomic estimates, suitable for use in forecasting purposes. The second factor consists in a significant change in the official assessments of the country's socio-economic development prospects outlined in the Presidential decree of May 7, 2018 (Decree 204 "On national goals and strategic objectives for the development of the Russian Federation for the period up to 2024", the so-called "May

decree"). Thus, by 2024, the Government is to ensure the achievement of the following goals: "the Russian Federation is among the five largest economies in the world, Russia's economic growth is above the world indicators, and its macroeconomic stability is preserved". At the same time, we agree with V. Mau's statement that "if earlier the economic forecasts of the Government were more like contingency plans, and included desirable (and sometimes fantastic) development scenarios, then since the fall of 2013, the official forecast started to proceed mainly from the extrapolation of existing trends..." [1]. Indeed, the Ministry of Economic Development of the Russian Federation updated the forecast of socio-economic development in 2018, taking into account the goals set by the President of the Russian Federation in the May decree. The updated forecast considers the prerequisites for accelerating economic growth through a set of measures based on the increase in the factors of production — capital (increase in investment costs) and labor (increase in the number of people employed in the economy, including the increase due to the pension reform). However, it is difficult to assess the effectiveness of the proposed measures due to the apparent lack of theoretical substantiation for solving the

problems of growth, including the assessment of the relationship between macroeconomic indicators, and factors of GDP production in relation to the Russian economy.

On the surface of quite a significant amount of fundamental and practical works, this insufficiency is manifested not only in diversity, but also in extreme assessments of the problems, opportunities and prospects of economic growth of the Russian Federation [2, 3, 4, 5]. Thus, the need to make a convincing assessment of the growth of the Russian economy indicates the necessity to apply strategies and techniques that will help assess the situation to select the correct model and the means of achieving strategic indicators corresponding to the specific realities. Such an approach exists in the vast majority of foreign works on growth models [6, 7, 8], in contrast to some Russian works that substantiate the development of the Russian economy without a detailed quantitative analysis.

The goal of the study is to assess the possibility of ensuring economic growth in Russia at a rate higher than the world average; the assessment is based on the study of optimal ratios of the factors of production of Russia's GDP.

It should be noted that so far there are no such estimates; consequently, this fact determines fundamental novelty of our research estimated through the identification of stable relations and trends of economic growth in Russia; it also determines obvious scientific and practical novelty of our research.

Theoretical and methodological basis and the content of the research

Let us substantiate the content of the research, which is determined by the capabilities and limitations of modern theoretical and methodological tools on the profile of the study under consideration.

Theoretical and methodological foundations of objective estimates of economic growth based on the use of real statistics data suggest that production should be formalized through the functional relationship between the factors of labor and capital [9, 10]. Accordingly, by using classical fundamental concepts [11, 12, 13] confirmed by modern research [14, 15, 16], we rely on the generally accepted premise that labor and capital are the key elements of management necessary to stimulate or establish the further trajectory of economic growth. At the same time, numerous studies argue that specific economies characterize certain optimal ratios of the factors of production, which are relatively constant [17, 18, 19, 20]. That is, production functions allow us to consider the economic essence of production. We believe that this is the reason for the universality of the use of production functions in the practical tasks of managing macroeconomic processes. Production functions are included in the basic tools for forecasting and planning macroeconomic indicators of countries and regions of the world (forecast of the economy of Japan, USA, Canada, IMF (*World Economic Outlook*), UN (*World Economic Situation and Prospects*), etc.) [21].

As part of this approach, we propose a decomposition of the output (Russia's GDP) and consider the relationship between the growth rates of volume indicators of resource costs.

Using the recent results of studies of the specifics of GDP and GRP production in Russia [21, 22], we will use the relationship between the factors of production (GDP and investment), normalized by the number of employees, reduced to the Cobb−Douglas production function [11]. This approach allows us to consider the relationship between the growth rates of specific indicators that link the

value of total output to labor and capital costs, and then to define and select optimal ratios of the factors of production. Finally, we not only substantiate the optimal ratios, but also reflect their compliance with the real processes of production of Russia's GDP. This makes it possible to identify fundamental problems and reveal actual opportunities for economic growth within the framework of the current economic model. It should be noted that the forecast nature of the estimates determines the need to take into account the impact of the pension reform. In order to find out what growth rates of investment in fixed capital are necessary to ensure the targeted GDP growth, taking into account the existing demographic constraints, we build a model of a multiplicative production function that connects the physical volume of GDP with investment in fixed capital.

The advantages of the research scheme we propose are as follows: first, the mathematical justification of the corresponding statements

within the capabilities of modern methods and statistical base; second, the assessment of their compliance with real processes.

Input data and GDP production model

The study used the following data of the Federal State Statistics Service: indices of physical volume of GDP as a percentage of the previous year; investment in fixed capital in the Russian Federation at comparable prices as a percentage of the previous year; the number of people employed in the economy. The values of the indicators relative to the year 1995 are shown in *Figure 1.*

Let us consider the ratio of GDP to the number of people employed in the economy and the ratio of investment in fixed capital to the number of people employed in the economy for 1996−2017 (22 observations). The correlation coefficient between these values is 0.989, so there is a statistically significant linear relationship: the observed value of the *F*-test (894) is greater than the

Figure 1. Physical volume of GDP (1), investment in fixed capital (2), and the number of persons employed (3) for 1996–2017 (data are shown relative to 1995)
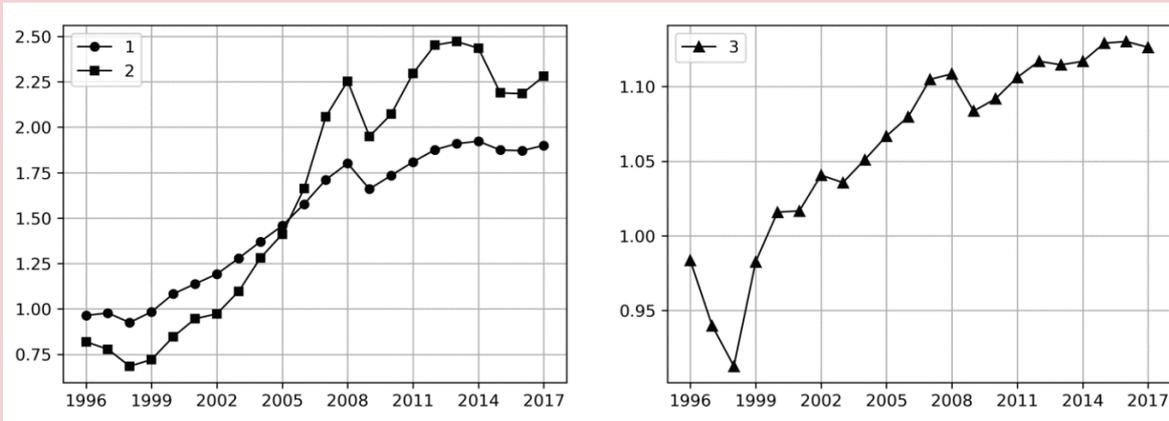
Sources: our own calculations with the use of Rosstat data.

Indices of the physical volume of GDP in % to the previous year for 1996–2017. Available at: http://www.gks.ru/free_doc/new_site/vvp/vvp-god/tab3.htm (accessed August 8, 2018); Investments in fixed capital in the Russian Federation in comparable prices in % to the previous year for 1995–2017. Available at: http://www.gks.ru/free_doc/new_site/business/invest/Din-inv.xls (accessed August 8, 2018); the number of employed in the economy in 1995–2016. Available at: http://www.gks.ru/free_doc/doc_2017/year/pril_year17-rus.xls (accessed August 8, 2018); 2017. Available at: https://fedstat.ru/indicator/58713 (accessed August 8, 2018).

corresponding table value (8.096) at 1% significance level. And therefore, a significant linear relationship is present between the logarithms of these relations (correlation coefficient is 0.993), which has the following form:

$$Ln(Y/L) = p \ln(K/L) + a, \qquad (1)$$

where Y is GDP; K is capital, investment in fixed assets; L is labor, the number of people employed; p and a are regression parameters.

The formula (1) defines the relationship between output and investment normalized by employment. Expressing Y from the ratio (1), we obtain the following:

$$Y = AK^p L^q, \ p + q = 1. \qquad (2)$$

The expression (2) is a Cobb−Douglas production function (PF) [11], where $A = \exp(a)$ is neutral technological progress, p is capital elasticity coefficient (fixed capital investment), $q = 1 - p$ is labor elasticity coefficient (number of people employed).

Traditionally, the Cobb-Douglas function uses the value of fixed assets as capital K [11, 23]. However, in this case, the correlation coefficient between the logarithms of relations is 0.62, and its square is 0.38, that is, only 38% of the spread of the original data is determined by the model, so this model does not correspond to the original data. This feature of the production processes in the Russian economy is noted in a number of studies [21].

In this case, the use of the model in the form of a multiplicative PF $Y = AK^p L^q$ (there is no condition $p + q = 1$, which determines the normalization on the number of employees) is unjustified. The reason is the presence of a significant correlation between investment K and the number of people employed L (correlation coefficient is 0.923).

The coefficient of elasticity determines the impact of changes in the resource used in production on the volume of output. For example, if capital (K) in (2) changes in x times, then GDP will change in x^p times. In order to

Figure 2. Comparison of actual and calculated according to the model (2) values of the index of physical volume of GRP in 1996–2017 relative to the year 1995.
R^2 – coefficient of determination. The black line is the line of the best match.

$R^2 = 0.991$
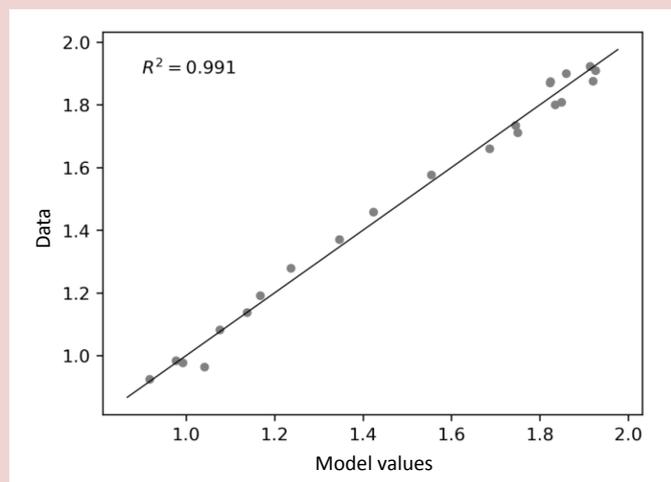
Source: our own calculations.

move to the elasticities we took the logarithm of the values of GDP and investment in fixed capital per person employed.

The results of model parameters estimation (2) are given in *Table 1*. The estimation was carried out by the least squares method according to the data for 1996−2017 (22 observations); the indicators were adjusted to the indices of physical volume relative to 1995 *(Fig. 1)*.

The model has a high determination coefficient $R^2 = 0.991$, which indicates the presence of a good correlation between the model and the initial data *(Fig. 2)*. The estimated capital (*p*) and labor (*q*) elasticities are within the range of 0 to 1 (Tab. 1). It means that: 1) with the increase in resources (capital and labor), GDP output also grows; 2) with the growth of resources, the growth rate of output slows down [24]. The coincidence of elasticities $p = q = 0.5$ shows that GDP production is equally determined by the number of employees and investments in fixed capital (the contribution of these indicators is the same).

Table 1. Values of parameters of the model (2) based on 95% confidence intervals, coefficient of determination R^2, estimated according to the data for 1996–2017

A	*p*	*q*	R^2
1.160 ± 0.017	0.500 ± 0.03	0.500 ± 0.03	0.991
Source: our own calculations.			

Search for optimal relations between labor and capital

While maintaining the structure of the economy, according to the model (2), in order to increase GDP it is necessary to increase investment in fixed capital and the number of employees. The same GDP growth can be achieved with different values of these factors.

Suppose it is necessary to increase GDP in *r* times, then, according to (2), we have: $Yr = A(Kr_K)^p (Lr_L)^q$, where the multipliers r_K, r_L

show how many times you need to increase capital and labor, respectively, to ensure GDP growth in *r* times. Dividing this ratio by the expression (2), we obtain the following ratio:

$$r = r_K^{\,p}\, r_L^{\,q}, \quad p + q = 1. \qquad (3)$$

Formally, the required GDP growth can be achieved in an infinite number of ways by changing r_K, r_L along the corresponding line of the function level (3). Under the optimal way we understand the way in which the ratio between the increase in capital and increase in labor provides the highest growth rate of the function (3). The desired ratio is determined by the gradient of the function (3) $G = (G_K, G_L)$, whose components have the form:

$$G_K = p\, r_K^{\,p-1} r_L^{\,q}, \quad G_L = r_K^{\,p}\, q\, r_L^{\,q-1}. \quad (4)$$

The gradient (4) is perpendicular to the tangent lines of the level of the function *r* (3) at the corresponding points.

Thus, changing the values of r_K, r_L from the starting point $r_K = r_L = 1$ in the direction of the gradient at this point $G = (p, q)$, we get the maximum possible rate of GDP growth:

$$r_K = 1 + sp, \quad r_L = 1 + sq, \qquad (5)$$

where *p* and *q* are labor and capital elasticity coefficients, respectively; the factor *s* is determined for the required GDP growth *r* from the equation (3) by substituting the expressions (5) into it. Assuming that $p = q = 0.5$ (Tab. 1), we obtain $s = 2r − 2$. Substituting this expression in (5), we obtain:

$$r_K = r_L = r. \qquad (6)$$

To ensure the growth of Russia's GDP in r times the best way, it is necessary to increase the number of people employed and investment in fixed capital in the same r times. This is the main result of the present study.

Note that the formula (6) is valid only if $p = q = 0.5$. For other values of elasticity p and q in order to find s, the equation (3) is solved numerically for the given GDP growth r by substituting the expressions (5) into it.

According to the decree of the President of the Russian Federation "On national goals and strategic objectives for the development of the Russian Federation for the period up to 2024" dated May 7, 2018, it is planned "to ensure that the Russian Federation will be among the five largest economies in the world, that its economic growth rates will be above the world average while its macroeconomic stability is maintained, and inflation remains at a level not exceeding 4%". According to the World Bank, average global GDP growth rate in 2010−2017 was about 3% per year *(Fig. 3)*. To ensure the growth of Russia's GDP by 3% per year ($r = 1.03$) in the optimal way, according to the formula (6), it is necessary to increase investments in fixed capital and the number of employees by 3% annually.

Figure 3. World GDP for 2010–2017 (trillion USD) in 2010 prices (at an average growth rate of 3% per year)
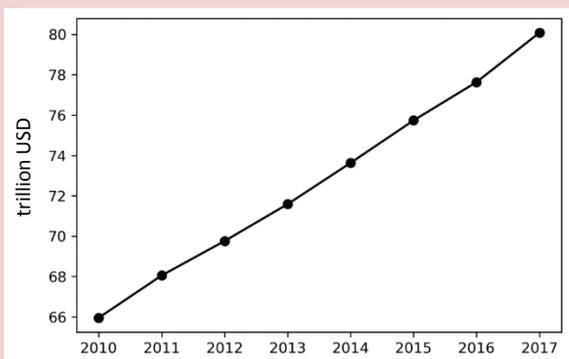
Source: compiled with the use of World Bank data Website of the World Bank. Available at: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=1W (accessed August 8, 2018).

In general, if the number of employees will increase in r_L times, then to ensure GDP growth in r times, it follows from the ratio (3) that investment in fixed capital should be increased in $r_K = r^{1/p} \, r_L^{-q/p}$ times, at $q = p = 0.5$ we get $r_K = r^2/r_L$ times.

Discussion of the results

Figure 4 provides a graphical illustration that shows the following: level lines of the function (3) at the estimated values $p = q = 0.5$ (Tab. 1) corresponding to the different values of GDP growth; direction of the gradient (4) of the function (3) emerging from the starting point (1.1); actual capital and labor gains for 1996−2017 and the corresponding direct regression.

It is noteworthy that GDP growth during this period was achieved mainly due to an increase in investment rather than the number of employees. Indeed, against the background of the almost double GDP growth observed in 1998−2014, investment grew in 3.4 times and the number of people in employment − only in 1.13 times (Fig. 1). This phenomenon is also reflected in a significant deviation in the values of the growth of investment in fixed capital and the number of employees from the optimal direction set out by the gradient of the function (3) − the clockwise angle between the gradient and the actual regression is 38° (Fig. 3). The only exceptions are the years 1999 and 2002, when GDP growth (r) was achieved at the expense of approximately equal increases in fixed capital investment (r_K) and employment (r_L) relative to previous years. Thus, in 1999: $r = 6.5\%$, $r_K = 5,3\%$, $r_L = 7.7\%$ (the maximum value for 1996−2017); in 2002: $r = 4.7\%$, $r_K = 2,9\%$, $r_L = 2.4\%$. In other years, GDP growth was mainly driven by increased investment.

Figure 4. Dependence of the increase in labor (r_L) and capital (r_K) corresponding to different values of GDP growth
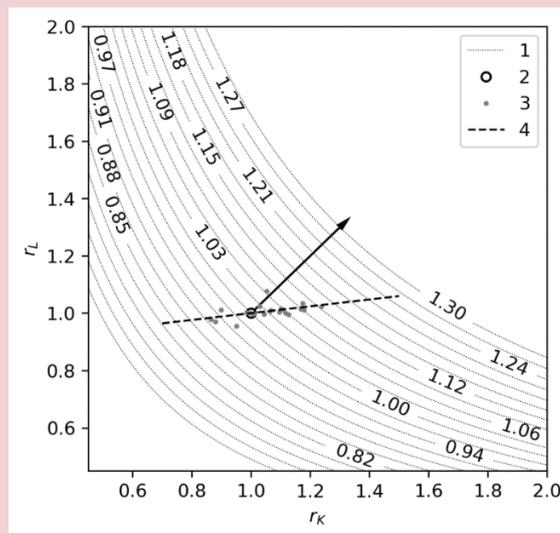
1 – level lines of the function (3), captions correspond to the values of GDP growth *r*;

2 – initial value of labor and capital gains – point (1.1). The arrow shows the direction of the gradient (4) of the function (3) that begins in the starting point (1.1);

3 – actual values of labor and capital gains for 1996–2017;

4 – trend line defined by the direct regression $r_L = 0{,}119 r_K + 0.881$ based on the actual data for 1996–2017 (the clockwise angle between the line 3 and the gradient is 38°).

Source: our own calculations.

In this case it is appropriate to raise the question of why GDP growth did not occur optimally. To answer this question, we compare the dynamics of the ratio of the labor force 15–72 years of age to the number of employees, or (which is the same) 1 minus the unemployment rate *(Fig. 5)* with the dynamics of GDP growth (Fig. 1). Let us recall that labor force includes persons aged 15–72, who in the period under review are considered employed or unemployed.

For example, we take the ten-year period from 1999 to 2008, when GDP growth was the most stable. During this period, GDP grew by 83%, and the average growth rate was 7% per year. It turns out that with optimal GDP growth, the number of people employed and investment in fixed capital should have had the same average annual growth rate. That is, the

ratio of the number of employees to the size of labor force in 2000 was to be 95.6%, and since 2001 (104%) and later on – more than 100%. By 2008, this ratio would have reached 170%. It is impossible to ensure such growth rate of the number of employees without increasing the level of participation in labor force (the ratio of the labor force of a certain age group to the total population of the corresponding age group; Fig. 5). That is why the average growth rate of investment in fixed assets for 1999–2008 was 13.4% per year, and average growth rate of the number of employees was 1.3% per year.

The issue concerning the size of labor force will arise even more acutely during the execution of the May 2018 decree, because, unlike the situation in 1999, the unemployment rate in the Russian Federation in 2017 was 5.2% (in 1999, it was greater – 13%).

Figure 5. Dynamics of the ratio of the number of employees to the size of labor force (1), and dynamics of labor force participation (the ratio of the labor force of a certain age group to the total population of the relevant age group) at the age of 15–72
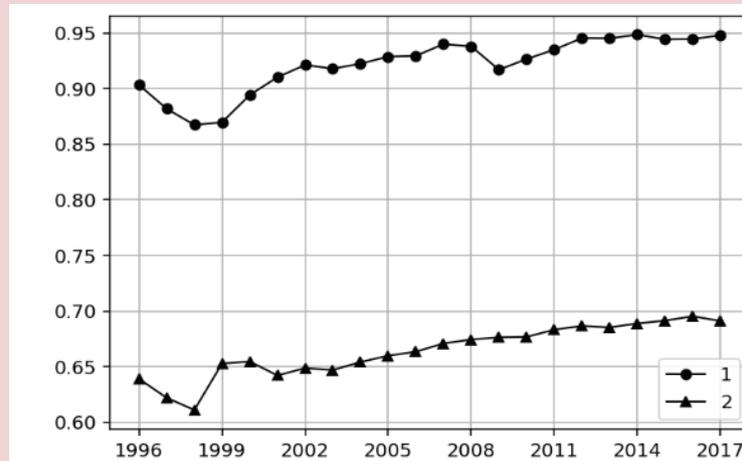
Source: our own calculations.

Thus, in order to achieve optimal increase in GDP by 3% in 2018, according to the formula (6), the number of employees must also be increased by 3%. That is, the ratio of this indicator to the size of labor force will also increase by 3% compared to 2017 and will be 97.6% (unemployment is 2.4%). In 2019, the number of employees should be increased again by 3%, but relative to 2018. That is, the ratio of this indicator to labor force will increase by 3% (compared to 2019) and will be 100.5%. In order to ensure optimal employment growth, it is necessary to increase the level of participation in labor force, which is equivalent to a decrease in the number of economically inactive population, the share of which is more than 30% (Fig. 5).

According to the Rosstat classification of statistical data on the composition of labor force, economic activity and employment status [25], economically inactive population consists of six categories:

a) pupils, students, and cadets enrolled in intramural education programs (including intramural post-graduate studies);

b) persons who receive old-age and preferential pensions and those who receive survivor pensions when they reach retirement age;

c) persons who receive disability pensions (groups I, II, III);

d) persons engaged in housekeeping, childcare, care for sick relatives, etc.;

e) discouraged workers, i.e. persons who have given up on searching for a job because they have exhausted all the opportunities to get it, but they are eligible for employment and are able to work;

f) other persons who do not need to work, regardless of their source of income.

Only category "b" can be directly regulated. The planned increase in the retirement age [25] will reduce the number of this category by transferring some people either to labor force (employed or unemployed), or to the category "e" − "discouraged workers". This conclusion points to the need to conduct a thorough study of the socio-economic consequences of the pension reform before its adoption, and the study should involve research teams, as well.

Thus, the increase in GDP in the Russian Federation under the current economic structure is possible mainly at the expense of the increase in investments. We note that a similar situation should be observed in other countries with low unemployment. The shortage of labor force is partly compensated for by the involvement of immigrants.

A model of increasing GDP with the help of increasing investments

In the final part of our study, we will answer the question about the possibility of increasing GDP only by increasing investments. To do this, we consider the relationship between GDP and investment.

The correlation between the physical volume of GDP relative to 1995 and investment in fixed capital in comparable prices relative to 1995 (Fig. 1) is 0.989. Reasoning in the same way as in the construction of the model (2), we obtain a ratio that is a multiplicative production function:

$$Y = A K^p, \qquad (7)$$

where Y is GDP, K — investment in fixed capital; A and p (the coefficient of elasticity of investment) — parameters of the model.

The model (7) has a simple interpretation. The state regulates investments in fixed capital, and the required number of employees is determined on the basis of the existing institutional environment, current regulatory framework and economic situation.

The results of estimating the parameters of the model (7) are given in *Table 2*. The model has a high determination coefficient $R^2 = 0.987$, which indicates a good correspondence of the model to the initial data *(Fig. 6)*. The estimation of the value of capital elasticity $p = 0.563$ shows that in order to increase GDP in r times it is necessary to increase investment in $r_K = r^{1/p} = r^{1.776}$ times *(Fig. 7)*. Thus, to ensure GDP

growth at the level of not less than 3% per year, as determined by the May 2018 decree, the increase in investment in fixed capital should be no less than 5.4% per year.

Table 2. Values of parameters of the model (7) based on 95% confidence intervals, determination coefficient R^2, estimated according to the data for 1996–2017

A	p	R^2
1.165 ± 0.02	0.563 ± 0.03	0.987

Source: our own calculations.

Figure 6. Comparison of the actual values of the index of GDP volume for 1996–2017 and those calculated according to the model (7) relative to 1995. R^2-determination coefficient. The black line is the line of the best match.
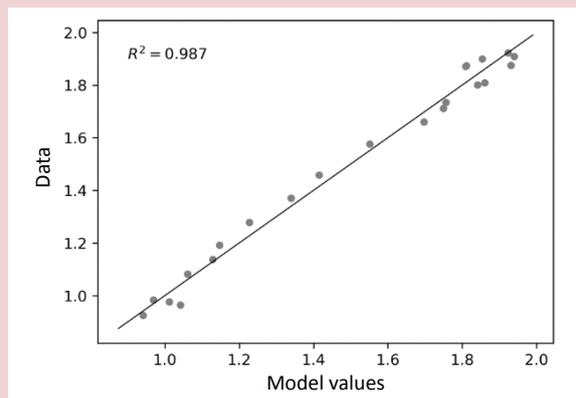
Source: our own calculations.

Figure 7. Increase in fixed capital investment r_K, calculated according to the model (7), required to increase GDP in r times
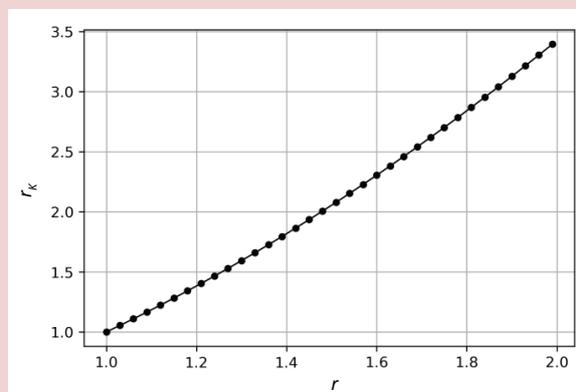
Source: our own calculations.

Conclusion

Consideration of the economic growth of Russia in the context of fundamental concepts by formalizing the mechanisms of economic development from the standpoint of determining the relationship and justification of optimal ratios of GDP production factors allowed us to obtain new theoretical knowledge. First, we substantiate the model of Russia's GDP production, which expresses the functional relationship between the indices of the physical volume of GDP on the one hand, and the labor (number of employees in the Russian economy) and capital (investment in fixed capital) factors on the other. The model corresponds well to the initial statistical data: the coefficient of determination between the model and real data is more than 99%. Second, we substantiate the optimal ratio between investment and employment necessary to increase Russia's GDP. Third, we carry out a detailed analysis of the correspondence of these optimal ratios to the real processes of GDP production. On this basis, we identify fundamental problems and possibilities of economic growth in the current economic model, taking into account the impact of the pension reform. We prove that the increase in GDP in Russia under the current economic structure is possible mainly due to the growth of investment. Fourth, on the basis of modeling (compliance of the constructed model with the initial data is good, the coefficient of determination is more than 98%), we consider the possibility of increasing Russia's GDP with the help of investment. The assessment shows that in order to ensure GDP growth at the level of not less than 3% per year, which is set out in the May 2018 decree of the President, the growth of investments in the main capital should be at least 5.4% per year.

The development of theoretical concepts has provided valuable scientific and practical knowledge about the resources and limits of economic growth, management capabilities to ensure maximum efficiency of decisions, reduce the risks of management of the macroeconomic factors of production, and determine the investment conditions of economic growth.

References

1. Mau V. Waiting for a new model of growth: Russia's social and economic development in 2013. *Voprosy ekonomiki=Issues of Economics,* 2014, no. 2, p. 21. (In Russian).

2. Maevskii V.I., Malkov S.Yu., Rubinshtein A.A. Analysis of the economic dynamics of the US, the USSR and Russia with the help of the SMR-model. *Voprosy ekonomiki=Issues of Economics,* 2018, no. 7, pp. 82-95. (In Russian).

3. Akindinova N.V., Chekina K.S., Yarkin A.M. Measuring the contribution of demographic change and human capital to economic growth in Russia *Ekonomicheskii zhurnal VShE=HSE Economic Journal,* 2017, no. 4 (21), pp. 533-561. (In Russian).

4. Ilyin V.A., Morev M.V. What will Putin bequeath to his successor in 2024? *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 2018, vol. 11, no. 1, pp. 9-31. (In Russian).

5. Minakir P.A. "Decree" economy. *Prostranstvennaya ekonomika=Spatial Economics,* 2018, no. 2, pp. 8-16. (In Russian).

6. Rodrik D. Diagnostics before prescription. *Journal of Economic Perspectives,* 2010, vol. 24 (3), pp. 33-44.

7. Hausmann R., Klinger B. *Growth Diagnostic: Belize*. Harvard: Center for International Development Harvard University, 2007. 43 p.

8. Robinson J., Acemoglu D., Johnson S. Institutions as a fundamental cause of long-run growth. In: Aghion P. (Ed.). *Handbook of Economic Growth*. Amsterdam: Elsevier, North Holland, 2005. Vol. 1. Pp. 386-472.

9. Greenwood J., Zvi H., Per K. Long-Run implications of investment-specific technological change. *American Economic Review*, 1997, no. 87 (3), June, pp. 342-362.

10. Nicola P.C. *Mainstream Mathematical Economics in the 20th Century*. Springer Science & Business Media, 2013. 527 p.

11. Cobb C.W., Douglas P.H. A theory of production. *American Economic Review,* 1928, 18 (supplement), pp. 139-165.

12. Blaug M. *Economic Theory in Retrospect*. 5th edition. Cambridge: Cambridge University Press, 1997. Pp. 544-546.

13. Houthakker H.S. The Pareto distribution and the Cobb-Douglas production function in activity analysis. *Review of Economic Studies*, 1955, vol. 23 (1), pp. 27-31.

14. Duffy J., Papageorgiou C. A Cross-country empirical investigation of the aggregate production function specification. *Journal of Economic Growth*, 2000, vol. 5 (1), pp. 87-120.

15. Mallick D. The role of the elasticity of substitution in economic growth: a cross-country investigation. *Labour Economics*, 2012, vol. 19(5), pp. 682-694.

16. La Grandville O., Klump R. Economic growth and the elasticity of substitution: two theorems and some suggestions. *American Economic Review,* 2000, vol. 90 (1), pp. 282-291.

17. Antras P. Is the US aggregate production function Cobb-Douglas? New estimates of the elasticity of substitution. *Journal of Macroeconomics*, 2004, vol. 4(1), pp. 1-36.

18. Karabarbounis L., Neiman B. The global decline of the labor share. *The Quarterly Journal of Economics,* 2014, vol. 129 (1), pp. 61-103.

19. Jones I. The facts of economic growth. *Handbook of Macroeconomics*, 2016, vol. 2, pp. 3-69.

20. Hsieh C.T., Klenow P.J. Development accounting. *American Economic Journal: Macroeconomics,* 2010, vol. 2 (1), pp. 20-23.

21. Skufina T., Baranov S, Samarina V., Shatalova T. Production functions in identifying the specifics of producing gross regional product of Russian Federation. *Mediterranean Journal of Social Sciences,* 2015, vol. 6 (5), pp. 265-270.

22. Skufina T.P., Baranov S.V., Korchak E.A. Impact assessment of investment dynamics on the growth of the gross regional product in the regions of the North and the Arctic Zone of the Russian Federation. *Voprosy statistiki=Issues of Statistics,* 2018, no. 6, pp. 25-35. (In Russian).

23. Felipe J., Adams F. G. A theory of production: the estimation of the Cobb-Douglas function: a retrospective view. *Eastern Economic Journal*, 2005, vol. 31 (3), pp. 427-445.

24. Kolemaev V.A. *Ekonomiko-matematicheskoe modelirovanie* [Economic and Mathematical Modeling]. Moscow: YuNITI-DANA, 2002. 399 p.

25. Methodological provisions on statistics. Available at: http://www.gks.ru/bgd/free/B99_10/IssWWW.exe/Stg/d000/i000080r.htm (accessed: 8.08.2018). (In Russian).

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Budget Capacity in the System of Capacities of the Territory: Theoretical Issues

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Abstract. The paper considers theoretical and methodological aspects of budget capacity. Our goal is to determine the place and role of budget capacity in the system of capacities of the territory by studying the essence of this capacity. We define the concept of "capacity" and summarize the content of key elements of the system of territorial capacities. We analyze the evolution and modern interpretation of the term "budget capacity of the territory" on the basis of domestic and foreign works. We find out that so far there is no unique approach to the content of budget capacity in either domestic or foreign financial science. Scientific novelty of the paper is shown in the following: we carry out systematization and critical analysis of existing methodological approaches to the definition of budget capacity, consider the conceptual content of six main and optional approaches, and identify five key issues of the budget capacity methodology. First, many scientists, as well as Russian legislation, are investigating the problems of tax capacity alone. Second, there is no single point of view on the very essence of the term "budget capacity". Third, we observe substitution of the concepts of "capacity", "resource", "reserves", "opportunities", and "achieved level of development". Fourth, there is no common understanding of the target setting of the term "budget capacity". Fifth, various stages of formation of budget capacity are discussed. The paper puts forward our own vision of possible ways to solve the debatable issues. We clarify the interpretation of the term "budget capacity", which unlike the existing ones actualizes the main elements necessary for the disclosure of the content of this economic category, such as target, relationship with the sustainable development of the territory, constituting factors, and carriers. In the next stages of the study, we plan to consider the structural component of budget capacity of the territory and methods of its evaluation. The materials of the paper can be used by researchers as a basis for further research and by management

bodies in making management decisions, as well as in the educational sphere in bachelor's, master's, and postgraduate programs.

Key words: capacity, resources, reserves, system elements, methodological approaches, socio-economic development, budget capacity, theory of finance, methodology, budget.

Introduction

The acceleration of economic growth as a factor in improving the quality of life is one of Russia's main priorities of modernity. In this case the spatial aspect of this goal, associated with the formation of conditions for sustainable development of territories, is particularly important. Academician D. Nekipelov points out that economic development should be promoted by restructuring all the mechanisms of its functioning at different levels [1].

It is quite obvious that the country's spatial system cannot develop steadily and effectively on the basis of a weak territorial base for a long time. An increasing importance of the role of territories in the national economic complex of the country, the growth of regional independence, increased responsibility of territorial authorities for the results of decisions taken in the field of socio-economic development − all these processes happening in Russia make regional studies more and more relevant in the context of modernization of socio-economic systems.

It is no coincidence that the world practice pays more attention to an economic approach that assumes that the state creates prerequisites for intensive development of various territories, taking into account their internal potential and the possibility of its growth. At the same time, two important, but, in essence, opposite state tasks come to the fore at once. The first task concerns the need to preserve the engines of growth and rely on strong regions and municipalities. The second task is to reduce deep inter-territorial disparities.

The relevance of addressing these issues for modern Russia can not be overestimated due to the uneven distribution of economic activity in the country. Regional differentiation by the key indicator of socio-economic development − gross product per capita − reached 34 times in 2017, which is several times higher than in developed countries. Thus, according to Eurostat data for 2016, the difference between the territories with the minimum and maximum values of GRP per capita was 2.8 times in Germany, 2.5 times in Canada, 5 times in the U.S., and 7 times in China. Due to spatial heterogeneity, more than half of tax and non-tax revenues of consolidated budgets of constituent entities of the Russian Federation are mobilized in 1/8 of the country's territory *(Tab. 1)*, despite the fact that only one third of Russia's population lives there.

The data in the Table clearly show that Russia has no effective organizational and economic mechanisms that would help not only level the territories to eliminate consequences, but also develop their potential.

These circumstances make it necessary to search for ways to use and develop effectively the potential inherent in the Russian territories. Today, this issue is being actively discussed at the highest state level. However, the solution to this problem is not possible in the absence of methodological and scientific basis and active regional policy on the development of potential. Real forms and methods of implementation of management decisions largely depend on the reasonableness and correctness of the use of the conceptual framework.

Table 1. Tax and non-tax revenues of consolidated budgets of RF subjects
and consolidated budget revenues of the Russian Federation

RF subject	2000		2010		2015		2017	
	Billion rubles	Share, %	Billion rubles	Share, %	Billion rubles	Share, %	Billion rubles	Share, %
Russian regions with the highest revenues of consolidated budgets	428	53,2	2590	52,0	4056	53,2	4819	53,6
On the whole in Russia	804	100,0	4980	100,0	7625	100,0	8987	100,0
Interregional variation in GRP per capita, times	26,5		20,3		29,5		34,4	
Source: calculated with the use of the data from the reports of the Federal Treasury of Russia, and Rosstat data [2].								

Research methodology

The solution to this problem is based on scientific works of domestic and foreign researchers on territorial development theory and methodology.

If we refer to the dictionary [3], we see that the term "potential" is interpreted as all available opportunities or means in some sphere or area, or as a degree of power (military, intellectual potential, etc.). Note that the widespread use of the term has become characteristic of the economic science of the USSR since the late 1960s. This was due, on the one hand, to the awareness of the exhaustion of resources for extensive economic growth, and on the other hand — with the desire to put into effect the reserves that are inherent but not yet implemented in practice.

In the Soviet economic literature, the term "potential" included production factors (natural and climatic resources, fixed assets, labor resources) in their quantitative and qualitative assessment. In a planned economy, the task of connecting them was considered in general only as an organizational one. But already in the 1970s, it became clear that natural resources, labor and material wealth alone are not able to reflect the full range of economic development opportunities. It required a systematic approach that takes into account such an important driver of socio-economic development as the quality of the system itself [4].

In the perestroika and post-perestroika periods, the well-known Russian scientist V.G. Lebedev studied potential [5]. He suggested that potential should be considered from the standpoint of development of productive forces, scientific and technological revolution, transformation of social relations of production, and realization of the benefits of planned development.

In modern studies [6], the potential of any economic system is defined as a set of available resources (labor, natural, physical, etc.), which provide a certain level of its development in the current and future regime within the framework of the accumulated level of knowledge and technological system, depending on the existing social institutions. From this perspective, implementation of potential is represented as an additional source of resources.

In most cases, researchers understand the potential of territories as socio-economic potential. This is due to a close relationship between social relations and the process of formation and use of economic benefits. The value of socio-economic potential and its dynamics are determined by the current structure of the economy and the state of its individual subsystems. As a consequence, socio-economic potential has structural aspects. Undoubtedly, all its elements change over time, and the crisis of an economic system, expressed in the reduction of output product and per capita income, reduces the

possibility of using the country's potential, not to mention its increase.

Place and role of budget capacity in the structure of socio-economic potential of the territory

Scientific literature contains different views on the structural composition of the system of potentials of territories. In order to understand its content more comprehensively, it is necessary to systematize the key elements *(Tab. 2)*.

Having organized the whole variety of elements of the system of territorial potentials of the territory identified by different authors, we reveal the complexity and diversity of the definition under consideration. In turn,

Table 2. Characteristics of the content of the key elements of the system of potentials of a territory

Element	Characteristic	Authors
Production potential	Total result of economic activity of all the structural components of the production complex	O.F. Balatskii E.V. Lapin V.L. Akulenko A.E. Kogut V.E. Rokhchin I.O. Kalinikova
Labor potential	Characterizes the measure and quality of aggregate abilities to perform socially useful activity, which determine the ability of the working population to participate in labor activity	I.S Maslova G.V. Leonidova E.A. Chekmareva P.M. Sovetov
Natural resources potential	Characterizes development opportunities of the region due to the rational use of its land, mineral, forest, water, recreational and other resources (determined by the quantity and quality of resources, conditions of their production, transportation, etc.)	A.A. Shalmuev A.O. Polynev A.E. Kogut V.E. Rokhchin O.F. Balatskii E.V. Lapin V.L. Akulenko
Financial capacity	The maximum possible amount of financial resources, hypothetically available for mobilization by all economic entities of a territory	L.N. Lykova A.E. Kogut V.E. Rokhchin O.S. Kirillova N.M. Sabitova A.L. Kolomniets A.I. Novikova K.M. Men'kova M.A. Repchenko O.M. Fokina
Investment potential	Characterizes the opportunities to raise and use the funds of domestic and foreign investors, entrepreneurs, and residents in order to address territorial issues	V.Yu. Katasonov G.S. Poltavchenko A.A. Miroedov O.F. Balatskii E.V. Lapin V.L. Akulenko A.A. Shalmuev
Science and innovation potential	Characterizes the opportunities for improving the competitiveness of products, works and services based on the rational use of scientific and technological achievements	O.F. Balatskii E.V. Lapin V.L. Akulenko K.A. Gulin A.E. Kogut V.E. Rokhchin
Demographic potential	Characterizes the opportunities to improve the quality of the population in the territory (determined by the total population, its age and sex composition, the dynamics of population growth/decline, migration processes, etc.)	A.E. Kogut V.E. Rokhchin A.A. Shalmuev

End of Table 2

Element	Characteristic	Authors
Intellectual potential	Conditions, opportunities for and results of innovation activities created in the territory	G.V. Leonidova O.V. Loseva O.F. Balatskii E.V. Lapin V.L. Akulenko K.V. Suslov N.Ya. Kalyuzhnova
Social and infrastructural potential	Characterizes the territory's capabilities in the field of improving medical, household, cultural, transport, and housing and utilities services by expanding the range and improving the quality of services, ensuring their accessibility to people	A.E. Kogut V.E. Rokhchin O.G. Dmitrieva A.A. Shalmuev T.V. Uskova
Information potential	Combined opportunities and conditions to enhance and use information resources effectively	I.O. Kalinikova S.A. Korsukova
Territorial and geographical potential	Characterizes possible reserves of territorial development by using effectively its transport and geographical location, climatic and landscape conditions, placing new or expanding existing production facilities	A.E. Kogut V.E. Rokhchin A.A. Shalmuev
Budget capacity	Characterizes the territory's ability to increase the revenue side of the budget (determined by the amount of taxes and fees, tax deductions, as well as revenues from the privatization of property, its lease, foreign economic activity, the volume of transfers, etc.)	A.A. Shalmuev C.B. Zenchenko T.P. Nikolaeva Zh.A. Mingaleva N.P. Pazdnikova T.Yu. Tkacheva Zh.G. Golodova S.N. Yashin N.I. Yashina
Export and import potential	The set of resources necessary for the organization and implementation of foreign economic activity, the presence of a management system that ensures the functioning of the foreign economic component of a particular region and a sufficient level of capacity development	A.A. Shalmuev A.A. Annenkova E.K. Samsonova O.A. Fedorova
Organizational potential	Methods and techniques to ensure consistency of actions in achieving the goal of development of the territory (information technology, management style and methods, choice of development options, planning and forecasting, etc.)	I.O. Kalinikova A.A. Tatuev A.S. Borovik
Agricultural potential	Aggregate capabilities of localized economic entities for the production of agricultural products and for obtaining gross income as the main source of expanded reproduction of resources involved in agricultural production	T.V. Savchenko Yu.A. Prosyannikova I.O. Kalinikova A.G. Burda L.N. Titova N.V. Deshevova S.A. Shanin
Facilities and equipment potential	Characterizes development opportunities of the territory on the basis of effective use of all structural components of its production complex (determined by the structure and volume of production, the size and efficiency of the use of production assets, the state of infrastructure development, etc.)	A.A. Shalmuev K.O. Vinogradova O.A. Lomovtseva
Recreation potential	A set of natural, cultural, historical and socio-economic prerequisites for the organization of recreational activities in a certain territory	I.O. Kalinikova T.V. Nikolaenko I.V. Zorin V.A. Kvartal'nov V.M. Razumovskii
Sources: our own compilation with the use of [7–33].		

this fact prompted the researchers to form a classification of potentials on various grounds. For instance, A.A. Shalmuev [11] allocates three sets of potentials:

1. Resource (basic) potentials of the territory, which include natural resource, economic-geographical, and demographic potentials.

2. Potentials promoting realization of basic resource potentials among which are labor, material and technological, scientific and innovative, budgetary, social and infrastructure, export and import, and investment potentials.

3. Potentials that show readiness of the region to socio-economic transformations: socio-psychological readiness of the population and power structures to carry out transformations, normative-legal and scientific-methodological readiness.

Scientists [27] also divide the system of development potentials of the region into resource potentials and providing potentials, but at the same time they allocate the so-called development potentials from the previous sets in a separate block *(Tab. 3)*.

Budget capacity, being a providing potential and an integral part of the financial and economic set, occupies one of key places in the structure of the system of potentials of the territory. This is due to the significant fact that the budget is an incomparable monetary fund with a huge investment potential. Through the budget, the state forms centralized funds and influences the formation of decentralized

funds, providing the ability to perform the functions assigned to government authorities. The way in which budget capacity will be used will determine the direction of development and will influence the stability of regional economy. M.Yu. Golovnin, L.N. Lykova, and I.S. Bukina — researchers from RAS Institute of Economics [34] — point out that one of the key problems in the implementation of budgetary policy consists in a significant lag in decision-making in the course of actively unfolding crises in 2008—2009 and in 2014—2016. In turn, there was a delay in the allocation of budget resources to critical social issues. I.V. Karavaeva and E.A. Ivanov [35] highlight the prime role of state budget in reorienting the interests of market participants toward active investment and consumer spending, that is, toward boosting aggregate demand that is necessary as a driving force in economic development of the country and its territories. Consequently, budget capacity has a direct impact on the formation of all elements of socio-economic potential. In the interpretation of the scientists [23], budget capacity is the main basic resource potential. In our opinion, it should be considered as the initial basic category in the creation of administrative-legal and socio-economic basis for modernization and transition to an innovative model of economic development on the territories. In connection with these circumstances, it is advisable to study the issue in more detail using the method of dialectical ascent from the abstract to the concrete, which

Table 3. Structure of socio-economic potential of the territory

Resource potentials		Providing potentials		Development potentials	
Facilities and equipment block	Natural resources	*Financial and economic block*	Social and infrastructure	*Innovation and institutional block*	Science and innovation
			Production		
	Economic and geographical		Labor		Normative and legal
			Budget capacity		
	Demographic		Export and import		Investment
Source: compiled with the use of [27].					

was developed by K. Marx [33] and according to which socio-economic potential is the abstract category, and budget – the concrete one.

Methodological approaches to the essence of budget capacity

Budget capacity has been studied by foreign scientists since the 1970s, when the focus of regional policy shifted to the maximum use of the internal potential of regions [36]. At the same time, the term "fiscal (budget) capacity" became more widespread in the 1990s, when a modified policy of so-called progressive financial consolidation emerged and helped determine the possible level of budget capacity implementation [37]. According to J. Martinez-Vazquez and L.F. Jameson Boex [38], the level of budget capacity should be an important factor in the allocation of intergovernmental subsidies to equalize the volume of regional resources.

Indeed, the term "budget capacity" is widely used both in the scientific community and in administration practice. At the same time, the Budget Code of the Russian Federation, being the main legal document regulating budget processes in the country, does not clarify the concept of "budget capacity" and considers the tax capacity index alone[1]. The lack of a normative definition prompted the researchers, who study budget capacity, to determine its meaning. The study of the evolution and modern interpretation of the term "budget capacity of a territory" allowed

us to comprehend, systematize and structure the existing methodological approaches to its definition by highlighting six main and optional approaches in the framework of specific interpretations. Their conceptual content is summarized in *Table 4.*

Based on the generalized characteristics of the approaches presented above, we can point out the following: neither domestic nor foreign financial science has yet developed an unambiguous approach to the essence of budget potential. At the same time, based on the results of the analysis, we have identified a number of polemic methodological issues *(Tab. 5)*.

First, many scientists, as well as Russian legislation, are investigating only the problems of tax potential. Without denying the in-depth study of this issue, we emphasize that, in our opinion, the category of budget capacity significantly expands the ability of territories to influence economic growth. L.N. Lykova in her study [32] points out that for Russia, unlike countries with developed market economies, it is fundamentally important to consider not only the problem of tax potential, since some of the financial resources are not partially or completely subject to taxation.

In addition, the study of budget capacity does not limit the elimination of the imbalance of the budget system as the main strategic threat to national security in the economy[2] only at the expense of tax revenues. Moreover, the Budget Code contains, among other principles of the budget system of the Russian Federation, the principle of minimizing the size of budget deficit (budget balance), the achievement of which is possible only when all revenues are taken into account[3].

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[1] The ratio between the estimated tax income per inhabitant, which can be obtained by the consolidated budget of the subject of the Russian Federation based on the level of development and structure of the economy/tax base, and a similar indicator on average for the consolidated budgets of the subjects of the Russian Federation, taking into account the structure of the population, socio-economic, geographical, climatic and other objective factors and conditions affecting the cost of providing the same volume of state and municipal services per inhabitant [Budget Code of the Russian Federation].

[2] On the National Security Strategy of the Russian Federation: RF President's Decree No. 683 dated December 31, 2015.

[3] Article 33 of the Budget Code of the Russian Federation.

Table 4. Characteristics of approaches to the interpretation of the concept of "budget capacity"

Name of the approach	Budget capacity of a territory means…	Representatives
Resource-based	All the financial resources accumulated in the budget during a certain period	Zh.G. Golodova L. Haffert, Ph. Mehrtens, S.V. Zenchenko, Zh.A. Mingaleva, N.P. Pazdnikova, T.P. Nikolaeva, A.V. Sidorovich
Fiscal	Ability of the regional economy and administration bodies to generate and maximize budget revenues	A.A. Shamluev, Yu.A. Petrov, S.M. Barro, J. Martinez-Vazquez, L.F. Jameson Boex, V.A. Vorob'eva
Resource and fiscal	The dialectical development and the mix of resource-based and fiscal approaches that is observed since 1990s.	M.V. Vladyka, A.N. Indutenko, L.D. Sanginova, Yu.N. Severina O.S. Kirillova
Expenditure-based	Maximum possible budget expenditures based on the revenues	O.A. Grishanova, T.A. Naidenova, I.N. Shvetsova
Institutional	The set of legal and economic conditions that help form the optimal amount of budget revenues	N.I. Yashina, S.N. Yashin, F.F. Khanafeev, E.V. Poyushcheva
Imperative	Fiscal relations, as a result of which a complex system of economic indicators is formed	T.Yu. Tkacheva, L.V. Afanas'eva, N.A. Tolkacheva
Source: our own compilation based on [11, 21, 22, 23, 25, 26, 39, 40, 41, 42].		

Table 5. Polemic issues in the methodology of the essence of budget potential
and possible ways to resolve them

#	Polemic methodological issue	Suggested answer
1.	Budget or tax capacity?	The category of budget capacity expands the possibilities of territories to solve the problems of imbalance of the budget system and to influence economic growth taking into account the whole range of budget revenues.
2.	What approach to the essence of budget capacity is most effective in the context of the need for economic growth?	An integrative approach to the study of the essence of budget capacity takes into account the resource, institutional and fiscal factors, which allows us to reflect the current level of budget capacity and the effectiveness of its use most effectively in modern conditions.
3.	Are the terms "capacity", "resource", and "achieved level of development" identical?	Etymologically, "capacity" must assume probabilistic character. At the same time, potential opportunities may be in a state of unclaimed resources (unused opportunities), and in a state of development and actualization.
4.	What is the goal of increasing budget capacity?	To promote territorial development by forming an innovative economy and improving the quality of life.
5.	What stage of territorial development should budget capacity be identified with?	Budget capacity, being an element of the system of socio-economic potential, should be considered in the unity of its key stages: formation, use and reproduction
Source: our own compilation.		

Second, there is no single point of view on the very essence of the term under consideration. Some scientists interpret budget capacity as a set of resources, while others suggest considering it as a set of opportunities or as a result of budget relations. In general, we have identified six approaches to the interpretation of budget capacity in economic literature: resource, fiscal, resource-fiscal, expenditure, institutional, and imperative. In our view, each approach in itself is a narrow interpretation of the term "budget capacity", which unduly limits the methodological basis of the study. We think that the study of budget capacity development requires such an approach to the understanding of this economic category, which takes into account its complex factor, resource, institutional and fiscal nature. In our view, this will reflect both the current level of budget capacity and the effectiveness of its use. It can be concluded that the integrative approach as a set of these characteristics is most consistent with the modern content of the term "budget capacity", and the integration of the selected approaches to its definition will help resolve this controversial issue.

Third, when considering different approaches separately, we find a substitution of the concepts of "capacity", "resource", "reserves", "opportunities", and "achieved level of development". The complexity and fundamental nature of budget capacity as an economic category is associated with the fact that it contains the time parameter. The authors [43, 44, 45, 46] point out that the terms "resources", "reserves" and "opportunities" characterize different time stages of manifestation of capacity: the previous period is characterized by the process of formation and accumulation of resources; the present period involves the implementation of the accumulated reserves; the period of

future development reflects the process of reproduction of new opportunities. We agree with the opinion [11] that the achieved level of development is a kind of result that arises when potential opportunities, available territorial resources and effective tools for their transformation (tactical and strategic priorities of regional and municipal development, budget policy, specifics of the budget process, etc.) are combined. It is important to bear in mind that the etymological essence of the term "capacity" implies the probabilistic nature of this category. At the same time, the viewpoint of F.F. Khanafeev is quite logical [47]: he believes that potential opportunities may be in the state of non-demanded resources (unused opportunities), and in the state of development and actualization.

Fourth, there is no common understanding of the target setting of the term budget capacity. We think that without setting the goal of its formation, budget capacity cannot exist on its own, because it is necessary to understand what reserves and opportunities are required for; that is, for the purpose of achieving some end result. Some authors consider this from the perspective of financing current expenditures. However, in our opinion, the most accurate is the approach that addresses the issue of transition of the Russian economy to an innovative development path.

Fifth, authors consider various stages of formation of budget capacity. In our opinion, a system approach should be used in the interpretation of this economic category. It implies that budget capacity should be perceived as a whole that consists of interrelated parts and that is at the same time part of a higher-order system. Therefore, budget capacity as an element of the system of socio-economic potential should be considered in the unity of the key stages of its formation: formation,

use and reproduction. This means that the interpretation of budget potential should take into account both the processes of formation and implementation of territorial opportunities.

In addition, the study of theoretical and methodological approaches showed that, when disclosing the essence of budget potential, the majority of authors do not take into account that it is related to the territory that is the carrier of such properties.

Having analyzed the debatable nature of the content of budget capacity, we find out that its essence is not elaborated well from the methodological perspective. As a result, there is a lack of scientific basis when it is necessary to raise the level of budget capacity of Russian territories in the modern period of instability, external and internal restrictions to economic growth; and the country needs this growth in order to shift to an innovative development path.

Thus, an integrated approach is required, which would highlight the main elements that reveal the content of the economic category of "budget capacity": target setting, relationship with the sustainable development of the territory, forming factors, and taking the carriers into consideration. Taking into account this approach, generalization of the opinions contained in the legal acts and scientific works on the problems of budget capacity development that we have considered, as well as our own viewpoints on the most controversial

issues of the methodology, allowed us to make a conclusion that the economic essence of the category "budget capacity" can be reflected most accurately in the following interpretation. Budget capacity is a set of budget resources, as well as economic, social, institutional and other opportunities for the formation and execution of the budget so that regional authorities and local government could fulfill their tasks to ensure sustainable development of the territory and improve the quality of life.

Summary

In conclusion, we note the following.

1. Our study shows the place and role of budget capacity in the system of territorial potentials. The way in which budget capacity (which is a providing potential and an integral part of the financial and economic block of potential) is used, will determine the directions of socio-economic development in the territory.

2. Having analyzed different approaches to the essence of the economic category of "budget capacity", we identify a number of controversial issues. A careful study of each of them prompted us to substantiate our own vision of possible answers.

3. We prove that the content of the term "budget capacity" should be disclosed through its main elements: target setting, relation to the sustainable development of the territory, forming factors, and carriers. With this in mind, we propose to use an integrative approach in disclosing the content of budget capacity.

References

1. Nekipelov A.D. Crisis in Russia: logic of development and alternatives of economic policy. *Obshchestvo i ekonomika=Society and Economy*, 2009, no. 8-9, pp. 5-21. (In Russian).

2. Pechenskaya M.A. *Mezhbyudzhetnye otnosheniya: sostoyanie, regulirovanie, otsenka rezul'tativnosti: monografiya* [Intergovernmental fiscal relations: current state, assessment of effectiveness: monograph]. Vologda: ISERT RAN, 2015. 164 p.

3. Ozhegov S.I. *Slovar' russkogo yazyka* [Dictionary of Russian language]. Moscow: Russkii yazyk, 1984. 797 p.

4. *Problemy formirovaniya i realizatsii sotsial'no-ekonomicheskogo potentsiala razvitiya territorii: monografiya* [Issues of formation and realization of social and economic potential of development of territories: monograph]. Under the scientific supervision of V.A. Ilyin, A.A. Shabunova, K.A. Gulin, T.V. Uskova, O.N. Kalachikova. Vologda, VolNTs RAN, 2018. 386 s.

5. Lebedev V. G. *Proizvoditel'nye sily i sotsial'nyi progress* [Productive forces and social progress]. Moscow: Kniga i biznes, 1997. 348 p.

6. Sukharev O.S. Development of socio-economic potential of Russia: theory and practice. *Ekonomika regiona=Economy of Region*, 2016, vol. 12, no. 1, pp. 315-321. (In Russian).

7. Maslova I.S. *Trudovoi potentsial sovetskogo obshchestva. Voprosy teorii i metodologii issledovaniya* [Labor potential of the Soviet society. Issues of theory and methodology of research]. Moscow: Politizdat, 1987. 125 p.

8. Leonidova G.V., Chekmareva E.A., Sovetov P.M., Panov M.M. *Trudovoi potentsial sel'skikh territorii: metodologicheskie aspekty otsenki* [Labor potential of rural areas: methodological aspects of assessment]. Vologda: ISERT RAN, 2015. 78 p.

9. Balatskii O.F., Lapin E.V., Akulenko V.L. *Ekonomicheskii potentsial administrativnykh i proizvodstvennykh sistem: monografiya* [Economic potential of administrative and production systems: monograph]. Sumy: Universitetskaya kniga, 2006. 972 p.

10. Kogut A.E., Rokhchi V.E. *Informatsionnye osnovy regional'nogo sotsial'no-ekonomicheskogo monitoring* [Informational basis of regional socio-economic monitoring]. Saint Petersburg: IESP RAN, 1995. 142 p.

11. Shalmuev A.A. Main components of regional development potentials. *Ekonomicheskoe vozrozhdenie Rossii=Economic Revival of Russia*, 2006, no. 4, pp. 57-61. (In Russian).

12. Kalinikova I.O. *Upravlenie sotsial'no-ekonomicheskim potentsialom regiona: ucheb. posob.* [Managing social and economic potential of the region: textbook]. Saint Petersburg: Piter, 2009. 240 p.

13. Polynev A.O. *Konkurentnye vozmozhnosti regionov: metodologiya issledovaniya i puti povysheniya* [Competitive opportunities of regions: research methodology and ways of increasing]. Moscow: Krasand, 2010. 208 p.

14. Burda A.G. *Ekonomicheskie problemy parametrizatsii agrarnykh predpriyatii* [Economic problems of parameterization of agricultural enterprises]. Krasnodar, 2001. 508 p.

15. Titova L.N. The use of aggregate agricultural potential to manage the economy of the agricultural sector in a constituent entity of the Russian Federation. *Problemy sovremennoi ekonomiki=Problems of Modern Economics,* 2008, no. 2 (26), pp. 307-310. (In Russian).

16. Shanin S.A. Theoretical approaches to the reproduction of the resource-based potential of the agricultural sector of the Russian economy (regional aspect). *Belgorodskii ekonomicheskii vestnik=Belgorod Economic Bulletin*, 2014, no. 2 (74), pp. 21-29. (In Russian).

17. Deshevova N.V., Shanin S.A. Specific features of formation of resource potential system of agricultural sector of economy. *Vestnik APK Stavropol'ya=Agricultural Bulletin of Stavropol Region,* 2013, no. 3 (11), pp. 111-113. (In Russian).

18. Korsukova S.A. *Informatsionnyi potentsial kak resurs ekonomicheskogo razvitiya Rossii v sovremennykh usloviyakh : dis. ... kand. sotsiol. nauk: 22.00.03* [Information potential as a resource in economic development of Russia in modern conditions. Candidate of Sciences (Sociology) dissertation]. Saratov, 2005. 132 p.

19. Prosyannikova Yu.A. Agricultural potential of rural areas: the essence and formation factors. *Nauchnye vedomosti. Seriya: Istoriya. Politologiya. Ekonomika. Informatika=Scientific News. Series: History. Politology. Economics. Informatics,* 2014, no. 15 (186), iss. 31/1, pp. 66-76. (In Russian).

20. Loseva O.V. Intellectual potential of a region: appraisal and control tool in innovative activity. *Upravlencheskie nauki=Management Science,* 2016, no. 2, pp. 38-47. (In Russian).

21. Zenchenko S.V. Budget potential of the region and methodological approaches to its evaluation. *Regional'nye problemy preobrazovaniya ekonomiki. Regional Problems of Transforming the Economy*, 2008, no. 1 (14), pp. 186-198. (In Russian).

22. Nikolaeva T.P. *Byudzhetnaya sistema RF. Uchebno-metodicheskii kompleks* [Budget system of the Russian Federation. Educational and methodological complex]. Moscow: Izd. tsentr EAOI, 2008. 234 p.

23. Mingaleva Zh.A., Pazdnikova N.P. Development of methods for managing budget capacity of the region *Ekonomika regiona=Economy of Region,* 2007, no. 2, pp. 263-267. (In Russian).

24. Tkacheva T.Yu. Regional features in the formation of budgetcapacity in modern fiscal policy. *Izvestiya Yugo-Zapadnogo gosudarstvennogo universiteta. Seriya: Ekonomika. Sotsiologiya. Menedzhment=Southwest State University Bulletin. Series: Economics, Sociology. Management,* 2014, no. 2, pp. 67-74. (In Russian).

25. Golodova Zh.G. Assessment of the fiscal capacity of the region in terms of reforming the system of intergovernmental fiscal relations. *Finansy i kredit=Finance and Credit,* 2009, no. 5, pp. 33-40. (In Russian).

26. Yashin S.N., Yashina N.I. Some aspects in analyzing budget capacity of municipalities. *Finansy i kredit=Finance and Credit,* 2003, no. 5 (119), pp. 35-44. (In Russian).

27. Vinogradova K.O., Lomovtseva O.A. Essence and structure of regional development potential. *Sovremennye problemy nauki i obrazovaniya= Modern Issues of Science and Education,* 2013, no. 3. Available at: https://www.science-education.ru/ru/article/view?id=9620. (In Russian).

28. Sabitova N.M. On the concept of financial capacity of the region and on the methodology for its assessment. *Finansy=Finance,* 2003, no. 2, pp. 63-68. (In Russian).

29. Kolomniets A.L., Novikova A.I. On the correlation of the financial and tax capacities in regional context. *Nalogovyi vestnik=Tax Bulletin,* 2000, no. 3, pp. 4-7. (In Russian).

30. Men'kova K.M. Theoretical and methodological approaches to assessing financial capacity of municipalities in the context of reforming the territorial organization of local government. *Finansy i kredit=Finance and Credit,* 2008, no. 14, pp. 32-39. (In Russian).

31. Repchenko M.A., Fokina O.M. Assessing investment attractiveness of the region taking into account innovative, budget and financial capacity of the region. *Innovatsii=Innovation,* 2007, no. 7, pp. 64-67. (In Russian).

32. Lykova L.N. Financial capacity of the Federation subjects. *Federalizm=Federalism,* 2008, no. 3 (51), pp. 41-59. (In Russian).

33. Marx K., Engels F. *Sochineniya: v 50 t.* [Works. In 50 volumes]. Moscow: Gosudarstvennoe izdatel'stvo politicheskoi literatury, 1968. Vol. 46. 560 p.

34. Golovnin M. Yu., Lykova L. N., Bukina I. S. Reaction of monetary and fiscal policy of Russia to globalization challenges. *Finansy: teoriya i praktika=Finances: Theory and Practice,* 2017, vol. 21, no. 5, pp. 6-21. (In Russian).

35. Karavaeva I.V., Ivanov E.A. Trends and risks in the development of the institution of budgeting in the system of public administration of the Russian Federation. *ETAP: ekonomicheskaya teoriya, analiz, praktika= ETAP: Economic Theory, Analysis, Practice,* 2017, no. 6, pp. 7-22. (In Russian).

36. Uskova T.V. *Teoriya i metodologiya upravleniya ustoichivym sotsial'no-ekonomicheskim razvitiem regiona: dissertatsiya na soiskanie uch. st. d-ra ekon. nauk* [Theory and methodology of sustainable socio-economic development management in the region: Doctor of Sciences (Economics) dissertation]. Vologda, 2010. 411 p.

37. Haffert L., Mehrtens Ph. *From Austerity to Expansion? Consolidation, Budget Surpluses, and the Decline of Fiscal Capacity. MPIfG Discussion Paper 13/16.* Koln. December 2013.

38. Martinez-Vazquez J., Jameson Boex L.F. *Fiscal Capacity: an Overview of Concepts and Measurement Issues and Their Applicability in the Russian Federation.* Georgia State University. 1997. P. 23.

39. Petrov Yu.A. Selective financial policy: increasing tax collection, increasing tax capacity and stimulating economic development. *Rossiiskii ekonomicheskii zhurnal=Russian Economic Journal,* 1999, no. 4, pp. 44-46. (In Russian).

40. Tolkacheva N.A. Tax capacity: approaches to interpretation and the structure. *Rossiiskoe predprini-matel'stvo=Russian Journal of Entrepreneurship,* 2010, vol. 11, no. 12, pp. 172-177. (In Russian).

41. Grishanova O.A. *Sbalansirovannost' byudzheta sub"ekta RF i puti povysheniya ego dokhodov* [Balance of the budget of the subject of the Russian Federation and the ways to increase its revenues]. Ivanovo: Ivan. gos. un-t, 2004. 220 p.

42. Vorob'eva V.A. Problems of formation of budget capacity of municipalities in the implementation of the region's financial policy. *Upravlencheskoe konsul'tirovanie=Management Consulting,* 2002, no. 2, pp. 58-62. (In Russian).

43. Gorshenin V.P. *Upravlenie innovatsionnym potentsialom personala korporatsii: avtoref. dis. ... d-ra ekon. nauk: 08.00.05* [Managing innovative potential of employees at a corporation: Doctor of Sciences (Economics) dissertation abstract]. Chelyabinsk, 2006. 42 p.

44. Drokin S.A. *Upravlenie kachestvom obrazovatel'nogo potentsiala mashinostroitel'nogo predpriyatiya: dis. ... kand. ekon. nauk: 08.00.05* [Managing the quality of educational potential at a machine-building enterprise: Candidate of Sciences (Economics) dissertation]. Chelyabinsk, 2003. 203 p.

45. Reanovich E.A. The meanings of the concept of "capacity". *Mezhdunarodnyi nauch.-issled. zhurn.=International Research Journal*, 2012, no. 7-2, pp. 14-15. (In Russian).

46. Pechenskaya M.A. Regional development: goals and opportunities. *Finansy=Finance,* 2014, no. 10, pp. 135-145. (In Russian).

47. Khanafeev F.F. *Analiticheskoe obespechenie upravleniya nalogovym potentsialom regiona: teoriya i metodologiya: monografiya* [Analytical support of management of tax capacity in the region: theory and methodology: monograph]. Moscow: Prospekt, 2008. 232 p.

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PUBLIC ADMINISTRATION EFFICIENCY

Improving Governmental Support for the Export Credit of Foreign Trade in the Eurasian Space*

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Abstract. The development of common approaches to the provision of governmental support to export credit within the Eurasian Economic Space streamlines the entry of national producers into foreign markets and the development of foreign trade. The paper aims to justify the need to harmonize the rules according to which the government provides support to foreign trade within the Eurasian Economic Union (EAEU). We analyze principles for determining the minimum rates on export credits (CIRR, Commercial Interest Reference Rates) in national currencies, describe a methodology for determining the value of CIRR and calculating the minimum premium for credit risks adopted by the OECD, and define basic conditions for the provision of related export financing in the OECD. The novelty of our research consists in the fact that we calculate CIRR for EAEU member states in their national currencies in accordance with the provisions of the OECD Arrangement on Export Credits. The calculation technique that we propose contributes to the establishment of harmonized conditions to support the export of industrial products within the EAEU. We use research methods such as analysis, synthesis, generalization, and comparison. We identify risk zones of the export credit system and measures to reduce the cost of funding for the EAEU member states that do not issue freely convertible (reserve) currencies. We substantiate the expediency of developing and approving CIRR calculation techniques within the EAEU. We point out the advantages of supplementing the state support of export crediting with the mechanism of linked export financing. We reveal the barriers to establishing a unified and standardized system of export support in the Eurasian Space. We substantiate the ways to streamline the mechanisms of export policy at the level of the EAEU. Practical significance of our research consists in the fact that we develop an algorithm for calculating the minimum allowable rates of export credits denominated in the national currencies of EAEU member states (Russian ruble, Belarusian ruble, Kazakhstani tenge, Armenian Dram, and Kyrgyzstani som) on the basis of agreements and practices of state financial support (subsidies) for OECD export credits to stimulate mutual foreign trade within the EAEU.

Key words: international competition, foreign trade, OECD, EAEU, export crediting, CIRR, credit risk, linked export financing.

Introduction. State support for the expansion of national producers to foreign markets is relevant in the context of international competition.

Formation and development of the system of state financial support for exports have been studied since the mid-1980s. According to some research, the provision of a state export subsidy increases export of a subsidy recipient and reduces export of its competitor [1]. Most researchers come to the conclusion that the practice of providing subsidies to national exporters contributes to country's welfare, especially when it comes to the economy of a developing state [1; 2; 3; 4; 5; 6; 7; 8]. State regulation of export, including imposition of production and export taxes, has a greater effect than neutral state policy, especially if a national producer expects a rise in demand for its products abroad [9].

Nowadays people discuss the need to create an institutional infrastructure for export credit with state support [10; 11; 12; 13]. In particular, the developed system of state support for export credit has been established in all OECD countries, primarily in the United States and Germany. Export quota in the manufacturing sectors of German industry is very significant and often reaches 50−60%. Financing of

foreign traders is carried out through specialized and state-controlled structures – KfW IPEX Bank (export and project financing), as well as KfW Entwicklungsbank and DEG (developing countries), which are part of Kreditanstalt für Wiederaufbau-KfW [14].

China is also one of the three major world trading powers that have created a support system. In the country the Ministry of Commerce of the PRC is the main state body responsible for the development and implementation of foreign economic policy. The Export Support Department and the China Investment Promotion Agency are key organizations in the Chinese national system to promote export of products and investment in foreign assets [15, p. 50]. The China Development Bank is one of the leading financial institutions supporting export. It together with the Export–Import Bank of China has attracted at least 112 billion US dollars of foreign loans to Chinese companies doing business abroad since 2010.

A similar infrastructure to support export credit is currently being developed in the Russian Federation and the EEU countries. State-owned banks that position themselves as financial development institutions (for example, Vnesheconombank of Russia, Development Bank of Kazakhstan, Development Bank of the Republic of Belarus) are key creditors in the Eurasian space [16].

In terms of the stated above we believe that financial and credit incentives through export credit subsidies play an important role in addressing the issue of foreign trade development. In the context of international competition the positive effect of state regulation can go up in case of harmonization of state financial support within the framework of regional economic associations, in particular the EEU.

In this regard this article is aimed at identifying the problems of state support for export credit of foreign trade and working out the proposals to ensure conditions for advancement of EEU producers to foreign markets.

Description of the research method and justification of its choice. As known, commercial interest reference rates (CIRR) are subject to agreement at the interstate level, and certain methods have been developed for this purpose. According to Article 19 of the OECD Arrangement on Officially Supported Export Credits (AOSEC), the parties to the Arrangement providing export credits with state support should use a CIRR as the lowest possible loan rate.

To achieve article purposes, we analyze the principles to determine a CIRR, describe the method to identify a CIRR value and the procedure to calculate a minimum premium for credit risks, as well as reveal the features of tied aid in order to determine the directions of improving state support for foreign trade in the EEU member states.

The principles for establishing a CIRR in national currencies are laid down in Article 19 of the OECD Arrangement on Officially Supported Export Credits:

1) CIRRs should represent final commercial lending interest rates in the domestic market of the currency concerned;

2) CIRRs should closely correspond to the rate for first class domestic borrowers;

3) CIRRs should be based on the funding cost of fixed interest rate finance;

4) CIRRs should not distort domestic competitive conditions;

5) CIRRs should closely correspond to a rate available to first class foreign borrowers.

The first principle presupposes two major sub-principles. The indication that the CIRR is a final rate implies that the establishment of a CIRR in national currencies should be based on "effective" interest rates, i.e. rates include all possible commissions and additional costs, rather than nominal values. In turn, the statement that the CIRR is a commercial rate implies that it should be based on market values of interest rates rather than concessional, subsidized loans provided to national borrowers by states in order to support them.

The second principle, in our opinion, is of paramount practical application in establishing a CIRR in national currencies. According to this principle, the rates set not only by states, but also by other local borrowers can be used as a basis for establishing CIRR values, provided that they are classified as first class, i.e. having the highest credit rating in national currencies.

The third principle reveals the economic nature of a CIRR. According to it, a CIRR reflects the cost of funding a financial institution that provides an export credit and does not include any margin or premium, such as a risk premium. The provision of export credit at a rate lower than the CIRR would mean granting of a deliberately unprofitable loan, which is contrary to the WTO principles.

In our view, the fourth principle seeks to encourage states to refrain from manipulating the domestic market by artificially undervaluing the funding of individual borrowers in order to establish lower CIRR values.

The fifth principle is similar to the second one, but extends it to first-class foreign borrowers. This extension provides even more opportunities to determine CIRR values in national currencies.

The method to establish a CIRR is stipulated in Article 20 of the OECD AOSEC. The method essence is as follows. In accordance with paragraph a) of Article 20, each participant wishing to establish a CIRR shall initially select one of the following two base rate systems for its national currency: one-tier or three-tier.

Under the one-tier scheme, five-year government bond yields for all maturities is the basis for calculating a CIRR for loans with a maturity of 2—10 years. Some export projects can have longer maturities.

In a three-level scheme, the following algorithm works:

1. Three-year government bond yields for a repayment term of two—up to and including five years.

2. Five-year government bond yields for over five and up to and including eight and a half years.

3. Seven-year government bond yields for over eight and a half years. Some export projects can have longer maturities.

In accordance with paragraph b) of Article 20 of the OECD Arrangement on Officially Supported Export Credits, after determining a base rate, a margin of 100 basis points should be added to it. The economic essence of this paragraph is based on the principle that currency-issuing countries should not support exports at a loss, and this allowance ensures compliance with this principle.

CIRR values are set monthly, fixed from the 15th of each month to the 14th of the following

month and are to be published on the OECD official website. Other participants should use the CIRR, set for establishing a particular national currency in accordance with the above method, in the case of providing financing in this currency. Each participant of the OECD Arrangement on Officially Supported Export Credits may change its base-rate system after giving six months' advance notice and with the counsel of the participants; however, this provision does not apply to the countries which are not OECD AOSEC members, that is, EEU member states.

In addition to the requirement on minimum interest rate on export credits with state support, the participants shall charge no less than the applicable minimum premium rate (MPR) for credit risk. This award is calculated in accordance with the provision of Article 23 of the OECD AOSEC by special authorized organizations. The calculation of the minimum premium for credit risks is based on the credit rating of an importing country and the credit quality of a foreign borrower. At the same time, the minimum premium for credit risks established in the OECD Arrangement on Officially Supported Export Credits does not depend on the credit country rating of an exporting country and the financial condition of an exporter.

When calculating a minimum risk premium, commercial risks are classified under the categories (SOV+, SOV / CC0, CC1, CC2, CC3, CC4, CC5), where countries with SOV+ rating have the most stable state according to the criteria of economic and financial stability, countries with CC5 rating — the least stable state, respectively. The commercial risk factor (buyer risk) is linked to a country exporter risk category. At the same time, the most favorable

conditions for supporting lending to producers will be achieved when exporting products to countries with high rates of economic and financial stability.

Government support for export credit can be also supplemented by a mechanism for linked export financing. The provisions of Chapter II of the OECD AOSEC establish requirements for financial parameters of export credits of commercial banks, which use certain measures of state support. At the same time, interstate export credits are provided on the basis of Chapter III of the OECD AOSEC. In accordance with Article 33 of the OECD Arrangement on Officially Supported Export Credits, tied aid policies should provide needed external resources to developing countries in a segment of financing that is not available to the commercial sector. Tied aid can be provided in the form of loans, grants or financial packages on concessional (non-commercial) terms. They are usually given as a combination of grant and loan on commercial terms.

The basic conditions for tied aid provision in the OECD are the following:

1) a foreign borrowing country lacks opportunities to attract financing for a project on commercial terms (Article 37 of the OECD AOSEC);

(2) tied aid can be only provided to the countries determined by the OECD Secretariat on the basis of the World Bank classification (Article 36). To date, more than 90 states are referred as recipient countries [17]; among them there are traditional trade partners of the Russian Federation: EEU member states, Vietnam, Egypt, India, Indonesia, Iraq, Moldova, Mongolia, Pakistan, Tajikistan, Uzbekistan, etc.;

3) depending on the level of gross national income per capita of a recipient country, the OECD AOSEC sets a minimum concessionality level for provision of tied aid (for least developed countries the concessionality level is 50%, for the rest −35%) (Article 38).

In case of grants the concessionality level is 100%. In case of loans the concessionality level is defined as the difference between a nominal value of a loan and a discounted value of borrower's future debt service payments. This difference is expressed as a percentage of the nominal value of a loan. The calculation of the concessionality level is based on the provisions of Article 40 of the OECD AOSEC. The concessionality level of tied aid depends on a loan rate, a grace period, an availability period, a plan of repayment of principal amount and interest of a loan, a loan maturity, and a discount rate and does not depend on a loan volume.

Research results. The analysis of the above principles to establish CIRR values in national currencies shows that the calculation of corresponding CIRR levels is based on the yield on participants' state bonds placed on the domestic market of a country and expressed in national currencies. It is obvious that in case of national currencies of the EEU member states, reflecting the corresponding economic potential and market size of a currency, the rates calculated by the OECD AOSEC method will be higher than in developed countries. As a result, EEU producers are in less competitive conditions due to the WTO rules that determine interests on export credits.

The analysis of the method to establish CIRR values reveals that the rates are set for national currencies of all countries participating in the OECD Arrangement on Officially Supported Export Credits, for 15 currencies. Thus, for export credits with a repayment period of 8.5 years, a CIRR is set at 3.78% per annum for US dollars and 1.40% for euros. Of the 15 states that take part in establishing CIRR values in their currencies, nine have chosen a three-tier scheme for determining rates, and six − a one-tier scheme [18].

For the ruble and national currencies of Armenia, Belarus, Kazakhstan, Kyrgyzstan, a CIRR rate is not determined, since the EEU member states are not OECD members. At the same time, many OECD member countries are interested in establishing a CIRR in rubles at this stage, despite the sanctions. Such proposals arise due to the fact that a large number of import comes to Russia with financial support of foreign export credit agencies. Quite often Russian contractors require ruble-denominated loans. In particular, export credit agencies of the OECD countries are interested in establishing a CIRR in rubles to reduce the costs associated with foreign currency hedging when issuing export credits with state support to buyers of their products in Russia and the EEU member states, as well as to create a more predictable and favorable system of investment through Russian regional state organizations in joint projects on the territory of the Russian Federation.

In countries, such as the Kyrgyz Republic and the Republic of Armenia, various non-profit organizations, as well as information-analytical and training centers financed from abroad, had been operating prior to their accession to the EEU. At the same time, the spread of Russian government bond yields is very significant, and this fact is also

CIRR value in national currencies of the EEU member states with regard to the yield of government bonds, %

	Russia	Belarus	Kazakhstan	Armenia	Kyrgyzstan
Yield of government bonds					
3 years	8.02	8.7	12.68	14.24	16.27
5 years	10.11	10.4	16.47	17.08	18.41
7 years	11.58	12.5	19.2	19.45	-
CIRR value in national currency for export credit					
With maturity of up to 5 years	9.02	9.7	13.68	15.24	17.27
With maturity of 5–8.5 years	11.11	11.4	17.47	18.08	19.41
With a maturity of 8.5 years and over	12.58	13.5	20.2	20.45	-*

* Taking into account that there are no debt securities of the Kyrgyz Republic or Kyrgyz state companies denominated in Kyrgyz som, it is not possible to establish a CIRR value for loans with a maturity of 8.5 years and over. Sources: calculated according to central banks and stock exchanges of the EEU member states: the Bank of the Russian Federation (http://www.cbr.ru/gcurve/GDB.asp; https://smart-lab.ru/q/ofz/), the National Bank of the Republic of Belarus (http://www.nbrb.by/statistics/MonetaryPolicyInstruments/RefinancingRate/), the National Bank of the Republic of Kazakhstan (http://kase.kz/ru/gsecs/; http://cbonds.ru/kazakhstan-bonds/), the Central Bank of Armenia (www.cba.am; http://cbonds.ru/armenia-bonds/), the National Bank of the Kyrgyz Republic (http://www.senti.kg/article/fondoviy_rinok_kirgizctana_itogi_2015_goda) and the information Agency Cbonds.ru (http://ru.cbonds.info/pages/Cbonds), specializing in the field of financial markets (Moscow Exchange, JSC "Belarusian Currency and Stock Exchange", KASE, defined as a special trading platform of the Almaty regional financial center, the Armenian Stock Exchange, the Kyrgyz Stock Exchange).

typical for Kazakhstan. In this regard, a possible CIRR in rubles can reach very high values, which is unprofitable for the Russian Federation in terms of expanding the practice of providing export credits using state measures to assist foreign buyers of domestic products in rubles.

According to the OECD AOSEC provisions, a participant wishing to establish a CIRR value in national currency should first choose a system for determining a basic rate for its national currency. We believe that in order to determine the possibility of establishing CIRR values in national currencies of the EEU countries, it is necessary to establish the presence in circulation of government bonds with a repayment period of 3, 5 and 7 years.

We summarized information on the state of the domestic debt market to calculate CIRR values. We analyzed the EEU government bonds that were denominated in national

currency (Russian rubles, Kazakhstan tenge, Belarusian rubles, Armenian dram, Kyrgyz som) and were in circulation as of March 2018, selected the securities most suitable for the purposes of determining CIRR values, and calculated appropriate rates by countries(*table*).

The corresponding levels of CIRR interest rates are calculated according to the WTO rules and the OECD method on the basis of 3, 5, and 7-year government bond yields, expressed in national currencies. The level of such yield increases by 100 basis points (conditional difference in the cost of funding banks compared to issuers of government bonds, which are sovereign borrowers) and we get a base CIRR value in appropriate currency.

According to the table, the cost of funding and financial conditions of export financing of the EEU member states, taking into account the WTO and OECD standards, is high; it reduces the competitiveness of producers on a

foreign market. To artificially reduce the cost of funding for countries that are not issuers of freely convertible (reserve) currencies is possible to the transition to export lending in currencies of the EEU countries. This effect can also be achieved in case of the use of national currencies in trade within the EEU. For Russia this fact is a top priority under the conditions of sanctions pressure from Western countries.

Funding of national institutions of the EEU countries at the expense of public sources that have assets in reserve currencies is the second possible direction to reduce the cost of funding in freely convertible currencies. In the Russian Federation, for example, the National Wealth Fund can be such a source of funding in foreign currency.

Participation of the EEU state structures in various support programs of international financial institutions, in particular the World Bank, IMF, EBRD, etc. is the third direction to cut costs.

The fourth direction is as such: creation of regional development banks aimed at concessional funding of participants' credit institutions for the purpose of subsequent support of export projects within the framework of integration associations.

The research in the current legislation of EEU member states and the rules to provide national institutions with state-supported target credits indicate a "material advantage" of understanding the rules of the WTO and the EEU Treaty in part of the terms of export credit in accordance with market conditions (for the loans in EEU currencies). Thus, the alternative method of establishing export credit conditions in the national currencies of the EEU countries with state support in

Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia does not work "de facto". At the same time, when organizing export credit in freely convertible currencies the EEU member states observe certain conditions of the OECD Arrangement on Officially Supported Export Credits, including CIRR rates.

The risk zone of the system of export credit state support in the EEU member states is a lack of legitimate indicators of the minimum level of rates in the provision of funds in Russian and Belarusian rubles, Armenian dram, Kazakhstan tenge. In Kyrgyzstan only pre-export financing is carried out in Kyrgyz som; it is not regulated by the OECD standards. In this connection it is reasonable to develop and adopt common approaches to establishing minimum rates of export credits in national currencies on the basis of the rules and regulations stipulated by the OECD Arrangement on Officially Supported Export Credits and the WTO Agreement on Subsidies and Countervailing Measures (ASCM).

Therefore, in order to comply with the rules of export subsidies within the EEU, it is necessary to work out and approve methods for determining minimum allowable rates of export credit in national currencies on the basis of the described approaches of the OECD AOSEC and the WTO ASCM.

In addition to this rate, creditors charge a premium for credit risk for each specific credit institution, and the OECD method, similar to a CIRR, provides a certain algorithm for calculating minimum premium rates. This method includes factors, such as attribution of a borrowing country to a risk category, credit terms, amount of state insurance coverage of political and commercial risks of export credit,

quality of structuring of an export transaction and measures to reduce country and corporate risks [19; 20; 21; 22].

To calculate a minimum premium rate for credit risks, it is necessary to consider a country's credit rating by the OECD classification based on a seven-tier scale (1 — the lowest risk, 7 — the highest). The national institutions supporting export of the OECD AOSEC participants set limits on a maximum guarantee or insurance coverage of export credit, depending on the risk category of an importing country according to the OECD classification (the higher the category, the lower the maximum coverage). The decision to raise or maintain the same level of ranking of countries is adopted at regular meetings of the OECD subgroup for identification of country credit risks [23]. The powers of this subgroup include the distribution of countries (both OECD members and non-members) and individual international financial institutions by categories of OECD country credit risks to assess the premium (fee) amount charged for financing of export with state support. At the same time, in accordance with the OECD AOSEC provisions, OECD countries with high per capita income (as well as high-income EU countries) refer to Category 1 under this model. According to the OECD AOSEC participants, Category 7 includes countries with the highest level of credit risk.

Within the OECD classification credit ratings for more than 200 countries have been formed. The Russian Federation is included in Category 4 of the OECD classification, the Republic of Kazakhstan and the Republic of Armenia — Category 6, the Republic of Belarus and the Kyrgyz Republic — Category 7 [24].

We mentioned above the mechanism of tied aid as a way to supplement state support for export credit. The foreign buyer of industrial products (goods, works and services) from a donor country or its creditor can be a recipient of tied export aid. When the volume of tied aid is less than 2 million special drawing rights, which is about 3 million US dollars, there is only one condition to be met: a borrower should be included in the list of recipient countries of tied aid. Tied aid with a grace level of more than 80% can be provided under any conditions.

Throughout the development of the OECD AOSEC, the conditions for tied aid have only been tightened; thus, the minimum concessionality level was 25% in 1985. Since 1987 to the present the grant element has been at least 35%, i.e. it is prohibited to provide tied aid with a lower concessionality level.

Before provision of tied aid a creditor should notify other OECD AOSEC participants about such assistance through the Secretariat. In accordance with Article 41 of the OECD Arrangement on Officially Supported Export Credits, the conditions and procedure for the provision of tied aid should not be fixed for more than two years (due to changes in the economic situation of recipient countries). The main reason for this ban is the OECD countries' conviction that competition with commercial financing and export credits with state support begins at a low concessionary level.

Thus, in case of non-compliance with one of the conditions of Chapter III of the OECD AOSEC on tied aid (a concessionality level is lower than 35%, a recipient country is not included in the list of recipient countries of tied aid, a project can be implemented on

commercial terms), it is possible to provide export credits only if all the requirements of Chapter II of the OECD AOSEC for export credits with state support are met (amount of advance payment, a loan term, a loan repayment procedure, an interest rate, a risk premium, etc.).

Analysis and explanation of the results

The above reasons determine the feasibility of development and approval of the methods to calculate minimum interest rates of export credits with state support in currencies of the EEU member states.

These methods will allow to:

1) protect a domestic market of the EEU member states from unfair competition;

2) contribute to the synchronization of legislation harmonization processes in related areas: export support, financial markets, currency regulation;

3) bring interagency cooperation to a new level, both at the national and supranational level;

4) ensure healthy competition based on the method to calculate interest rates of export credits recognized by the world leading countries, thus helping the EEU member states to boost export in trade with the outside world;

5) take into account the use of methods in trade within the EEU, which allows not to tie the practice of granting export credits to the OECD AOSEC provisions;

(6) consider these methods in terms of a market-based measure to support exports of industrial products, which would be consistent with the provisions of the agreement on subsidies and countervailing measures.

The ongoing harmonization of national export support systems and the adoption of methodological recommendations will have not only economic, political, but also reputational significance for the EEU, as well as create a favorable regulatory background for enhancing interaction of the EEU member states with the WTO, the OECD and other international organizations.

The role of state structures interaction in the formation of financial elements to support non-commodity exporters in the Eurasian Space is widen due to the activities of the Eurasian Economic Commission (EEC), founded in 2000. It coordinates cooperation in the identification and elimination of barriers, exemptions and restrictions on trade on the EEU domestic market, as well as the development of integration processes. Creation of the international Convention against Cartels and the Toolkit on Combating Restrictive Business Practices of Transnational Corporations and Transborder Violations of Rules on Competition. The Convention had already been approved under the existing effective "5+1" format of interaction between the heads of EEU antimonopoly authorities and the EEC Minister [25, p. 68]. Thus "the financial policy orientation degree on the promotion of economic growth in the region is an indicator of the strengthening of Eurasian integration" [26, p. 109−110].

Dispute about the results. The possibilities to transform the current practice of state financial export support in the EEU member states into a unified and standardized export support system are complicated by the following circumstances:

1) a different level of legal writing of the legislation in the EEU member states, including export legislation;

2) a low development level of the organizational and legal framework and practice of state export support in the Republic of Armenia and the Kyrgyz Republic;

3) states' different perception of OECD AOSEC provisions;

4) a lack of a mechanism to monitor and evaluate the effectiveness of EEC decisions under international treaties.

At the same time, when optimizing the mechanisms to harmonize legislation, converge export policy, and coordinate efforts of the EEC, state bodies and development institutions, at the level of the EEU it is possible to standardize:

• requirements for the minimum institutional structure of national export support systems;

• terminology (establishing uniformity in understanding of terms, such as "export credit", "interest rate subsidies", etc.;

• principles of state export support;

• a minimum set and uniform interpretation of government export support measures;

• a list of unfair practices in state export support and enforcement actions against states for their application;

• positioning of the EEU member states in relation to the OECD AOSEC;

• a CIRR analogue calculation method on the basis of EEU national currencies.

The proposed algorithm to calculate minimum allowable interest rates on export credits in national currencies of the EEU countries can be used in various spheres that do not belong to the segments of raw materials and agricultural products and trade and economic relations in order to assess financial and economic results of relevant export operations for their participants.

Recently non-committed financial loans from OECD countries to developing countries have become increasingly important. As a rule, tied export aid is provided on the basis of bilateral interstate agreements between donor and recipient countries, which corresponds to Russian practice and can be actively used within the EEU.

In our opinion, the proposals formulated in this article are aimed at the intensification of industrial and economic cooperation within the EEU, the formation of harmonized conditions of export credit with state support in order to boost integration processes in the Eurasian Economic Space.

References

1. Brander J., Spencer B. Export Subsidies and International Market Share Rivalry. *Journal of International Economics*, 1985, vol. 18, no. 1-2, pp. 83-100.

2. Rodriguez R. Ex-Im Bank: *Overview, Challenges and Policy Options. Ex-Im Bank in the 21st Century*. Washington DC: Institute for International Economics, 2002, pp. 3-34.

3. Artem'ev P.P. Stimulation of industrial products export: experience of foreign countries and ways of improvement in Belarus. *Belorusskii ekonomicheskii zhurnal=Belarusian Economic Journal*, 2015, no. 3, pp. 38-59. (In Russian).

4. Hogan P. Kacsing D., Singer A. (eds.). *Some Institutional Aspects of Export Promotion in Developing Countries. The Role of Support Services in Expanding Manufactured Exports in Developing Countries*. Economic Development Institute, World Bank, 1991.

5. Pishchik V.Ya., Alekseev P.V. Actual formation issues of the single financial market of the EAEU member states. *Finansovyi zhurnal NIFI= Financial Research Institute. Financial Journal*, 2017, no. 5, pp. 102-111. (In Russian).

6. Corden W.M. Strategic foreign trade policy. In: Greenaway D. (Ed.). *Panorama ekonomicheskoi mysli kontsa KhKh stoletiya* [Panorama of Economic Thought of the Late Twentieth Century]. Saint-Petersburg: Ekonomicheskaya shkola, 2002, vol. 1, pp. 328-350. (In Russian).

7. Corden W.M. Strategic Trade Policy: How New? How Sensible? *World Bank Working Paper Series*, 1990, no. 396.

8. Liang N. *Beyond Import Substitution and Export Promotion: a New Typology of Trade Strategies with Empirical Verification and Policy Analysis*. Indiana University, 1990.

9. Eaton J., Grossman G. Optimal trade and industrial policy under oligopoly. *Quarterly Journal of Economics*, 1986, vol. 101, no 2, pp. 383-406.

10. Gianturco D.E. *Export Credit Agencies: the Unsung Giants of International Trade and Finance*. London: Quorum Books, 2001. 198 p.

11. Mendelowitz A. The New World of Government-Supported International Finance. In: *Ex-Im Bank in the 21st Century*. Washington DC: Institute for International Economics, 2002. Pp. 159-189.

12. Artem'ev P.P. On some possibilities of interaction between the EEU member states in determining and using commercial interest reference rates (CIRR) in national currencies. In: *Issledovaniya molodykh uchenykh: ekonomicheskaya teoriya, sotsiologiya, regional'naya ekonomika* [Research of Young Scientists: Economic Theory, Sociology, Regional Economy]. Novosibirsk, 2016. Pp. 7-13. (In Russian).

13. Aksenov V.S., Ovchinnikov A.A. Export credit agencies of the developing countries in the system of international trade financing: new tendencies. *Ekonomicheskii zhurnal=Economic Journal*, 2012, no. 25, pp. 43-51. (In Russian).

14. Official website of KfW IPEX-Bank. Available at: www.kfw-ipex-bank.de (accessed September 25,2018). (In Russian).

15. Official website of the Trade Mission of the Russian Federation in the PRC. Available at: http://www.russchinatrade.ru (accessed September 25, 2018). (In Russian).

16. Glushko N. Development banks in Belarus, Russia and Kazakhstan: general characteristics, results and features of activity. *Банкаўскі веснік=Bank Bulletin*, 2017, pp. 50-59. (In Russian).

17. *OECD: Country Classification for aid and repayment terms*. Available at: http://www.oecd.org/tad/xcred/country-classification.htm (accessed April 7, 2018.)

18. *OECD: The Arrangement for Officially Supported Export Credits. Valid as of April 2018*. Available at: http://www.oecd.org/tad/xcred/cirrs.pdf. (accessed April 7, 2018).

19. Smirnov A.L. EEU: state support of export. *Bankovskoe delo=Banking Business*, 2015, no. 4. (In Russian).

20. Pashkevich I. Promotion of export activities of small and medium-sized businesses. *Bankovskii vestnik=Bank Bulletin,* 2014, no. 8 (613), pp. 30-35. (In Russian).

21. Podosenkov N.S. Trade finance system. *Problemy sovremennoi ekonomiki=Problems of Modern Economics*, 2013, no. 2 (46), pp. 156-159. (In Russian).

22. Navoi A.V. Concept of the exchange rate policy and capital control of the national economy in terms of global finance instability. *Finansovyi zhurnal NIFI=Financial Research Institute. Financial Journal*, 2018, no. 1, pp. 71-86. (In Russian).

23. Country Credit Rating. Available at: http://ru.tradingeconomics.com/country-list/rating (accessed April 7, 2018.)

24. *OECD: Country Risk Classifications of the Participants to the Arrangement on Officially Supported Export Credits. Valid as of 26 January 2018*. Available at: http://www.oecd.org/tad/xcred/cre-crc-current-english.pdf (accessed April 7, 2018.)

25. Tsyganov A.G. Cooperation of the EEU member states with the OECD in the context of the development of the EEU integration agenda. Opportunities to use the best practices of the OECD in the work of the EEU. In: *Sotrudnichestvo gosudarstv-chlenov EAES s OESR v kontekste razvitiya integratsionnoi povestki Soyuza. Vozmozhnosti ispol'zovaniya nailuchshikh praktik OESR v rabote EAES: sbornik publikatsii* [Cooperation of the

EEU Member States with the OECD in the Context of the Development of the Integration Agenda of the Union. Opportunities to Use the Best Practices of the OECD in the Work of the EEU: Collection of Publications]. Moscow: Evraziiskaya ekonomicheskaya komissiya, 2017. P. 68. (In Russian).

26. Pishchik V.Ya., Alekseev P.V. Formation of the common financial market of the EEC member states. *Finansovyi zhurnal =Financial Journal*, 2015, no. 7, pp. 102-111. (In Russian).

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General Assessment of the Effectiveness of Social Sphere Financing in Russia's Regions*

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Abstract. The paper presents an approach to assessing the effectiveness of social sphere financing (healthcare, education, housing and utilities sector) in regions of Russia. In the framework of the study, we test the following hypothesis: when the socio-economic situation in a region gets better, the effectiveness of social sphere financing in it reduces. The methodology for studying the effectiveness of social sphere financing in regions with different levels of socio-economic development is based on assessing the dependence of the dynamics of the indicators achieved by them and the amount of budget expenditures. To carry out the assessment, we select nine resulting indicators of the functioning of social sectors, taking into account the list of indicators for assessing the effectiveness of performance of executive authorities of constituent entities of the Russian Federation (the list was approved in November 2017 by the decree of the President of the Russian Federation) and on the basis of the presence of a statistical relation between them and the Human Development Index as a final indicator. In addition, in order to take into account regional development specifics in the assessment of budget spending effectiveness, we arrange constituent entities of the Russian Federation into groups. The values of the indicators for the model are either calculated or taken directly from statistical reports of the Federal State Statistics Service, the Federal Treasury and the reports of the Analytical Center under the Government of the Russian Federation. We use multivariate correlation analysis to simulate the relationship between the financing of the social sphere and the resulting indicators. The evaluation carried out over a ten-year period shows low efficiency of financing of the social sphere in Russia. In regions with different levels of socio-economic development, it is clearly differentiated in the periods of economic instability. Only with the resolution of crisis phenomena in the socio-economic development of an underdeveloped region (high unemployment, ultra-high mortality, etc.) the urgency of spending on the development of human capital increases. With the achievement of best indicators of social and economic development in the region, the impact of budget financing on the quality of life of its population is reduced, which is explained by the decrease in the effectiveness of social financing in developed regions.

Key words: efficiency of financing, quality of life, region of Russia, social sphere, multidimensional correlation analysis.

Introduction

In conditions when regions are getting considerable independence, the need for effective management of financial flows at the regional level increases. All the more so that now there is a certain destabilization of regional budgets, which is caused, in particular, by the implementation of the May Decrees, since they now bear the main load of additional expenses. According to the estimates by N.V. Zubarevich [1], regional budgets covered 70% of the costs in pursuance of the Decrees in 2013 and 2014, and 80% − in 2015. Moreover, according to the research carried out by Vologda Research Center of RAS [2], the imbalance of territorial budget systems was predetermined by the actions aimed to optimize the tax burden of major taxpayers. This situation certainly leads to tight budget constraints, which actualizes the research on the effectiveness of the use of budgetary resources of the regions [3-5], as an additional "funding source".

Classical analysis of the economic efficiency of financial investments involves evaluating the ratio of results and costs in monetary terms. However, in practice, it is difficult to assess the effectiveness of budget spending with such an approach, especially when it comes to the social sphere. As a rule, socially significant results are achieved by joint actions of many authorities

[6]. That is why there exist certain difficulties in determining the impact of a particular item of expenditure on the quality of life as the final indicator of social sphere financing.

Since 2007, at the state level, there is a system for assessing the effectiveness of the work of the executive authorities of constituent entities of the Russian Federation[1], including a list of key indicators of socio-economic development. During this period, the system has been improved more than once. Since 2012, the method of effectiveness assessment has been simplified, the list of indicators has been reduced, the calculation of ineffective costs has been canceled, the accounting of average annual values of indicators has been introduced, which made the monitoring of effectiveness assessment more understandable and goal-oriented [7]. However, this technique was criticized by the academia. First of all, researchers [8] note the terminological inaccuracy in the approach to the concept of effectiveness. According to the approved methodology, the subject of evaluation is the results of the work of the executive authorities of the Russian Federation, rather than their effectiveness. The evaluation of effectiveness should be based on the balance between the results and the resources used to achieve them. In addition, scientists engaged in debates concerning the indicators of the performance evaluation system. It was noted that there was an unnecessary large number of indicators, which often duplicated each other, which did not have a clear methodology of calculations and did not reflect an objective picture of a particular sector [7]. Also, a number of researchers [9—10] criticized the composition of indicators, as some indicators were focused not on the interests of the population, but

rather on the reporting of the region. In order to improve the system of assessing the effectiveness of regional authorities, a new list of indicators was approved in November 2017[2], and earlier decrees of the President of Russia were declared invalid. This list, in addition to statistical indicators (life expectancy, total fertility rate, etc.), includes people's sociological assessments (their assessment of the effectiveness of activities, assessment of conditions for self-realization, etc.).

The results of assessing the effectiveness of executive authorities of the Russian Federation are used to build a rating of regions, which characterizes the quality of life in them. Also, this assessment serves as a basis for the provision of grants in order to promote and encourage the achievement of best values of the indicators in constituent entities of the Russian Federation. In accordance with the rules adopted in April 2018[3], the number of regions that can receive grants on the basis of evaluation results has been increased from 20 to 40. And the amount of grants will be determined depending on the number of residents in the region and the index of budget expenditures of the region. However, long-standing socio-economic differences between regions have a significant impact on the final assessment of the effectiveness of regional authorities [11]. A region, with a high level of socio-economic development can take a high place in the ranking even if the effectiveness of its financial investments is low. We agree with Yu.P. Voronov, who argues that any procedural flaw in the rating technique will distort the

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[1] On assessing the efficiency of the work of executive authorities of constituent entities of the Russian Federation: Decree of the President of the Russian Federation No. 825 dated June 28, 2007

[2] On assessing the efficiency of the work of executive authorities of constituent entities of the Russian Federation: Decree of the President of the Russian Federation No. 548 dated November 14, 2017.

[3] About implementation of measures for implementation of the state policy in the field of assessing efficiency of work of executive authorities of subjects of the Russian Federation and about recognition of some acts of the Government of the Russian Federation as invalidated: Order of the Government of the Russian Federation of April 19, 2018 No. 472.

general idea of the quality of management and may potentially harm the relevant constituent entities of Russia in cooperation with the federal authorities [12]. Thus, when dealing with the problem of interregional comparison [13-14], this approach to assessment can distort the real situation. In this regard, our study tests the hypothesis, which is as follows: when the socio-economic situation in the region improves, the effectiveness of social sphere financing in it is reduced.

Methodology and research data

The methodology for studying the effectiveness of financing of the social sphere in regions with different levels of development is based on the assessment of the dynamics of the indicators achieved by them and the amount of budget expenditures. The study was conducted on the example of social sectors financing, because on the one hand, the main objective of the authorities is to improve people's quality of life [15-16]. On the other hand, from the point of view of society and the state as an institution of protection of the interests of the nation, the purpose of investments in the development of the social sphere is the growth of human capital [17]. In the framework of the present study, the human development index (HDI), a widespread indicator, was used as a general indicator of the quality of life in the region, because, as many researchers note [18-20], it is a simple and multidimensional indicator of development of the territory. On the basis of the recently approved list of indicators for assessing the effectiveness of executive authorities of constituent entities of the Russian Federation, we selected nine resulting indicators of the functioning of social sectors (indicators of socio-economic development in the region). The list of indicators used for modeling is presented in *Table 1*.

The condition for the selection of the resulting indicators of financing the social sphere of regions, in addition to their

Table 1. Indicators used in modeling the effectiveness of social financing
in regions with different levels of development

#	Indicator, unit of measurement	Shorthand name
	General indicator of region's development	
1	HDI, points	*IND*
	Indicators of social sphere financing in the region	
2	Healthcare expenditures of the consolidated budget of a constituent entity of the Russian Federation and territorial state extra-budgetary fund, rubles per person	X_1
3	Education expenditures of the consolidated budget of a constituent entity of the Russian Federation and territorial state extra-budgetary fund, rubles per person	X_2
4	Housing and utilities expenditures of the consolidated budget of a constituent entity of the Russian Federation and territorial state extra-budgetary fund, rubles per person	X_3
	Resulting indicators of regional socio-economic development	
5	Life expectancy at birth, years	Y_1
6	Average per capita cash income, rubles	Y_2
7	The cost of a fixed set of consumer goods and services at the end of the year, rubles	Y_3
8	Population with cash income below the subsistence level, % of the total population	Y_4
9	Total fertility rate, units	Y_5
10	Number of registered crimes, cases per 100 thousand population	Y_6
11	Gross regional product per capita, rubles	Y_7
12	Unemployment rate (according to ILO methodology), %	Y_8
13	Mortality from external causes, persons per 100 thousand population	Y_9

widespread use as indicators of the quality of life (and in legal documents, as well), was the presence of a statistical relationship between them and HDI. We conducted a discriminant analysis [21] for the annual data of the resulting indicators Y_1, Y_2, ... , Y_9 for three groups ($IND = 1$, $IND = 2$, $IND = 3$) for the retrospective period. The results showed the sustained recognition of the three groups. Incorrect recognition for each group was limited to an average of 5% of the regions adjacent to the other group; this fact is acceptable and understandable, since the HDI values in these cases were close, and sometimes they even coincided among the neighboring border regions from different groups. Discriminant data analysis was carried out in *Statistica* package.

In order to take into account the regional specifics of development in assessing the effectiveness of social sphere financing, we grouped constituent entities of the Russian Federation on the basis of the value of HDI. To ensure statistical sustainability of the results when building the model, we did not take into account 17 subjects of the Russian Federation with the highest and lowest values of HDI and with abnormal values or with missing statistical data on certain indicators. Thus, the model includes 68 subjects of the Russian Federation, divided into three groups − 23 subjects in the first group (low HDI values), 23 subjects in the second group (average HDI values), and 22 subjects in the third group (high HDI values). Since the regions develop unequally, the composition of the group during the reporting period changes depending on the values of HDI. The second group turned out to be the most "mobile". *Table 2* shows typical representatives of each group (those subjects of the Russian Federation that "retained their position" in the group during the period under consideration).

The values of the indicators for the model are calculated or taken directly from the statistical reports of the Federal State Statistics Service, the Federal Treasury and the reports of the Analytical Center under the Government of the Russian Federation.

Mathematical model representing the relationship between the indicators of financing and the resulting indicators

To model the relationship between the financing of health, education and the housing and utilities sector and the resulting indicators, we use multivariate correlation analysis. We have random vectors: $\mathbf{X}=(X_1,X_2,X_3)$ − the indicators of social sphere financing in the region; $\mathbf{Y}=(Y_1,Y_2,...,Y_9)$ − the resulting indicators of regional socio-economic development; $\mathbf{Z}=\mathbf{X}\cup\mathbf{Y}=(X_1,X_2,X_3,Y_1,Y_2,...,Y_9)$ − all the indicators. Checking the sample data for the normality of the distribution as a whole showed the consistency of this statistical hypothesis. Therefore, we believe that the vectors can be considered as Gaussian.

Table 2. Typical representatives of the group of subjects of the Russian Federation that are used in modeling the effectiveness of social sphere financing in regions with different levels of development

Group	RF subjects
First group of RF subjects with low HDI values	Republic of Adygea, Republic of Altai, Altai Krai, Republic of Buryatia, Kabardino-Balkar Republic, Republic of Kalmykia, Republic of Mari El, Amur Oblast, Bryansk Oblast, Vladimir Oblast, Ivanovo Oblast, Pskov Oblast, Tver Oblast, Jewish Autonomous Oblast
Second group of RF subjects with average HDI values	Kaliningrad Oblast, Oryol Oblast, Ryazan Oblast, Ulyanovsk Oblast
Third group of RF subjects with high HDI values	Republic of Komi, Republic of Tatarstan, Udmurt Republic, Krasnodar Krai, Krasnoyarsk Krai, Belgorod Oblast, Lipetsk Oblast, Omsk Oblast, Orenburg Oblast, Samara Oblast, Sverdlovsk Oblast, Tomsk Oblast, Yaroslavl Oblast

The estimation of the closeness of correlation between the components of the Gaussian random vector **U** is found as [22]:

$$D_e(\mathbf{U}) = 1 - |\mathbf{R_U}|^{1/m}, \qquad (1)$$

where m − the dimension of the vector **U**, $\mathbf{R_U}$ − the correlation matrix of the random vector **U**.

The formula (1) numerically assesses how closely the components of the multidimensional random variable **U** are connected with each other, given the fact that $0 \leq D_e(\mathbf{U}) \leq 1$. We note that $D_e(\mathbf{U})=0$ corresponds to the case of mutual linear uncorrelatedness of the value $U_1, U_2, ..., U_m$ and $D_e(\mathbf{U})=1$ if and only if at least two random variables U_i and U_j are linearly dependent functionally [23].

According to (1), we have:

$$\begin{aligned} D_e(\mathbf{X}) &= 1 - |\mathbf{R_X}|^{1/3}, \\ D_e(\mathbf{Y}) &= 1 - |\mathbf{R_Y}|^{1/9}, \qquad (2) \\ D_e(\mathbf{Z}) &= 1 - |\mathbf{R_Z}|^{1/12}. \end{aligned}$$

The formula (1) allows us to estimate the closeness of the correlation between the components of the Gaussian random vector. To assess the closeness of the correlation between the two Gaussian vectors **U** and **V** with the dimensions m and l, the study [24] suggests the ratio:

$$D_e(\mathbf{U}, \mathbf{V}) = 1 - \left(\frac{|\mathbf{R_{U \cup V}}|}{|\mathbf{R_U}| \cdot |\mathbf{R_V}|} \right)^{\frac{2}{m+l}}. \qquad (3)$$

The ratio $D_e(\mathbf{U}, \mathbf{V})$ complies with the following properties:

1. $0 \leq D_e(\mathbf{U}, \mathbf{V}) \leq 1$.

2. The case $D_e(\mathbf{U}, \mathbf{V})=0$ corresponds to the lack of correlation between **U** and **V**.

3. The case $D_e(\mathbf{U}, \mathbf{V})=1$ means that there is a functional relationship between **U** and **V**, i.e. at least one component of the vector **V** is functionally related to the components of the vector **U**.

4. $D_e(\mathbf{U}, \mathbf{V}) = D_e(\mathbf{V}, \mathbf{U})$.

According to (3), we have:

$$D_e(\mathbf{X}, \mathbf{Y}) = 1 - \left(\frac{|\mathbf{R_Z}|}{|\mathbf{R_X}| \cdot |\mathbf{R_Y}|} \right)^{1/6}. \qquad (4)$$

Results of the modeling

The effectiveness of social sphere financing in regions with different levels of socio-economic development was assessed over a ten-year period, from 2007 to 2016. First, let us study the stability of the regions' presence in three groups. The results are shown in *Table 3*.

After that, we use the formulas (2) to determine the closeness of the correlation between the indicators of social sphere financing in the region (vector **X**) and between the indicators of socio-economic development in the region (vector **Y**). The results of assessing the closeness of the correlation between $D_e(\mathbf{X})$ and $D_e(\mathbf{Y})$ for each group and overall for all groups are shown in *Table 4*.

Having analyzed the results given in Tables 3 and 4, we can formulate the following conclusions.

1. When HDI increases, the closeness of the correlation between the indicators of social sphere financing in the region increases, too. This means that the financing of the social sphere in the developed regions is more coordinated.

2. When HDI increases, the closeness of the correlation between the resulting indicators of regional socio-economic development decreases. This can be explained by the slowdown in the coordinated development of regions[4]. This conclusion is consistent with the

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[4] Coordinated development of territories: with the increase of financing, the socio-economic indicators of the territory's development improve.

Table 3. Assessment of the stability of the regions' presence in three groups

Indicator	First group	Second group	Third group
Proportion of regions included in the group at least once in the ten-year period, %	51.5	58.8	51.5
Share of regions included in the same group at least seven times in the ten-year period, %	30.9	26.5	27.9

Table 4. Results of assessing the closeness of the correlation between the indicators
of social sphere financing in the region and the indicators of regional socio-economic development

Year	$D_e(\mathbf{X})$				$D_e(\mathbf{Y})$			
	First group	Second group	Third group	All groups	First group	Second group	Third group	All groups
2007	0.381	0.481	0.530	0.428	0.621	0.644	0.558	0.516
2008	0.430	0.486	0.406	0.433	0.599	0.617	0.571	0.502
2009	0.381	0.474	0.397	0.427	0.665	0.570	0.525	0.504
2010	0.489	0.234	0.551	0.389	0.655	0.560	0.494	0.488
2011	0.488	0.423	0.470	0.437	0.661	0.604	0.567	0.521
2012	0.467	0.425	0.604	0.511	0.685	0.599	0.528	0.534
2013	0.464	0.633	0.622	0.534	0.658	0.591	0.567	0.534
2014	0.398	0.672	0.530	0.498	0.590	0.635	0.575	0.478
2015	0.531	0.527	0.616	0.454	0.590	0.561	0.557	0.499
2016	0.367	0.461	0.597	0.420	0.592	0.590	0.527	0.509
Average	**0.440**	**0.481**	**0.532**	**0.453**	**0.632**	**0.597**	**0.547**	**0.509**

results of Table 3, which show a high instability of regions in the same group, especially for the first and second groups.

3. Thus, we observe opposite trends in the closeness of the correlation between the indicators of social sphere financing in the region and the resulting indicators of regional socio-economic development with the change in HDI.

Next, we use the formula (4) to determine the closeness of the correlation between the financing of healthcare, education and housing and the resulting indicators for the three groups of regions and the average for them. The results are shown in *Figure 1*.

The obtained estimates of the closeness of the correlation between the resulting indicators and the indicators of financing show that the efficiency of budget spending on average in the regions is low, but we observe its general increase in the period under consideration. At the same time, the correlation between the

indicators in the context of individual groups of regions is stronger, especially in the group of regions with low HDI values (first group), which indicates a higher efficiency of their budget spending.

The simulated dynamics of the closeness coefficients for the selected groups of regions vividly reflects the macroeconomic shocks and political decisions adopted for the analyzed year. Depending on the events and trends in Russia, we can distinguish five periods.

The first period, which describes the results of the assessment for the year 2007, is characterized by inertial positive dynamics of socio-economic development of the regions; such dynamics were observed from the beginning of the 2000s. By this time, unemployment continued to reduce. People's well-being was gradually increasing; by 2007, real wages reached their maximum level (117.2% compared to the previous year) [25]. The dynamics of changes in the level of

Figure 1. Results of assessing the relationship between the financing of healthcare, education and housing and the resulting indicators
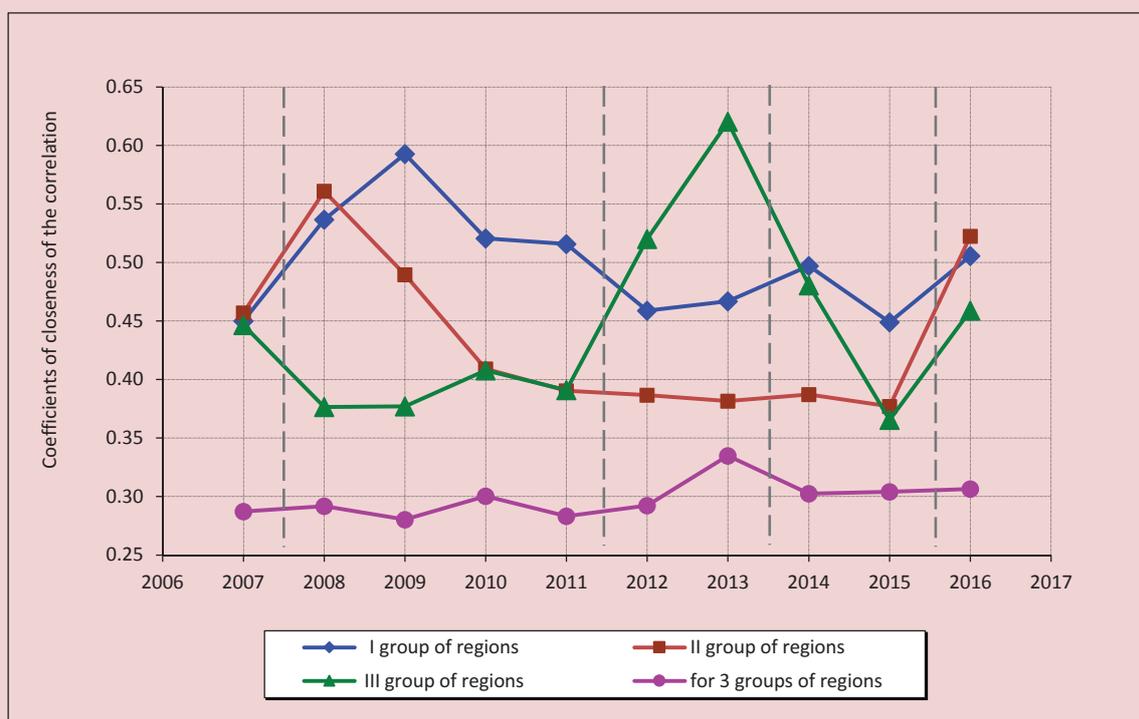
unemployment and the amount of people's cash income in the three groups of regions is shown in *Figure 2.*

Favorable economic conditions and high growth rates of budget revenues have created an opportunity to direct additional "investments in people"; priority national projects have been implemented since 2006. V. Mau [26] points out that one of the results of the positive trends of that period is an increase in the interest in the long-term problems of the country's development based on stabilization and economic growth. In particular, in October 2007, the Concept for Demographic Policy of the Russian Federation for the period up to 2025 was adopted; it addresses socio-demographic problems and the development of human capital. The implementation of large-scale state programs with the attraction of significant funds from

the federal budget had an undoubtedly positive impact on the development of facilities and infrastructure of social sectors [27] and on the quality of life in the regions[5]. Although, as emphasized in a number of studies [28-29], the results show a sharp regional differentiation. In general, the effectiveness of expenditures on the social sphere in 2007 was low in all groups of regions. The coefficient of closeness of correlation was approximately at the same level: from 0.447 (third group) to 0.457 (second group); however, further trends differ, which is primarily due to the external development factor.

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[5] Kuzminov Ya.I., Ovcharova L.N., Yakobson L.I. (Eds.). *Social policy in Russia: long-term trends and changes in recent years. Report.* Moscow: Izd. dom Vysshei shkoly ekonomiki, 2015. Available at: http://sibfrontier.ru/wp-content/uploads/2016/03/Sotsialnaya-politika-v-Rossii-dolgosrochnyi..entsii-i-izmeneniya-poslednih-let.pdf (accessed: 08.06.2018).

Figure 2. Unemployment rate (solid line, left axis) and per capita cash income (dotted line, right axis), broken down by groups of regions with different levels of socio-economic development
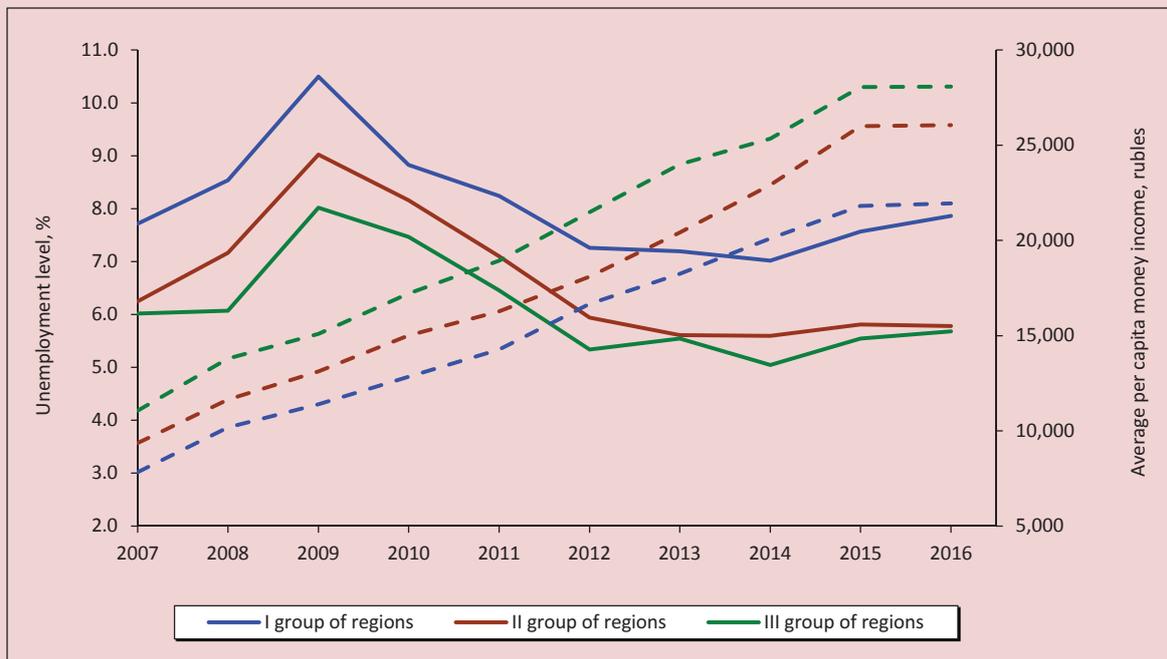
The 2008 global financial crisis became such a factor, and its impact and implications outlined the second period. In 2008, the efficiency of financial investments in human capital in regions with low and medium HDI values (first and second groups) significantly increased (up to 0.537 and 0.561, respectively), and it decreased (to 0.377) in the group of regions with high HDI values. The crisis affected all spheres of the economy, including the social sector. By the beginning of 2009, the Russian economy entered into an industrial recession, accompanied by the depreciation of the ruble, rising unemployment and the suspension of investment programs [30]. However, the impact of the crisis on Russian regions was not uniform [31-32]. Calculations by Zubarevich [33-34] show that a strong decline was observed in the regions of metallurgical and machine-building specialization and in agglomerations. Regions of the South, the Far East and Transbaikalia, and oil-producing areas were among the least

affected, and the positive dynamics were observed in the economically underdeveloped republics of the North Caucasus. This regional differentiation also affected the obtained estimates of the effectiveness of budget expenditures aimed at improving the quality of life in regions with different levels of socio-economic development (Fig. 1).

During the crisis, social protection has become the largest and most dynamic direction of budget expenditures [35]. In order to prevent social tension, a program of anti-crisis measures was developed by March 2009, which included various aspects of social protection (pensions, social protection of families with children, support for the unemployed, etc.). According to the estimates of S. Drobyshevsky, S. Sinelnikov-Murylev and I. Sokolov [36], 1.1 trillion rubles (2.7% of GDP) were directed to anti-crisis measures in 2008, and in 2009 — 2.4 trillion rubles (6.2% of GDP) of budgetary and quasi-budgetary

funds. But as the research of the Institute of Contemporary Development [30] has shown, the effectiveness of the package of anti-crisis measures, which provided for the infusion of huge funds into the economy, in some cases is not obvious. That is quite understandable, because the measures have primarily been aimed at supporting the most insecure strata of the population, rather than at the development of human capital. Therefore, the results of our assessment were quite expected for the three groups with different levels of socio-economic development. In those regions where the problems with unemployment and poverty have not been solved, the financing of anti-crisis measures (additional social payments, indexation of pensions, assistance in the field of employment, etc.) provided a more efficient spending of budgetary funds. The coefficient of the closeness of correlation between the sets of results and financial indicators in the group of regions with low HDI values in 2009 increased to 0.593 (this is the maximum value for 2007−2016). Only in 2010, it began to decline after the policy of increasing public spending and commitments had been revised [36]. The decrease in the effectiveness of social sector financing in this group was observed until 2012. In the second group of regions, the coefficient decreased in 2009 and amounted to 0.490 (which also continued until 2012). In 2010−2011, the values of the coefficient in the second and third groups were approximately in the same range (from 0.390 to 0.409). For regions with high HDI values, the anti-crisis package formed by the Russian Government only mitigated the impact of the economic downturn. In 2010, as the foreign economic situation was improving and large-scale anti-crisis measures were adopted, the Russian economy experienced positive dynamics. It was facilitated by the stability of the national currency, gradual recovery of consumer demand

and the renewed growth of investment (largely due to the implementation of state projects)[6]. In the current situation in 2010, only the more prosperous regions (third group) experienced a slight increase in the effectiveness of financial investments in the social sphere. In 2010−2011, the dynamics of the effectiveness of social sphere financing in all groups of regions was "flat" and without a sharp decline.

However, during and after the crisis, there was a significant increase in social spending of regional budgets, which was not provided by the growth of the revenue base; this fact actually led to the loss of financial independence of the regions and their dependence on inter-governmental transfers from the federal budget. According to the calculations performed at the Center for Macroeconomic Analysis and Short-Term Forecasting[7], the ratio of self-sufficiency of budgets of subjects of the Russian Federation in 2011 was only 78.1%. During this period, significant amounts of gratuitous revenues were allocated not only to the regions-outsiders, whose resources to fulfill social obligations to citizens are limited, but also to the leading regions. Following the evaluation of the effectiveness of the executive authorities in 2010, grants (ranging from 63 million to 116 million rubles) were allocated to ten constituent entities of the Russian Federation. At the end of 2011, an additional mechanism was adopted to stimulate those regions that managed to achieve the best results in economic development and attracting investment. These incentive grants were allocated to 20 constituent entities of the

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[6] Trends in the Russian economy. The results of 2010. Analytical Bulletin. Center for Economic Research "RIA-Analitika". Moscow: RIA-Novosti, 2011. 35 p. Available at: http://vid-1.rian.ru/ig/ratings/macro2011.pdf (accessed: 08.06.2018).

[7] The results of 2011 and the forecast of economic development in the medium term. Review of Macroeconomic Trends. 2012. No. 72. 136 p. Available at: http://www.forecast.ru/_ARCHIVE/MONITORING/2012/Y2011/MOn2011.pdf (accessed: 08.06.2018).

Russian Federation; they received from 206.8 million to two billion rubles depending on their performance. In both cases, additional funding was given to leading regions with high socio-economic potential. Such mechanisms do not help eliminate regional disparities in socio-economic development; they even reinforce this trend [37]. Therefore, it is not surprising that by 2012, according to the results of our assessment, the third group of regions significantly increased the level of efficiency of social sphere financing *(Fig. 1)*. The coefficients of the closeness of the correlation between the sets of resulting and financial indicators in this group of regions amounted to 0.520 in 2012.

The third period of the analysis describes 2012−2013 and is associated with the so-called "May Decrees" of the Russian President; they deal with education, science, healthcare, economy, demography, and housing and utilities services. These decrees determine the overall strategy for human capital development until 2018−2020 and contain clear social guidelines. To date, it was formally managed to execute 190 orders (out of 202) contained in the decrees[8]. But the experts from the non-governmental movement All-Russian People's Front[9] (ONF) whom the President of the Russian Federation asked to monitor the implementation of these decrees, believe that most of the orders that were executed need to be finalized. Their monitoring "Teacher's salary and workload"[10] has shown that the real salary of teachers is significantly

lower than the official one. To achieve the targets set out in the decrees, compensations for housing and utilities services, for travelling by public transport, etc. are sometimes added to the salary of teachers. This problem is common not only among educational institutions, but also among medical institutions, because they have to find reserves to increase the salaries of employees on their own. As many researchers note[11], the execution of the decrees has placed a serious burden on the budgets of the regions against the background of cuts in income tax and federal transfers. Since regional budgets were not ready for such expenditures, almost all regions had to reallocate funds for these tasks to the detriment of development budgets, in particular, investments in infrastructure and other facilities [38]. As a result of this redistribution, the effectiveness of social sphere financing in the first group of regions decreased in 2012−2013. In the prosperous regions (third group), where the funding, resources, and development opportunities are more significant, the opposite situation has developed. In 2013, the effectiveness of expenditure on social services increased dramatically to 0.620 (it is the maximum value in 2007−2016). The coefficient of closeness of the correlation between the sets of resulting and financial indicators in the second group in 2012−2013 did not change.

Serious changes in the macroeconomic situation in 2014 outlined the next period in the study of the effectiveness of social sphere financing in Russia's regions. In 2014, the Russian economy began to decline under the influence of external factors such as the drop in oil prices on world markets, the introduction of sanctions against Russia, and Russia's counter-sanctions. One of the most important

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[8] About the condition of execution of orders to the Government of the Russian Federation contained in the Decrees of the President of the Russian Federation of May 7, 2012 No. 596−606 and the instructions connected with them. Available at: http://government.ru/orders/selection/406/32587/ (accessed: 08.06.2018).

[9] Brechalov A. Since March 2014, the ONF recommended to stop the monitoring of only 24 instructions. Available at: http://onf.ru/2016/05/16/brechalov-s-marta-2014-goda-onf-rekomendoval-snyat-s-kontrolya-tolko-24-porucheniya/ (accessed: 08.06.2018).

[10] Monitoring "Teacher's salary and workload". ONF. Available at: http://onf.ru/2017/03/09/monitoring-zarplata-i-nagruzka-uchitelya/ (accessed: 08.06.2018).

[11] Conclusion report of Gaidar Institute for Economic Policy on the draft federal budget for 2013 and the planning period of 2014 and 2015. *Vestnik Evropy*, 2012, no. 34-35. Available at: http://magazines.russ.ru/vestnik/2012/34/z9.html (accessed: 08.06.2018).

problems of effectiveness of financing was the continuing growth of the regional budget deficit triggered by a sharp reduction in tax revenues with a simultaneous increase in expenses on social obligations on the part of Russia's constituent entities. According to the calculations by M.A. Pecherskaya [39], by the end of 2014, the deficit of regional budget systems reached 450 billion rubles, or 6.3% to own revenues of the budgets. According to the Analytical Center under the Government of the Russian Federation[12], deficits are typical primarily for the budgets of developed and mid-developed regions: in 2014, they accounted for almost 90% of the total deficit in the country, with 55% of the total revenues of regional consolidated budgets. Public debt in a number of subjects exceeded 80−100% of tax and non-tax revenues [39]. At that time, the Ministry of Finance of the Russian Federation[13] set a basic task of "limiting the growth rate of budget expenditures, including those on social payments, wages, and the state apparatus, and of reaching a deficit-free federal budget in the medium term". In 2015, the Russian Government adopted a package of anti-crisis measures, including a revision of the budget with an average reduction of the costs by 10% [40]. We agree with V.G. Basareva [41] that the result-oriented management, in fact, "is used more and more seldom"; the effectiveness of social sphere financing in the regions of Russia has been declining for 2014−2015. Since the largest drop was observed in

industrialized regions and in regions with a medium level of development[14], then the more prominent decrease in effectiveness is observed in the second and third groups of regions. But in contrast to regions with medium values of HDI, where the coefficient of closeness of the correlation decreased from 0.461 to 0.387 in 2014, regions with high values of HDI and with a greater "margin of safety" reduced the efficiency of social sector financing at a later date. The coefficient of closeness of the correlation in the third group of regions decreased from 0.480 to 0.364 in 2015. The decline in the efficiency of social sphere financing in the first group of regions, which were less affected by the deterioration of the macroeconomic situation, was smoother.

In 2016, the Russian economy adapted to the new macroeconomic conditions formed in 2014−2015, and the negative trends were reversed. Leading economists [42] point out that by the beginning of 2017, the economic recession was virtually stopped, and the branches of material production and wholesale trade reached positive dynamics in 2016. By restraining the growth of spending, it was possible to control the size of the federal budget deficit and the debt of regional budgets. As noted in the Report of the Ministry of Labor and Social Protection of the Russian Federation[15], despite the difficult financial and economic situation, the efforts undertaken made it possible to maintain positive trends in the socio-demographic situation and in employment, to increase the wages of certain categories of

[12] The situation of Russian regions in the crisis. Bulletin of the socio-economic crisis in Russia. 2015. No. 3. Analytical Center under the Government of the Russian Federation. Available at: http://ac.gov.ru/files/publication/a/5976.pdf (accessed: 08.06.2018).

[13] Report on the main directions to enhance the efficiency of federal budget expenditures. Ministry of Finance of the Russian Federation. Moscow, 2015. 124 p. Available at: https://www.minfin.ru/common/upload/library/2015/07/main/doklad_ob_osnovnykh_napravleniyakh_povysheniya_effektivnosti_raskhodov_federalnogo_budzheta.pdf (accessed: 08.06.2018).

[14] The situation of Russian regions in the crisis. Bulletin of the socio-economic crisis in Russia. 2015. No. 3. Analytical Center under the Government of the Russian Federation. Available at: http://ac.gov.ru/files/publication/a/5976.pdf (accessed: 08.06.2018).

[15] Report on the performance of the Ministry of Labor and Social Protection of the Russian Federation in 2016 and on the tasks for 2017. Board of the Ministry of Labor. 31 March, 2017. Available at: http://minsoc.gov-murman.ru/files/doklad-na-kollegiyu-2017_2016.03.pdf (accessed: 08.06.2018).

employees (healthcare, education, culture, social services, and science). Based on the data of Rosstat, the decline in certain aspects of the quality of life was moderate and "not quite critical" [43], and positive results were achieved on a number of social development indicators *(Fig. 2)*. Given the dynamics of socio-economic indicators of the regions, which took place against the background of decreasing social spending, we can talk about the effectiveness of these costs. According to calculations, in 2016, the coefficients of closeness of the correlation between the sets of resulting and financial indicators in all the groups increased.

As the crisis phenomena are overcome, the task of promoting socio-economic development comes to the fore. In 2016, the state became interested in the implementation of long-term national projects once again. In order to improve the efficiency of the socio-economic policy of the state, and in order to implement the goals and objectives of the development strategy on the basis of the project approach, the Presidential Council for Strategic Development and Priority Projects was formed[16]. Priority projects include healthcare, education, mortgage and rental housing, international cooperation and exports, labor productivity, small business and support for individual entrepreneurial initiative, reform of control and supervisory activities, free-of-charge and high-quality roads, single-industry towns, and environment. Despite all the shortcomings of the project-based approach, researchers [44-45] note that it is a more rapid and flexible form of social management.

Conclusions

In general, the results of the study show low efficiency of social sphere financing. Socio-economic development in regions is determined

not so much by regional policy and the level of its financing, but by the level and characteristics of the region itself (availability of resources and favorable conditions). Judging by the estimates we have obtained, we can conclude that the effectiveness of social sphere financing for the regions with different levels of socio-economic development is clearly differentiated in periods of economic instability. The financing of anti-crisis measures, the goal of which is to maintain the current situation and mitigate negative consequences rather than promote socio-economic development, is more effective for the less developed regions of Russia. Such was the case in 2009 and 2014. The opposite pattern was observed in 2012 and 2016 in relatively prosperous regions of Russia. Therefore, as the crisis issues are being addressed and resolved in the socio-economic development of an underdeveloped region (high unemployment, ultra-high mortality, etc.), the urgency of spending on the development of human capital increases. However, this does not mean that long-term projects need to be financed only if the minimum criteria for socio-economic development are met; such projects will simply be less effective.

In stable periods of development (2007, 2016), the efficiency of social sphere financing in different regions is approximately at the same level. Therefore, as V.G. Basareva points out [46], when economic growth is slowing down, it is necessary to adjust the amount of liabilities financed from regional budgets and to take into account the existence of imbalance at a sharp increase in the deficit and public debt.

The calculations we present in the paper have shown that the correlation between the sets of resulting and financial indicators is closer in the regions with low HDI values than in the more developed regions. With the increase in the value of HDI in the region, the impact of budget financing on the quality

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[16] About the Presidential Council for Strategic Development and Priority Projects: Decree of the President of the Russian Federation dated June 30,2016 No. 306.

of life of its population decreases, which is explained by the decrease in the efficiency of social sphere financing in developed regions. Therefore, as many researchers have already noted, the existing mechanism for encouraging the subjects of the Russian Federation that have reached the maximum level of socio-economic development, without taking into account additional parameters of effectiveness of financing, is not quite fair. Thus, in the conditions of economic instability, in addition to the need for increased financing of the social sphere in the Russian regions, a significant task is to increase its effectiveness and to use available funds more rationally. According to the results of the present study, we can conclude that the policy aimed at increasing the effectiveness of social sphere financing should be tailored to suit the needs of each region.

The approach to the overall assessment of the effectiveness of financing of the social sphere that we present in the paper can be taken into account in the allocation of grants to promote and encourage the achievement of the best values of indicators in constituent entities of the Russian Federation.

References

1. Zubarevich N. It was predetermined that budgets of Russia's regions will strain themselves. *Polit.ru,* 2015, December 7. Available at: http://polit.ru/news/2015/12/07/regions_com/ (accessed 08.06.2018). (In Russian).

2. Ilyin V.A., Povarova A.I. Failures of big business tax administration and their impact on regional budgets. *Ekonomika regiona=Economy of Region*, 2017, no. 1, pp. 25-37. DOI: 10.17059/2017-1-3. (In Russian).

3. Povarova A.I. Regional budget for 2017−2019: surplus or economic growth? *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 2017, vol. 10, no. 2, pp. 236-258. DOI: 10.15838/esc.2017.2.50.13. (In Russian).

4. Rudnik B.L., Romanova V.V. The budgetary financing of socio-cultural sphere. *Zhurnal Novoi ekonomicheskoi assotsiatsii=Journal of the New Economic Association*, 2017, no. 2 (34), pp. 124-142. (In Russian).

5. Vasileva A. Forecast of labor migration, reproduction of population, and economic development of Russia. *4th International Multidisciplinary Scientific Conferences on Social Sciences & Arts. Conference Proceedings*. 2017. August 22−31. Book 1. Vol. 4. Pp. 339-346. DOI: 10.5593/sgemsocial2017/14/S04.045.

6. de Bruijn H. *Managing Performance in the Public Sector*. London; New York: Routledge, 2002. 129 p.

7. Chepus A.V., Trifonov Yu.N., Ivanov A.V., Kondratenko A.B., Bespalov S.V., Maracha V.G., Kalmykov N.N., Satyr' T.S. An estimate of the effectiveness of the executive authorities of the Russian Federation at the end of 2014. *Professional'naya nauka=Professional Science,* 2016, no. 3, pp. 47-74. (In Russian).

8. Bakhtairova E.A., Derbenev E.A. Assessing activity efficiency of bodies of executive power through the example of registry services agency of Irkutsk Oblast. *Elektronnyi nauchnyi zhurnal Baikal'skogo gosudarstvennogo universiteta=Baikal Research Journal,* 2015, vol. 6, no. 6, p. 1. (In Russian).

9. Lyapina I.R. Classification of regions of Russia: "performance effectiveness of socio-economic development" as the basis for classification. *Vestnik TGU. Gumanitarnye nauki. Ekonomika=Vestnik TSU. Humanities. Economics*, 2012, no. 4 (108), pp. 54-63. (In Russian).

10. Bocharova A.K. *Mekhanizm otsenki effektivnosti deyatel'nosti organov ispolnitel'noi vlasti sub"ektov Rossiiskoi Federatsii: preprint WP14/2012/05* [A mechanism for assessing the effectiveness of performance of executive authorities of constituent entities of the Russian Federation: working paper WP14/2012/05]. Moscw: Izd. dom Vysshei shkoly ekonomiki, 2012. 68 p.

11. Petrova E.A., Shevandrin A.V., Kalinina V.V. Formation of efficiency assessment system for territorial administration. *Gosudarstvennoe upravlenie. Elektronnyi vestnik=Public Administration. E-Journal*, 2016, no. 54. Available at: http://e-journal.spa.msu.ru/uploads/vestnik/2016/vipusk__54._fevral_2016_g./problemi_upravlenija_teorija_i_praktika/petrova_shevandrin_kalinina.pdf (accessed 08.06.2018). (In Russian).

12. Voronov Yu.P. Ratings of RF units: methodical issues of their assessment. *Region: Ekonomika i Sotsiologiya=Region: Economics and Sociology,* 2008, no. 3, pp. 46-66. (In Russian).

13. Suspitsyn S.A. Barometers of the general situation in regions. *Problemy prognozirovaniya=Studies on Russian Economic Development,* 2005, no. 2, pp. 97-111. (In Russian).

14. Malkina M.Yu. On the issue of weighting in interregional studies (in response to K.P. Gluschenko). *Prostranstvennaya ekonomika=Spatial Economics,* 2016, no. 1, pp. 163-184. DOI: 10.14530/se.2016.1.163-184. (In Russian).

15. Ilyin V.A., Povarova A.I. Problems of regional development as the reflection of the effectiveness of public administration. *Ekonomika regiona=Economy of Region*, 2014, no. 3 (39), pp. 48-63. (In Russian).

16. Mau V. Human capital: challenges for Russia. *Social Sciences,* 2013, vol. 44, no. 1. pp. 3-19.

17. Bukhonova S.M., Doroshenko Yu.A. Main effects from investment in the social sector. *Ekonomicheskii analiz: teoriya i praktika= Economic Analysis: Theory and Practice,* 2006, no. 11, pp. 10-16. (In Russian).

18. Sagar A.D, Najam A. The human development index: a critical review. *Ecological Economics,* 1998, no. 25, pp. 249-264.

19. Grimm M., Harttgen K., Klasen S., Misselhorn M. *A human development index by income groups. Discussion papers*. Ibero America Institute for Economic Research. 2006. No. 155. Available at: https://www.econstor.eu/bitstream/10419/27445/1/52523781X.PDF (accessed 08.06.2018).

20. Chakravarty S.R. A generalized Human Development Index. *Review of Development Economics,* 2003, vol. 7, pp. 99-114.

21. Aivazyan S.A. Bukhshtaber V.M., Enyukov I.S., Meshalkin L.D. *Prikladnaya statistika: Klassifikatsiya i snizhenie razmernosti* [Applied statistics: Classification and decline of dimension]. Moscow: Finansyistatistika, 1989. 607 p.

22. Pena D., Rodriguez J. Descriptive measures of multivariate scatter and linear dependence. *Journal of Multivariate Analysis,* 2003, vol. 85, no. 2, pp. 361-374.

23. Tyrsin A.N. A measure of joint correlation dependence of multidimensional random variables. *Zavodskaya laboratoriya. Diagnostika materialov= Factory Laboratory. Diagnostics of Materials*, 2014, vol. 80, no. 1, pp. 76-80. (In Russian).

24. Tyrsin A.N. A measure of interdependence between random vectors of arbitrary dimensions. *Obozrenie prikladnoi i promyshlennoi matematiki=Review of Applied and Industrial Mathematics*, 2018, vol. 25, no. 1, pp. 72-73. Available at: http://www.tvp.ru/conferen/vsppmXIX/repso026.pdf (accessed 29.05.2018). (In Russian).

25. Kuklin A.A., Chistova E.V., Pyhov P.A. Measurement of welfare of the individual and areas of residence. *4th International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2017.* 2017. Book 1. Vol. 4. Pp. 479-486. DOI: 10.5593/sgemsocial2017/14/S04.063.

26. Mau V. Economic policy – 2007: achievements and risks. *Voprosy ekonomiki=Issues of Economics,* 2008, no. 2, pp. 4-25. (In Russian).

27. Kanaeva L.P. Effectiveness of implementation of the priority national projects in a region. *Regionologiya=Regionology*, 2014, no. 3, pp. 14-20. (In Russian).

28. Lezhin N.M. The main principles of the program-target approach to the development and implementation of priority national projects. *Finansy i kredit=Finance and Credit*, 2007, no. 17 (257), pp. 44-46. (In Russian).

29. Loginov S.V. Main results of the priority national projects in the Ural Federal District. *Ekonomika regiona=Economy of Region*, 2008, no. 2, pp. 209-215. (In Russian).

30. Yurgens I.Yu. *Ekonomicheskii krizis v Rossii: ekspertnyi vzglyad* [Economic crisis in Russia: expert view]. Moscow: Ekon-Inform, 2009. 112 p.

31. Korobitsyn B., Kuklin A. Regional resilience of Russia to economic shocks and crisis. In: *2nd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM*. 2015. Book 2. Vol. 3. Pp. 707-714. DOI: 10.5593/SGEMSOCIAL2015/B23/S7.090

32. Nikulina N.L., Pecherkina M.S. The welfare in individual and area of residence: risk assessment. In: *4th International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2017. Conference Proceedings*. 2017. Book 1. Vol. 4. Pp. 937-944. Available at: www.sgemsocial.org. DOI: 10.5593/sgemsocial2017/14/S04.121

33. Zubarevich N. The way out of the crisis: regional projection. *Voprosy ekonomiki=Economic Issues*, 2012, no. 4, pp. 67-83. (In Russian).

34. Zubarevich N.V. Crises in post-Soviet Russia: Regional projection. *Regional Research of Russia,* 2016, vol. 6, no. 2, pp. 95-104.

35. Aizinova I.M. Anti-crisis measures of social protection of the population. *Problemy prognozirovaniya=Studies on Russian Economic Development*, 2010, no. 3 (120), pp. 93-114. (In Russian).

36. Drobyshevskii S., Sinel'nikov-Murylev S., Sokolov I. Evolution of the budget policy of Russia in the 2000s: in search of financial stability of the national budget system. *Voprosy ekonomiki=Economic Issues,* 2011, no. 1, pp. 4-25. (In Russian).

37. Soboleva G.V., Popova I.N Stimulation of regions economic development by means of budget and tax policy. *Vestnik Sankt-Peterburgskogo universiteta. Ekonomika=St Petersburg University Journal of Economic Studies*, 2014, no. 1, pp. 5-26. (In Russian).

38. Petrov A.V. The gap in the budget capacity of regions and the quality of living in the Russian Federation. *Vestnik Tomskogo gosudarstvennogo universiteta. Ekonomika=Tomsk State University Journal of Economics,* 2015, no. 3 (31), pp. 141-154. (In Russian).

39. Pechenskaya M.A., Povarova A.I. *Regional'nye byudzhety: tendentsii, sostoyanie, perspektivy* [Regional budgets: trends, condition, prospects]. Vologda: ISERT RAN, 2016. 110 p.

40. Sinel'nikov-Murylev S.G., Radygin A.D. (Eds.). *Rossiiskaya ekonomika v 2015 godu. Tendentsii i perspektivy. Vyp. 37* [Russian economy in 2015. Trends and prospects. Vol. 37]. Moscow: Izd-vo In-ta Gaidara, 2016. 472 p.

41. Basareva V.G. Result-oriented performance in public administration. In: Babkin A.V. (Ed.). *Ekonomika i menedzhment v usloviyakh global'noi konkurentsii: problemy i perspektivy: trudy nauchno-prakticheskoi konferentsii s mezhdunarodnym uchastiem* [Economics and management in the conditions of global competition: problems and prospects: proceedings of the research-to-practice conference with international participation]. Saint Petersburg: Izd-vo Politekhn. un-ta, 2016. Pp. 16-29. (In Russian).

42. Sinel'nikov-Murylev S.G., Radygin A.D. (Eds.). *Rossiiskaya ekonomika v 2016 godu. Tendentsii i perspektivy. Vyp. 38* [Russian economy in 2016. Trends and prospects. Vol. 38]. Moscow: Izd-vo In-ta Gaidara, 2017. 520 p.

43. Malevaya T.M. (Ed.). *2017: sotsial'nye itogi i uroki dlya ekonomicheskoi politiki* [2017: social outcomes and lessons for economic policy]. Moscow: Izdatel'skii dom "Delo" RANKhiGS, 2018. 122 p.

44. Pereverzeva V.V., Yur'eva T.V. Development project in the system of strategic management. *ETAP: ekonomicheskaya teoriya, analiz, praktika=ETAP: Economic Theory, Analysis, Practice*, 2017, no. 4, pp. 42-52. (In Russian).

45. Vilisov M.V. State policy: project approach. *Politicheskaya nauka. Spetsvypusk=Political Science. Special Issue,* 2016, pp. 110-126. (In Russian).

46. Basareva V.G. Regions of Russia: adaptation to measures of state regulation. *Region: ekonomika i sotsiologiya=Region: Economics and Sociology,* 2015, no. 2 (86), pp. 29-48. DOI: 10.15372/REG20150602. (In Russian).

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REGIONAL ECONOMY

Current State and the Features of Location of Small Business in Regions of Russia

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Abstract. World experience shows that the current state of small business is a kind of catalyst for the development of economic relations in market economies. The revival of small business in Russia is three decades old, but the potential benefits of small business are still weak. The paper attempts to assess the dynamics of the state and features of the differentiation of small business in the regions of modern Russia; we show the problems in the organization of this process, consisting in the variability of criteria for determining small business, incomplete information base and the lack of conventional approaches to assessing the differentiation of small business. We substantiate the need to use as an information base the data from full-scale federal statistical observations of the state of small business in Russia in 2010 and 2015. We prove that the approach to monitoring the development of small business in the regions of the Russian Federation should be comprehensive, taking into account the state of both individual entrepreneurs and small business enterprises in the territory. We carry out integrated assessment of the state of small business in the subjects of the Russian Federation with the use of the Maximin Method, which allows us to calculate the integral index of the state of small business for each region. With the help of the proposed approach, we identify a high degree of territorial concentration of small business in regions of Russia; we reveal that the dynamics of the small business sector in the country as a whole depends crucially on its state in the leading regions; we classify regions into groups with different levels of small business development and find out that in the Russian Federation there is a convergence of its constituent entities on the parameters of the current state of individual entrepreneurship alongside the

differentiation of regions according to the state of the sphere of small enterprises. In general, the situation with small business in Russia fits into the general pattern – the farther from the center, the larger the small businesses and the greater their turnover.

Key words: regional economy, subjects of the Federation, small business, individual entrepreneurs, small enterprises.

Introduction

World experience shows that small entrepreneurship (SE) is an important part of the economy of both certain countries and individual regions and a significant factor in the social sustainability of society and the reduction in territorial inequality of economic development, often determining the specialization and level of economic development of countries and territories (*tab. 1*).

In those countries and regions where small entrepreneurship is developing, a share of the middle class and population's initiatives are growing [1; 2]. Small business (SB), understood as a synonym of SE, promotes population employment and receipt of funds to the budget system [3; 4]. The existing studies show that the viability of a small firms sector is of great importance for regional economic well-being and citizens' income growth [5], and the impact of newly emerging small enterprises on regional development becomes evident in a sufficiently long period of time [6]. According to the empirical researches in consequences of the 2008 and 2014 financial and economic crises,

the progressive development of national and regional economies is inextricably linked with the use of small business potential due to its natural ability to flexibly adapt to the changing environment under the influence of external shocks [7; 8]. The effects of innovation activity in small entrepreneurship, boosting production development in technically advanced areas, are especially significant at critical crisis moments [9; 10].

However, there are significant differences in the distribution of employment among enterprises of different sizes in developed countries. For example, in Portugal, Slovenia, Italy and Greece, more than 45% of the employment accounts for micro-enterprises, i.e. firms with less than ten employees, while in the United States and Switzerland micro-enterprises employ less than 20% of the working population [11]. A firm size is important in terms of productivity. On average, larger firms are more productive than smaller ones, especially in the manufacturing sector, partly reflecting benefits of revenue growth, for example, through capital-intensive production.

Table 1. Level of small entrepreneurship (SE) development in a number of countries

Indicator	Japan	Cnina	Republic of Korea	EU
Number of SE enterprises (% of the total number of enterprises)	99.0	90.0	99.0	98.7
Number of the employed in SE (% of the total employed)	88.0	75.0	87.7	68.0
Share of GDP produced by SE (%)	61.0	60.0	50.0	58.0

Sources: compiled by the Organization for SME and Regional Innovation of Japan (http://www.smrj.go.jp); Small Business in South Korea (http://kreditbusiness.ru/korea.html); Small Business of China (http://www.worlds.ru/asia/china/history-malyjj_biznes_v_kitae.shtml); Small Business in Japan (http://www.openbusiness.ru/html_euro/Japan_open6.htm); Small and Medium-Sized Businesses in 2012: International Experience in Regulation and Financing http://oldsmb.economy.gov.ru/content/statistic/analytics/m, f, 723847/

However, this is not the generally accepted truth. For example, in Switzerland medium-sized enterprises have higher productivity than large ones, which may reflect specialization in the manufacture of products with higher added value [11].

In modern Russia SE began to revive in 1988 due to the adopted law "On cooperation". It was intended to "reveal huge potential of cooperation, increase its role in accelerating socio-economic development of the country, strengthen the process of economic life democratization, give a new impetus to collective farm movement, and create conditions for population's involvement in cooperatives. It was aimed at the full use of cooperative forms to meet growing needs of the economy and the population in food, consumer goods, housing, and various products for industrial purposes, works and services"[1].

Three decades have passed since the law adoption, but all the above-mentioned SE capabilities, despite their potential significance, are still poorly developed in the country. According to various estimates, the SE contribution to the GDP of modern Russia is 81−22% [4; 12], rather than 50−60%, as in countries with developed economies (see tab. 1). It is no accident that at the end of 2017 at the meeting with German businessmen in Sochi, President Vladimir Putin set a task to increase the contribution of small and medium-sized businesses to the GDP of the Russian Federation to 40% by 2030[2].

Realizing that for a such a large country as Russia small business is unlikely to become the economy basis, but can act as a link to ensure smooth operation of large industrial enterprises,

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[1] The USSR Law of May 26, 1988, No. 8998-XI "On cooperation in the USSR".

[2] Putin set the task to increase a share of small business in the country to 40% by 2030 (http://www.rosbalt.ru/russia/2017/10/12/1652644.html).

we set a goal to identify and quantify the features of small business placement in RF subjects and determine regional problems of small business in terms of the state of individual entrepreneurs and the sphere of small enterprises.

To justify the formulated objectives, the following tasks are stated and achieved:

— problems to form an information base of small enterprises in the Russian Federation are revealed;

— a method of quantitative assessment of the SE state in RF subjects on the basis of calculated integrated indices of the SE state by the maximin criterion is offered and tested;

— a degree of small business concentration in Russian regions is analyzed;

— objective and subjective reasons for the current distribution of small business in RF subjects are identified;

— a hypothesis of the multidirectional reaction of individual entrepreneurs and small business owners to the impact of external shocks is proved.

Concept and features of the definition of SE in the Russian Federation

In most developed countries the statistical system is based on the ability to study business entities performance according to their size. A flexible way of organizing statistical observation in the EU [13] and the USA [14] allows them to monitor the state of each size group, develop differentiated policies and control the performance of any size groups of enterprises.

The concept of SE used in the Russian Federation differs from the SE definition in the EU or the US. In addition, the Russian criteria for determining SE are not constant; they changed in 2005, 2009 and 2015. Hence, it is difficult to conduct a comparative analysis and regular assessment, compare this segment of the economy with foreign countries and identify trends in its development.

Table 2. Indicators for attributing production to subjects of small
and medium-sized business in Russia

Type of enterprises	Employee number, people	Revenue from sales excluding VAT for the previous calendar year, million rubles	Share of third-party organizations in the authorized capital of the company
Micro-	Up to 15	Up to 120	Not more than 49%
Small	16–100	Up to 800	Not more than 49%
Medium-sized	101–250	Up to 2000	Not more than 49%

New criteria for classifying small enterprises have been used in Russian statistics since 2008[3]. However, the financial indicators introducing revenue thresholds for micro, small and medium-sized enterprises became applicable only in 2009[4]. In 2015 the priority measures plan to ensure sustainable economic development and social stability, approved by the RF Government as of January 27, 2015, no. 98-p, stipulated a 2-time increase in the limit revenue values from sales of goods (works, services) for business entities to be classified as small and medium-sized businesses. Later this provision was enshrined in the new version of the Federal Law 209 "On the Development of Small and Medium-Sized Entrepreneurship in the Russian Federation" (*tab. 2*).

It can be assumed that such an increase in revenue limits is made in order to expand the participation of high-performance businesses in government support programs. Recognition of small and medium-sized enterprises created by foreign citizens since October 1, 2013 proves organization of a new basis for mutually beneficial cooperation of Russian and foreign companies and creation of new technological ties.

Before that if the share of a foreign citizen in the authorized capital of an enterprise exceeded 25%, the company was deprived of a SME status. In 2015 the limit of participation in the authorized capital of small and medium-sized businesses was increased from 25 to 49% for legal entities that had not been previously recognized as SMEs, as well as for foreign legal entities. According to existing information[5], at the end of June 2018 the State Duma adopted a draft law on lifting restrictions on the participation of foreign companies in the authorized capital of SMEs. The innovation will affect those foreign companies that meet the Russian criteria for inclusion in SMEs, that is, with a staff of no more than 250 people and revenue of no more than 2 billion rubles per year. In this case, a legal entity should not be an offshore company.

Information base and statistical problems

In the Russian Federation the account of small enterprises is carried out by sample surveys. Quarterly data have been monitored since 2008, but only for small businesses with more than 15 employees. Such statistical accounting leads to the fact that the quarterly monitoring covers only 14—15% of the enterprises, employing less than half of the small enterprises workers. It seems that such a sample gives only a very general idea of the state of small business. Moreover, the Federal State

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[3] See Federal Law No. 209-FZ of June 24, 2007 "On the development of small and medium-sized enterprises in the Russian Federation".

[4] Revenue thresholds were determined by the RF Government Decree no. 556 of July 22, 2008 "On revenue limits from the sale of goods (works, services) for each category of small and medium-sized businesses".

[5] See, for example: The Government is considering lifting restrictions on foreign capital in small businesses (http://www.klerk.ru/boss/news/446312); The State Duma adopted the law to remove restrictions on the participation of foreign companies in the authorized capital of SMEs in the first reading (http://smb.gov.ru/mediacenter/bisnessnews/?action=show&id=17993)

Statistics Service publishes annual information only after a year, and these data are also not the result of a complete survey.

The Unified Register of Small and Medium-Sized Businesses (Available at: https://ofd.nalog.ru/), formed on the basis of information on economic entities contained in the Federal Tax Service (FTS) databases, has been available since August 2016. However, the data contained in the Unified Register are not comparable with statistical information on SE subjects formed by the Rosstat for the previous periods. This is due to a sample size (from 5 to 40% of SE subjects, depending on the category, while the Federal Tax Service processes data on all economic entities automatically) and significant changes in the criteria for classifying economic entities as SE, as noted above.

Therefore, we selected data of two rounds of Federal statistical monitoring of the activity of small and medium enterprises, conducted by the Rosstat in 2010 and 2015, as an information base. The final results of the five-year continuous survey were published at the end of 2017. The comprehensive survey data allow us to analyze trends in various categories of SMEs, as well as consider the situation with Russian small business as a whole and by regions for 2010–2015.

Methodology and research method

It is difficult to make integrated assessment of the state of small business in a region, as it depends on "economic well-being" of individual entrepreneurs and the state of small enterprises. It seems that the approach to monitoring the SE development in Russian regions should be comprehensive and take into account enlarged thematic groups (blocks) of indicators characterizing the state of both individual entrepreneurs and small enterprises.

The SE development level in a particular region is described by a number of SE subjects, adjusted for population density in a region, a number of the employed in small business, and a revenue amount from sales of goods, works and services by SE subjects.

The approaches to construction of the integrated methods to assess the state of economic processes in a region are presented in many works [1; 15; 16; 17; 18]. According to the considered approaches, the calculation of an integral index requires selection of private indicators. Then by means of one of the three methods (rating, indicators normalization, maximin) local indices of their change are built, and a composite (integral) index is calculated on their basis.

Taking into account the fact that the rating method, although simple in calculation, does not adequately reflect interregional differences[6], and the indicators normalization method strongly depends on the state of initial regional indicators[7], quantitative assessment of the state of MP in the Russian regions was carried out by the maximin method, which showed its effectiveness in the assessment of economic processes dynamics, but was not used to date in evaluating the state of small business in regions.

Using the maximin method it is possible to calculate local indices for each region that quantitatively characterize a region's place on the normalized range of values by specific SE indicators for the analyzed territories, and then determine a composite index of a region by a SE development level and form the place (rank) of a region among all territories under consideration [15].

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[6] The indicators value, the rating is based on, may differ by hundredths, and the assigned points (places) — by a one, which makes it difficult to correctly analyze the dynamics of analyzed economic processes on the territory.

[7] Significant differences among regions by one indicator can strongly influence the integral index; it is acceptable only when the initial indicator is of key importance, but it is bad when other initial indicators are also significant.

The local index of a region for a specific indicator was calculated with regard to the fact that all indicators characterizing the state of SE have a positive dynamics, that is, the maximum value of a ranked indicator corresponds to the region's best position in the list ("the higher, the better"). As a result, the calculation of local indices is carried out by Formula 1:

$$R_{ir} = \frac{a_{ir} - a_i^{\min}}{a_i^{\max} - a_i^{\min}}, \qquad (1)$$

where R_{ir} is a local index of the *r*-th region ($r = \overline{1, n}$) by the *i*-th indicator of the state of small business ($i = \overline{1, m}$);

a_{ir} — a value of the *i*-th indicator of the state of small business in the *r*-th region;

$a_i^{\max}$ — a maximum value of the *i*-th indicator of the state of small business for the entire sample of regions;

$a_i^{\min}$ — a minimum value of the *i*-th para-meter of the state of small business for the entire sample of regions.

The local index is understood as a gap (lag) between a regional value of each selected indicator and a maximum value of this indicator among analyzed regions. This index varies from 1 to 0 (or from 100% to 0%). In the first case it corresponds to the region that has the best indicators of the SE state among all regions under consideration, in the second case — the region has the worst indicators.

The integral (composite) index of the SE state in the *r*-region (R_r) is equal to the sum of local indices of the *r*-th region divided by a total number of local indices, i.e., the integral index of the SE state in the *r*-region is calculated by Formula 2:

$$R_r = \frac{\sum_{i=1}^{m} R_{ir}}{m}. \qquad (2)$$

In general, the approach to integral assessment of the state of small business in regions can be illustrated by a multilevel "pyramid": first there goes a set of initial indicators, then — private indicators (local indices) leading to the "pyramid top" — a summary assessment of the index revealing the state of small business in a region.

Under the described method to assess small business' economic potential, the analysis of the state of small business in regions included a number of stages:

— formation of a initial indicators system for the years of 2010 and 2015, followed by their integration into larger thematic groups (blocks) characterizing economic condition of individual entrepreneurs and small business in the country and regions;

— on the basis of the maximin method calculation of local indices reflecting economic condition of both individual entrepreneurs (individuals) and small enterprises (legal entities) in regions;

— calculation of the integral (composite) index of the state of small business in regions on the basis of regional local indices, followed by RF subjects ranking by the state of small business.

In the work, when choosing initial indicators characterizing the state of individual entrepreneurs and small enterprises in regions, the author takes into account the observation period heterogeneity, including both a stable development stage and an acute phase of the 2014–2015 Russian economy crisis. Therefore, when conducting a regional analysis of the SE state, the author focuses on the volume characteristics associated with a number of small enterprises and individual entrepreneurs in a region, as well as an employees number in SE. The cost characteristics of the small business state, characterizing a volume of

revenue from sales of goods, works and services, are more susceptible to the influence of shadow economy and, as a result, suggest less reliability of the data. Therefore, for each of the 83 RF subjects[8] (n=83) for two years of observations (2010 and 2015) the author calculates 6 local indices of the state of SE (m=6)[9] by the maximin criterion. This helps conduct a quantitative assessment of the integral index of the SE state in each RF subject and identify the dynamics of a rank (place) occupied by a region among other Russian territories by the considered indicators.

Obtained results

At the first stage of the work the comparative analysis of the all-Russian trends in the state of small and average business is carried out on the basis of data of the 2010 and 2015 total surveys.

Despite the 2014–2015 crisis, the change (increase) in the threshold value to classify production as small and medium-sized enterprises over the observed period, led to a rise in the total number of SMEs from 4.6 million in 2010 to 5 million in 2015 (*tab. 3*).

However, individual entrepreneurs and small business owners reacted differently to the crisis. The crisis had a more noticeable impact on the activities of individual entrepreneurs; their number decreased in absolute and relative terms in 2010–2015. While in 2010 individual entrepreneurs accounted for 63.7% of the total number of SMEs, in 2015 their share went down to 55.5%.

Small enterprises, despite a rise in their number, were also not homogeneous in their response to the changing economic situation. Even in the pre-crisis period micro-enterprises dominated in the structure of small and medium-sized enterprises; their share exceeded 30.8% in 2010. In the crisis conditions the share of microenterprises in the total number of SMEs increased by 8.7 percentage points, amounting to 39.5% in 2015.

Table 3. Key characteristics of SMEs in Russia according to the total surveys

Category of SMEs	Structure of small and medium-sized businesses in Russia					
	by a number of SMEs		by a number of the employed		revenue from sales of goods, works and services	
	2010	2015	2010	2015	2010	2015
Total	4.6 million units	5.0 million units	19.1 million people	18.44 million people	30.84 trillion rubles	62.1 trillion rubles
Including: total, %	100	100	100	100	100	100
- individual entrepreneur	63.7	55.5	28.0	26.,7	14.6	12.2
- legal entity	36.3	44.5	72.0	73.3	85.4	87.8
including:						
- micro-enterprises	30.8	39.5	20.4	25.0	18.2	30.0
- small enterprises	5.0	4.6	38.1	36.5	43.2	41.1
- medium-sized enterprises	0.5	0.4	13.5	11.8	24.0	16.7
Source: calculated by [19; 20].						

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[8] The Republic of Crimea and Sevastopol were excluded from consideration in view of incomplete information for these regions.

[9] Calculations of local indices for each RF subject, together forming an integral index of the SE state of the regions, were based on the accounting of 3 indicators characterizing the state of individual entrepreneurs (density of individual entrepreneurs per 10 thousand residents; average number of employees and revenue from sales of goods, works and services) and 3 indicators describing the state of small enterprises (density per 10 thousand residents; average number of employees and revenue from sales of goods, works and services).

It would be wrong to attribute this state of affairs only to the crisis impact. This is largely due to the fact that "being small" is profitable in Russia. For this segment taxes are reduced, reporting is simplified and a number of state inspections is minimized. It can be assumed that microenterprises often simply do not seek to "grow" into small and medium-sized businesses [21]. This opinion is shared by the President of the Opora Rossii [Support of Russia] public organization of small and medium enterprises A. Kalinin, noting that "nowadays there are comfortable tax regimes for small businesses. But the transition to a new level is extremely difficult for "kids". If the business grows, then the enterprise has to pay taxes "as an adult". And not everyone is ready for this".

The structure of changes in the number of employees in small and medium-sized businesses also demonstrates its specifics. While a number of business entities went up, a number of the employed in small and medium-sized business of Russia went down from 19.1 million in 2010 and to 18.44 million in 2015. There occurred a noticeable shift in the direction of increasing a number of the employed at microenterprises (from 20.4 to 25%). This shift was caused by a decreased total number and share of employment in the rest categories of SMEs.

During the period under review the volume and share of revenue generated by microenterprises rose sharply in the total revenue of small business (from 18.2% in 2010 to 30% in 2015). As a result, according to the 2015 results, labor productivity at microenterprises exceeded productivity at small enterprises and amounted to more than 85% of labor productivity at medium-sized enterprises. In fact, this means that Russian small entrepreneurship is not a small business, but micro-entrepreneurship represented by

enterprises with up to 15 employees, whose economic health statistics are poorly monitored in the current regime.

At the second stage of the study the author takes into account that the regions forming the Russian Federation (RF federal districts and subjects) vary greatly in size, population and economic potential.

Extremely differentiated socio-economic conditions of Russian regions determine the uneven and multidirectional nature of small business development under the influence of a variety of local economic, social and political conditions. As a result, the response of individual entrepreneurs and small business owners to the changing economic situation in the period under review has a variety of trends.

There is a relatively homogeneous situation in federal districts in terms of the state of individual entrepreneurship. While in the country, as noted above, the number of individual entrepreneurs declined from 2.93 to 2.79 million (4.8%) in the period between total surveys, among federal districts only the Southern Federal District showed an increase in the number (19%) and density of individual entrepreneurs in 2010−2015. In the rest federal districts there was a decrease in both the total number of individual entrepreneurs and their density, similar to the all-Russian trend.

The general trend in individual entrepreneurship development in Russia is to reduce the scale of variation in the indicators characterizing its state (*tab. 4*) and the convergence of RF subjects by an individual entrepreneurship development level.

In terms of small enterprises the opposite trend was observed in 2010−2015: the number and density of small enterprises in all federal districts grew against the background of the increasing scale of variation in the indicators of an employee number and revenue from sales

Table 4. Variation of the state of individual entrepreneurs and small enterprises in Russian regions

Individual entrepreneurs (IE)			Small enterprises (legal entities)		
Indicator	2010	2015	Indicator	2010	2015
1. IE number per 10 thousand population (units)			1. Number of small enterprises per 10 thousand population (units)		
Average for the Russian Federation	204.8	190,5	Average for the Russian Federation	115.1	151.7
Maximum	395.1 (Altai Republic)	377.2 (Magadan Oblast)	Maximum	245.3 (Saint-Petersburg)	317 (Saint-Petersburg)
Minimum	63.6 (Moscow)	71.8 (Moscow)	Minimum	11.5 (Republic of Dagestan)	15.4 (Republic of Dagestan)
Variation scale	6.2	5.3	Variation scale	21.3	20.6
2. Average number of workers employed by 1 IE (people)			2. Average number of workers employed by 1 small enterprise (people)		
Average for the Russian Federation	1.83	1.79	Average for the Russian Federation	5.95	4.67
Maximum	3.4 (JAO)	3.0 (Republic of Ingushetia)	Maximum	9.9 (Pskov Oblast)	7.0 (ChAO)
Minimum	0.5 (Republic of Ingushetia)	0.98 (Republic of Dagestan)	Minimum	1,6 (Chechen Republic)	0.9 (Republic of Ingushetia)
Variation scale	6.8	3.1	Variation scale	6.2	7.8
3. Revenue from the sale of goods per 1 IE, million rubles			3. Revenue from the sale of goods per 1 small enterprises, million rubles		
Average for the Russian Federation	1.54	2.83	Average for the Russian Federation	11.51	19.85
Maximum	2.94 (JAO)	4.6 (Yaroslavl Oblast)	Maximum	19.81 (Moscow)	32.6 (Moscow)
Minimum	0.06 (Republic of Ingushetia)	0.76 (Republic of Dagestan)	Minimum	5.57 (Astrakhan Oblast)	4.31 (Republic of Ingushetia)
Variation scale	49	6.1	Variation scale	3.6	7.6
Calculated by [19; 20].					

of goods and services per small enterprise. The Central and Volga Federal districts were in the lead by a number of small enterprises throughout the period under review. A similar location of small enterprises in general fits into the overall picture of population and economy distribution in Russia.

The concentration of individual entrepreneurs and small enterprises by RF subjects is more diverse than by federal districts. More than half of small enterprises are concentrated in 12 RF regions. Moscow and Saint Petersburg are leaders in the number of small enterprises throughout the period (*Tab. 5*). At the same time, individual entrepreneurship at the level of Federation subjects is less concentrated in comparison with the placement of small enterprises. The leading regions are located in the South of Russia (Krasnodar Krai, Stavropol Krai and the Rostov Oblast).

The current distribution of small business by regions is both objective and subjective in Russia as a whole. The latter includes a lack of national regional policy and plurality of the RF subjects that have considerable rights to organize a local legal and economic environment [1; 12; 17]. This has led to the fact the opportunities are used in some regions and not used in others.

Table 5. Russian regions leading by a number of small businesses

Indicator	Individual entrepreneurs		Small enterprises	
	2010	2015	2010	2015
Regions leading by a number of small businesses (in brackets – a number of small businesses in the region, thousand units)	Krasnodar Krai (176) Rostov Oblast (106) Stavropol Krai (87.8)	Krasnodar Krai (196) Rostov Oblast (117) Moscow Oblast (97)	Moscow (202) Saint Petersburg (119) Moscow Oblast (68)	Moscow (295) Saint Petersburg (166) Sverdlovsk Oblast (87)
Number of regions concentrating more than half of the number of small businesses	21	18	12	12
Source: compiled by [19; 20].				

At the third stage the author analyzes the dynamics of change in the integral (composite) index of the SE state in RF subjects: on the basis of the maximin criterion the local indices of the state of SE in regions are calculated by Formula 1, then the main trends in the development of individual entrepreneurship and small enterprises by Formula (2) are reduced into the integral index of the state of small business in regions.

The integral (composite) index of a particular region is a comparative index showing the state of SE in comparison with other RF subjects and assessing the quantitative proximity of regions to the state of the SE system, measured in percentage points of approximation to the possible ideal state. To analyze the dynamics of integral indices of the SE state in Russian regions and rank regions by a SE development level the author uses a six-tier scale (*Tab. 6*), which helps identify 6 groups of RF subjects that have different levels of small business development:

— Groups I–II comprise regions with the most developed SE, where the integral rating is more than half of the best (ideal) state;

— Group VI includes regions with the worst SE development index (0 to 30%);

— Groups III–V comprise regions occupying intermediate position in the integral rating of small business.

It should be noted that among regions there is no best and worst region in terms of the small business parameters (in the first case, the integral index of a region would be 100%, in the second – 0%).

As the table data show, in general, in 2010–2015 the differentiation of regions increased against the background of the crisis. The number of RF subjects in Group II went up from 25 to 36: the integral index exceeded 50% of its best (ideal) state. At the same time the number of problem regions, with the rating of the SE state of MP being within 15.3–29.2%, increased from 3 to 5. The number of regions that occupied an intermediate position in terms

Table 6. Classification of RF subjects by groups by a SE development degree

Group number	Intervals of integral rating values of the SE state by groups (%)	Number of RF subjects in the group	
		2010	2015
Group I	100–60	2	2
Group II	60–50	25	36
Group III	50–45	23	18
Group IV	45–40	21	15
Group V	40–30	9	7
Group VI	30–0	3	5

Table 7. Calculated values of the integral indices of a SE development level (in %)
and grouping of RF subjects in accordance with the index value

Region	2010		2015		Deviation of the 2015 index from 2010 (p.p.)
	Integral index	Group	Integral index	Group	
(1)	(2)	(3)	(4)	(5)	(6)=(4)-(2)
Russian Federation	**46.4**		**49.0**		**2.6**
Central Federal District	**50.8**		**53.9**		**3.1**
Belgorod Oblast	48.6	3	57.6	2	9.0
Bryansk Oblast	45.7	4	49.0	3	3.3
Vladimir Oblast	49.7	3	51.4	2	1.7
Voronezh Oblast	56.9	2	61.5	1	4.6
Ivanovo Oblast	49.2	3	53.6	2	4.4
Kaluga Oblast	52.3	2	52.0	2	-0.3
Kostroma Oblast	63.0	1	66.8	1	3.8
Kursk Oblast	50.2	2	50.7	2	0.5
Lipetsk Oblast	51.4	2	54.9	2	3.5
Moscow Oblast	47.5	3	46.7	3	-0.8
Orel Oblast	44.1	4	51.7	2	7.6
Ryazan Oblast	52.5	2	54.3	2	1.8
Smolensk Oblast	50.0	3	56.7	2	6.7
Tambov Oblast	53.3	2	56.8	2	3.5
Tver Oblast	48.6	3	45.0	3	-3.6
Tula Oblast	44.1	5	44.0	4	-0.1
Yaroslavl Oblast	47.5	3	59.2	2	11.7
City of Moscow	52.0	2	56.9	2	4.9
Northwestern Federal District	**46.9**		**53.2**		**6.3**
Republic of Karelia	43.4	4	38.3	5	-5.1
Republic of Komi	51.0	2	48.9	3	-2.1
Nenets Autonomous Okrug	51.0	2	46.1	3	-4.9
Arkhangelsk Oblast	56.2	2	56.2	2	0.0
Vologda Oblast	52.5	2	55.7	2	3.2
Kaliningrad Oblast	47.5	3	52.7	2	5.2
Leningrad Oblast	44.7	4	41.6	4	-3.1
Murmansk Oblast	46.6	3	44.4	4	-2.2
Novgorod Oblast	47.0	3	43.2	4	-3.8
Pskov Oblast	49.7	3	43.5	4	-6.2
Saint-Petersburg	44.6	4	59.1	2	14.5
Southern Federal District	**44.6**		**46.4**		**1.8**
Republic of Adygea	40.2	4	41.1	4	0.9
Republic of Kalmykia	34.1	5	33.3	5	-0.8
Krasnodar Krai	43.6	4	51.1	2	7.5
Astrakhan Oblast	41.0	4	43.2	4	2.2
Volgograd Oblast	42.0	4	39.1	5	-2.9
Rostov Oblast	51.0	2	50.7	2	-0.3
North Caucasian Federal District	**31.9**		**34.4**		**2.5**
Republic of Dagestan	17.0	6	15.3	6	-1.7
Republic of Ingushetia	16.3	6	28.6	6	12.3
Republic of Kabardino-Balkaria	39.7	5	19.5	6	-10.2
Republic of Karachay-Cherkessia	30.6	5	26.5	6	-4.1
Republic of North Ossetia – Alania	34.2	5	29.2	6	-5.0
Republic of Chechnya	18.9	6	50.9	2	32.0

End of Table 7

Region	2010		2015		Deviation of the 2015 index from 2010 (p.p.)
	Integral index	Group	Integral index	Group	
(1)	(2)	(3)	(4)	(5)	(6)=(4)-(2)
Stavropol Krai	44.1	4	46.7	3	2.6
Volga Federal District	**47.0**		**47.4**		**0.4**
Republic of Bashkortostan	45.2	3	48.4	3	3.2
Republic of Mari El	46.4	3	44.5	4	-1.9
Republic of Mordovia	48.8	3	42.4	4	-6.4
Republic of Tatarstan	49.5	3	47.8	3	-1.7
Republic of Udmurtia	44.2	4	52.5	2	8.3
Republic of Chuvashia	43.2	4	41.2	4	-2.0
Perm Oblast	59.1	2	50.4	2	-8.7
Kirov Oblast	55.3	2	53.6	2	-1.7
Nizhny Novgorod Oblast	56.6	2	53.5	2	-3.1
Orenburg Oblast	37.7	5	44.2	4	6.5
Penza Oblast	51.3	2	58.6	2	7.3
Samara Oblast	41.7	4	39.4	5	-2.3
Saratov Oblast	38.2	5	45.8	3	7.6
Ulyanovsk Oblast	44.5	4	41.9	4	-2.6
Ural Federal District	**48.6**		**49.2**		**0.5**
Kurgan Oblast	48.5	3	47.6	3	-0.8
Sverdlovsk Oblast	51.6	2	55.5	2	3.9
Khanty-Mansi AO – Yugra	53.3	2	42.0	4	-11.3
Yamalo-Nenets Autonomous Okrug	50.6	2	47.9	3	-2.7
Tyumen Oblast	46.2	3	42.9	4	-3.3
Chelyabinsk Oblast	47.3	3	49.2	3	1.9
Siberian Federal District	**43.3**		**45.5**		**2.2**
Altai Republic	42.9	4	39.8	5	-3.1
Republic of Buryatia	40.6	4	46.5	3	5.9
Republic of Tuva	34.0	5	33.0	5	-1.0
Republic of Khakassia	49.2	3	47.5	3	-1.7
Altai Krai	44.7	4	45.2	3	0.5
Zabaikalsky Krai	41.1	4	51.5	2	10.3
Krasnoyarsk Oblast	48.2	3	44.3	4	-3.9
Irkutsk Oblast	45.6	3	50.0	3	4.4
Kemerovo Oblast	42.6	4	39.6	5	-3.0
Novosibirsk Oblast	41.1	4	46.1	3	5.0
Omsk Oblast	47.6	3	50.0	3	2.4
Tomsk Oblast	43.6	4	46.0	3	2.4
Far Eastern Federal District	**51.1**		**55.5**		**4.4**
Republic of Sakha (Yakutia)	47.2	3	50.8	2	3.6
Kamchatka Krai	58.2	2	56.6	2	-1.6
Primorsky Krai	50.3	2	58.8	2	8.5
Khabarovsk Krai	50.0	2	55.1	2	5.1
Amur Oblast	56.3	2	55.8	2	-0.5
Magadan Oblast	61.6	1	58.9	2	-2.7
Sakhalin Oblast	58.2	2	59.3	2	1.1
Jewish Autonomous Okrug	59.3	2	55.6	2	-3.7
Chukotka Autonomous Okrug	34.4	5	55.3	2	20.9
Sources: calculated by [19; 20].					

of SE development (Groups III-V) decreased from 53 to 40.

The general dynamics of changes in the integral (composite) index of the SE state by federal districts (FD) and RF subjects is presented in *Table 7*.

According to the data in Table 7, all federal districts improved the situation with small business in 2015 compared to 2010, but the rate of change in the situation with small business differed by macro-regions.

The best values were demonstrated by the Northwestern, Far Eastern and Central Federal districts (increase by 6.3, 4.4 and 3.1 p.p., respectively over the period); it allowed the Far Eastern and Central Federal districts to maintain the primacy among macroregions, and the Northwestern – to enter the top three in terms of SE. The North Caucasian, Siberian and Southern Federal districts showed growth of 2.5, 2.2 and 1.8 percentage points, but remained in the closing three (8, 7 and 6 places among macro-regions, respectively). The Volga and Ural Federal districts with a minimum growth of 0.4 and 0.5 percentage points took 5th and 4th place among Russian regions.

In other words in 2016 the group of macro-regions with relatively favorable conditions for small business development included the Northwestern, Central and Far Eastern Federal districts, where the integral index of SE development was 53.2, 53.9 and 55.5%, respectively. At the same time, if the leadership of the Central and Northwestern Federal districts is not in doubt, since its formation is influenced by the state of small business in the capital cities (Moscow and Saint Petersburg), the high index of SE development in the Far East of Russia requires clarification. To do this, we consider the situation with SE development in RF subjects, as the state of SE in federal

districts is determined by its state in constituent entities of the Federation.

In 2016 of 83 studied RF subjects 43 regions are characterized by the improved state of economic entities, estimated by the integral index of the SE state, and 40 regions – by the worsened.

Throughout the analyzed period the first place among RF subjects in terms of SE development was occupied by the Kostroma Oblast, and the most difficult situation with small business development was observed in the North Caucasus (in the republics of Ingushetia, Dagestan, Kabardino-Balkaria, Karachay-Cherkessia, North Ossetia-Alania).

At the same time, the dynamics of changes in the integral index of small business in RF subjects was characterized by two different trends.

A number of regions managed to dramatically improve the state of SE on its territory (for example, the Chechen Republic increased its index by 32 p.p. over five years, Chukotka Autonomous Okrug – 20.9 p.p. Saint Petersburg – 14.5 p.p.); in other areas the index reduced, although not as drastically (Khanty-Mansi Autonomous Okrug – Yugra by 11.3 p.p., the Republic of Kabardino-Balkaria – by 10.2 p.p., Perm Krai – by 8.7 p.p.).

The issue to identify sources of occurred changes deserves to be considered on its own.

It can be assumed that the improvement/deterioration of the situation with SE in RF subjects is due to the impact of market mechanisms or command-and-control methods, including "budget injections". To draw a conclusion about the real impact of certain mechanisms on SE development is only possible with a detailed analysis of the situation in each region, as there are subsidized (the republics of Chechnya and Ingushetia,

Chukotka Autonomous Okrug) and self-sufficient (Saint Petersburg and the Yaroslavl Oblast) RF subjects leading by the growth of the integral indicator of SE development. A similar situation is typical for regions with a sharply worsened situation, such as Khanty-Mansy Autonomous Okrug – Yugra and the Republic of Kabardino-Balkaria, Perm Krai and the Pskov Oblast, the Republic of Karelia and the Republic of North Ossetia-Alania.

During the period under review, the Chechen Republic changed the SE state index by 32 p.p., which allowed it to rise from Group VI to Group II over five years, making a "jump" from the 81st place to the 33d by the state of SE. It can be assumed that such a violent spurt of small business in the Chechen Republic is due to the achievement of certain stability in terms of combating the threat of terrorism and suppressing the activities of illegal armed groups, which were either defeated or moved to the mountainous areas of neighboring republics. Accordingly, business climate in the Republic improved, as the situation related to the counter-terrorist operation regime stabilized. Only one indicator is confusing: the number of small enterprises in the period under review went down by almost 20%, while the average number of employees and turnover of enterprises went up significantly (by 2.9 and 2.4 times, respectively). It can be concluded that there is a trend towards consolidation of small enterprises and displacement of enterprises with a small number of employees from the local market in the Chechen Republic.

It should be borne in mind that Chechnya, as well as the above-mentioned Ingushetia and Chukotka Autonomous Okrug, which have dramatically improved SE development indicators, are subsidized regions. It is necessary to determine how the current command and administrative system is able to solve small business' problems at the local level. Thus, there is a known precedent when Ramzan Kadyrov instructed the Republic Government to bring small business lending to the all-Russian common denominator. Just after 2 days after the Order, the Chechen Branch of Rosselkhozbank officially announced that its loan portfolio in the small business segment amounted to 1.9 billion rubles [17].

The situation with small business in the Russian Federation fits into the general pattern – the farther from the center, the larger small enterprises and the greater their turnover. This largely determines high comparative indices of SE development in the Far Eastern regions of the Federation and in the Far East as a whole. Given the high base of 2010 and the fact that all the Far Eastern subjects could either maintain their place in Group II or enter it, the Far East was the only federal district with such a uniform regional distribution of SE state indicators. It is this uniformity, when the integral rating was higher than 50% in all Far East regions, that presupposes a relatively successful image of small business in the Far East.

Conclusion

The article shows that Russian small entrepreneurship is mainly composed of micro-enterprises represented by organizations employing up to 15 people. However, it is insufficiently covered by official statistical observations.

The study reveals that more than half of the country's small enterprises are concentrated in 12 RF subjects. As a result, the dynamics of a small business sector in Russia as a whole depends crucially on its state in leading regions. At the same time, individual entrepreneurship is less concentrated geographically and generally more sensitive to changes in the economic situation in the country than a sector of small enterprises.

The group of macro-regions with relatively favorable conditions for the development of small business includes the Central, North-western and Far Eastern Federal districts. In 2016, according to the integral rating of the state of small business, of the 83 reviewed subjects the improved state of business entities was observed in 43 regions and the deteriorated — in 40.

The article discloses that Russian entrepreneurship is characterized by significant regional differences in quantitative parameters, including with regard to a time component, which indicates a large differentiation between regions by a small business development level. The 2014—2015 crisis in the constituent entities of the Federation had a different impact on the behavior of individual entrepreneurs and small business owners. While in the small business sector it is possible to talk about grown differentiation of Russian regions over 2010—2015, the individual entrepreneurship sector tended to territorial convergence by the state of its main characteristics. In general, the situation with small business in Russia fits into the general pattern — the farther from the center, the larger small enterprises and the greater their turnover.

Small business in Russian regions is at a certain bifurcation point, presenting a rather contradictory regional structure as a result of constant changes and often economically illogical transformations. Development of small business and convergence of regions by this indicator is one of the ways to reduce inter-regional differentiation. Priority assistance to small businesses in the short and long term can and should be provided by the state.

State support for small business should become a lever of regional policy. Now regions have no incentives to boost small business development. The federal center can motivate RF subjects in case of positive dependence of the amount of received subsidies and transfers on their success in collecting taxes from SE enterprises [12]. If the volume of subsidies and transfers does not decrease with the increase in taxes coming from small businesses, the regional authorities will gain real incentives for small entrepreneurship development on their own territories. At the same time, the comprehensive program for support and protection should be supplemented by targeted activities to improve SE.

Since, according to existing studies, the number of small enterprises in a particular region is largely determined by a sectoral structure [4; 22] and a level of interaction between government and business structures [23; 24], the institutions of regulatory impact assessment become important mechanisms for improving business climate in regions. The issue to enhance the quality of state regulation in the SE sphere should be taken into account when working out a package of documents regulating strategic planning in Russia. The search for adequate solutions to these problems will be a further research direction.

References

1. Basareva V.G. *Malyi biznes Rossii: teoreticheskie osnovy issledovaniya, modelirovanie, kontseptsiya gosudarstvennogo regulirovaniya* [Small Business of Russia: Theoretical Bases of Research, Modeling, State Regulation Concept]. Novosibirsk : IEOPP SO RAN, 2013. 296 p. (In Russian).

2. Dobbs M., Hamilton R.T. Small business growth: recent evidence and new directions. *International Journal of Entrepreneurial Behavior and Research*, 2007, vol. 13, no. 5, pp. 296-322. Available at https://doi.org/10.1108/13552550710780885

3. Bukhval'd E.M. The strategy for development of small and medium entrepreneurship in russia till 2030: ambitions and realities. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 2016, no. 1 (43), pp. 66-80. (In Russian).

4. *O sostoyanii malogo i srednego predprinimatel'stva v gosudarstvakh-uchastnikakh SNG (informatsionno-analiticheskii obzor)* [On the State of Small and Medium-Sized Enterprises in the CIS Member States (Information and Analytical Review)]. Moscow, 2015. 170 p. (In Russian).

5. Davidsson P., Lindmark L., Olofsson C. Entrepreneurship and economic development: the role of small firm formation and expansion for regional economic well-being. *Journal of Enterprising Culture*, 1994, vol. 1, no. 3, pp. 347-365. DOI: 10.1142/S0218495894000045

6. Fritsch M. How does new business formation affect regional development? Introduction to the special issue. Small Business Economics, 2008, vol. 30, pp.1-14.

7. Ostapkovich G.V., Lola I.S., Kitrar L.A. Trends in post-crisis development of small industrial organizations in Russia. *Ekonomicheskii zhurnal VShE=The HSE Economic Journal*, 2014, no. 1, pp. 133-155. (In Russian).

8. Drucker P.F. *Innovation and Entrepreneurship: Practice and Principles.* 1985, New York: Harper and Row. 277 p.

9. Leonov S.N., Domnich E.O. State innovation policy of China. *Vestnik Tikhookeanskogo gosudarstvennogo universiteta=Bulletin of Pacific National University*, 2010, no. 2, pp. 167-177. (In Russian).

10. *European Commission. Impact of the Current Economic and Financial Crisis on Potential Output: Occasional Papers No. 43.* Brussels : EC DG ECFIN, 2009. 87 p. Available at: http://ec.europa.eu/economy_finance/publications/pages/publication15479_en.pdf. DOI: 10.2765/44883

11. *Entrepreneurship at a Glance 2014.* OECD, 15 July 2014, 108 p. Available at: http://dx.doi.org/10.1787/entrepreneur_aag-2014-en

12. Basareva V.G. Small business in the system of measures to restore the economic growth trajectory. *Problemy Prognozirovaniya=Studies on Russian Economic Development*, 2017, no. 5, pp. 79-87. (In Russian).

13. *Financing SMEs and Entrepreneurs 2016: An OECD Scoreboard*. OECD Publishing, Paris, 2017. Available at: http://dx.doi.orq/10.1787/fin_sme_ent-2016-33-en

14. *US Small Business Administration. Size Standards*. Available at: https://www.sba.gov/federal-contracting/contracting-guide/size-standards

15. Barabash E.S., Leonov S.N. *Mezhmunitsipal'noe vzaimodeistvie: potentsial i mekhanizm realizatsii* [Inter-Municipal Cooperation: Potential and Implementation Mechanism]. Khabarovsk : RINTs KhGAEP, 2013. 188 p. (In Russian).

16. Kuznetsova O.V., Kuznetsov A.V. *Sistemnaya diagnostika ekonomiki regiona* [System Diagnostics of the Regional Economy]. Moscow : KomKniga, 2016. 232 p. (In Russian).

17. Mamchits R. *Reiting regionov po dinamike razvitiya malogo biznesa* [Rating of Regions by Dynamics of Small Business Development], 2017. Available at: https://www.if24.ru/rejting-regiony-malyi-biznes (In Russian).

18. Roi O.M., Breusova A.G. *Strategicheskoe territorial'noe upravlenie : biznes-strategii territorial'nykh obrazovanii* [Strategic Territorial Management: Business Strategies of Territorial Entities]. Omsk : Izd-vo Omskogo gos. un-ta, 2009. 244 p. (In Russian).

19. *Itogi sploshnogo nablyudeniya za deyatel'nost'yu sub"ektov malogo i srednego predprinimatel'stva v 2010 godu* [Results of the Total Monitoring of the Activity of Subjects of Small and Medium-Sized Business in 2010]. Available at: (http://www.gks.ru/free_doc/new_site/business/prom/small_business/itog-spn.html) (In Russian).

20. *Sploshnoe nablyudenie za deyatel'nost'yu malogo i srednego biznesa za 2015 god* [Total Monitoring of the Activities of Small and Medium-Sized Businesses in 2015]. Available at: (http://www.gks.ru/free_doc/new_site/business/prom/splosh.html) (In Russian).

21. *Malyi biznes Rossii v 2014–2017 godakh. Statistika i mnenie predprinimatelei* [Small Business in Russia in 2014-2017. Statistics and Opinion of Entrepreneurs]. Available at: http://news.potok.digital/special/malyy_biznes_rossii.html#vyvody (In Russian).

22. Fritsch M. New firms and regional employment change. *Small Business Economics*, October 1997, vol. 9, no. 5, pp. 437-448. Available at: https://doi.org/10.1023/A:1007942918390

23. Shokhin A.N. (Ed.). *Biznes i vlast' v Rossii: teoriya i praktika vzaimodeistviya* [Business and power In Russia: Theory and Practice of Interaction]. Moscow : Izd. dom Vysshei shkoly ekonomiki, 2011. 349 p. (In Russian).

24. Leonov S.N., Vakulyuk E.A. The efficiency of the interaction between the government and business structures: the content of the definition and experience of its quantitative assessment. *Izvestiya Baikal'skogo gosudarstvennogo universiteta=Bulletin of Baikal State University,* 2018, vol. 28, no. 3, pp. 481-490. DOI: 10.17150/2500-2759. 2018. 28(3). 481-490. (In Russian).

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Sustainable Development in Russia's Northern Regions: Labor Dimension*

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Abstract. The article points out that sustainable development is not the ultimate goal, but a dynamic process of adaptation, cognition and activity. We show that the transition to sustainable development is preconditioned by historical circumstances; we reveal the chronology of the concepts of sustainable development from the Brundtland Report to the 2030 Agenda. We analyze six international systems of sustainable development indicators; each of the systems contains social-labor indicators and indicators of living standards. We emphasize that the common disadvantage of all the systems is that their indicators are poorly adapted to Russian statistics. We consider it important to establish a set of labor indicators and develop a methodology to assess sustainable development. The novelty of our research lies in fact that we use our own approach to the assessment of sustainable development with the use of labor indicators. Labor stability is estimated according to four factors that include twelve labor indicators. On the basis of an expert survey, we determine the impact of each labor factor and indicator on sustainable development. We calculate the integral index of labor stability, and use it to rank all the Northern regions according to the degree of stability: critical, low, medium, high. The results obtained allow us to conclude that labor stability in the Northern regions increased significantly from 2000 to 2015; there is no region with a critical degree of labor stability, it is low only in Tuva, and five regions have a high degree of stability. At the first stage of the research, we propose a method for assessing demographic stability using two approaches: ranking regions on the basis of demographic indicators and on the basis of an integral index. It is planned to develop a methodology for forecasting sustainable development based on demographic and labor indicators. The main provisions and conclusions of the paper can be used as a theoretical and methodological basis for determining sustainable development at different levels of administration.

Key words: Northern regions, sustainable development, labor indicators, labor stability.

Introduction

The problem of sustainable development of civilizations, societies, countries, and peoples was considered by ancient thinkers and our contemporaries, representatives of different branches of knowledge. In the modern sense, sustainable development comes to the fore due to a number of circumstances.

The first one is a report *The Limits to Growth* (1972) prepared by the Club of Rome. The authors of the study concluded that if the current trends of world population growth, industrialization, environmental pollution, food production and resource depletion remain unchanged, then the limits to growth on our planet will be reached within the next 100 years.

The second one is a report *Our Common Future*[1] prepared by the UN World Commission on Environment and Development. It has expanded the concept of sustainable development beyond environmental issues to include the study and assessment of social aspects at the national and international level. The report for the first time introduced the basic formulation: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs". It contains the key idea of sustainable development as a balance between generations.

The third one is the UN conference in Rio de Janeiro (1992), with the help of which the study and assessment of sustainable development was launched on a planetary scale. It defined 27 principles of conduct for the world community in the field of environmental protection and development[2].

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[1] Report of the World Commission on Environment and Development: Our Common Future. 1987. Available at: http://www.un-documents.net/our-common-future.pdf

[2] Report of the United Nations Conference on Environment and Development. Rio de Janeiro, June 3–14, 1992. Volume I. Resolutions adopted at the UN Conference. New York, 1993. Pp. 3–7.

The fourth circumstance includes two important UN documents: the Millennium Declaration (2000) that contains eight development goals to be achieved up to 2015 and 21 targets[3], and the document entitled *Transforming our World: the 2030 Agenda for Sustainable Development*, which defined 17 goals and 169 targets for sustainable development. Many of the goals are closely linked to labor processes, such as poverty eradication, hunger eradication, good health and well-being, quality education, gender equality, decent work and economic growth, and reducing inequality[4].

Russia, like the rest of the world community, supports sustainable development principles; it is reflected in the presidential decree "On the concept of transition of the Russian Federation to sustainable development" (1996). The concept notes that Russia's transition to sustainable development is possible only if the sustainable development of all its regions is ensured[5].

In the context of the above documents, sustainable development (SD) should be understood not as an end goal, but as a dynamic process of adaptation, learning, and action. It is the process of identifying, exploring and using the relationships — especially those that exist between the economy, society, and natural environment. It is important to define a set of indicators and develop a methodology for assessing sustainable development.

Russian scientific literature contains a number of works reflecting the features and importance of application of sustainable development principles. Such works include [1; 2; 3; 4]. They describe in sufficient detail the theoretical and methodological issues of sustainable development and methodological approaches to the concept of "sustainability". However, no one assessed sustainable development of territories on the basis of labor indicators alone. We know only one such work by K. van Treeck. It proposes to assess sustainable development from the perspective of labor factors. The approach is to estimate the share of employment income in gross domestic product, that is, the share of income related to labor. The indicator aims to achieve a goal of sustainable development — "decent work for all". High-income work is seen as a way out of poverty and a means to reduce income inequality. However, this approach has its drawbacks. It considers sustainability only from a single perspective and ignores the sectoral structure of employment, gender inequality, and many other important drivers of sustainability [5].

The goal of our paper is to offer a methodology for assessing sustainable development of the northern regions on the basis of labor indicators.

The object of our covers 13 regions that are officially defined as regions of the Far North and areas equated to them.

The subject of the study is the assessment of the degree of labor stability in the northern regions with the allocation of critical, low, medium and high degrees.

Information base consists of the data of the Federal State Statistics Service of Russia (Rosstat) for 2000–2015 and the results of an expert survey in 2017. We chose the year 2000 as the base year, since there is no complete information on the selected labor indicators for the previous years.

We provide the results of ranking the northern regions according to the level of sustainable development on the basis of labor indicators.

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[3] United Nations Millennium Declaration. . Resolution adopted by the General Assembly September 18, 2000. Available at: http://www.un.org/ru/documents/ods.asp?m=A/RES/55/2

[4] Transforming our World: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly September 25, 2015. Available at: http://unctad.org/meetings/en/SessionalDocuments/ares70d1_ru.pdf

[5] About the concept for transition of the Russian Federation to sustainable development: Decree of the President of the Russian Federation No. 440 dated April 1, 1996. Reference-legal system "ConsultantPlus".

Sustainable development indicators

Agenda 21, a UN action plan, encourages all countries and international organizations to develop the concept of sustainable development indicators (SDI). And the coordination of activities for the wide use of SDI should be carried out under the leadership of the United Nations Statistics Division, since this Division accumulates new experience in this sphere[6]. The first set of indicators for sustainable development goals was recommended by the UN Commission on Sustainable Development (UNCSD) in 1993 and included 132 indicators[7]. It was first published in 1995. Subsequently, this set was revised in 2001 and 2006. The set of indicators proposed by UNCSD is not mandatory and is not based on a single statistical database. It is intended to provide a common starting point to work out national sets of sustainable development indicators[8].

World experience in the development of SDI has shown that there are two approaches to their construction. The first approach is to build a system of indicators, each of which reflects different aspects of SD. Most often, the environmental, economic, social, and institutional subsystems of indicators are singled out within the framework of the common system. According to the recommendations of the Conference of European Statisticians (CES), the measurement system can be based on conceptual thinking, scientific literature and theoretical ideas about "sustainability", "development", preservation of the object's

sustainability, etc. The set of SDI can also be designed to assess areas that are considered most important for policy makers and other stakeholders.

The second approach is related to the construction of an integral, aggregated indicator, on the basis of which it is possible to judge the degree of sustainability of socio-economic development. The aggregation is usually done on the basis of three groups of indicators: environmental and economic, ecological and socio-economic, and environmental [6, p. 128]. In addition to indicators, satellite accounts are used (they are the tools for additional analysis of certain important aspects of economic and social development of society based on the approach of the system of national accounts) are used to assess sustainable development.

Comprehensive indicators developed in the 1990s by a number of economists were based on the results of the work initiated in the 1960s and the 1970s; they include such indicators as the index of sustainable economic welfare [7] genuine progress indicator [8], the index of economic well-being [9], true savings [10], and sustainable net benefit index [11].

During this period, other complex indicators emerged. The telling example is the Human Development Index (HDI), which is published annually by the United Nations Development Program (UNDP) and is calculated as a weighted average of economic, educational and health indicators. Another important indicator that appeared during this period is Ecological Footprint, which characterizes the area of biologically productive territory and water area necessary for the production of resources used by people and for the absorption of waste [12]. Other examples of complex indicators are the happy planet Index (international happiness index), the sustainable society index, and the Living Planet Index (LPI).

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[6] Report of the United Nations Conference on Environment and Development. Rio de Janeiro, June 3–14, 1992. Volume I. Resolutions adopted at the UN Conference. New York, 1993. P. 505.

[7] Indicators of Sustainable Development. UN Department for Policy Coordination and Sustainable Development, 1994.

[8] *Recommendations of the Conference of European Statisticians on measuring sustainable development*. New York and Geneva: UN, 2014. 208 p. Available at: http://www.cisstat.com/sdgs/ECE_CES_31_Rus.pdf

There are indicators that became known in the 1990s and 2000s and are based on the measurement of people's subjective well-being. These indicators are calculated on the basis of estimates of people's satisfaction with their lives or their feelings about recent events in their lives [13]. Although such subjective assessments have been discussed by economists since the early 1970s [14], this area has received a significant impetus to development in the latest decade [15; 16].

Since the mid-1990s, an increasing number of national statistical offices and international organizations have been using sets of indicators to assess sustainable development. When such an approach is used, then the multidimensional nature of sustainable development is not limited to a single assessment, but is represented by a wide range of indicators that provide information on various aspects of sustainable development. An important criterion for selecting SD indicators is their compliance with the quality standards of official statistics[9].

Labor factors in the assessment of sustainable development are usually considered within the social unit of system indicators of sustainable development either in individual studies of social sustainability, that is, the studies in which the emphasis is placed on social rather than economic and environmental pillars of sustainable development. Different theoretical approaches to social sustainability highlight different indicators [17, p. 46]. Thus, the theories of justice are aimed at measuring different types of inequality: territorial, sectoral, gender, intergenerational, etc. Proponents of the capital approach measure human, labor and social capital indicators: qualitative characteristics of the population, investments in knowledge, skills and health, and the

measures of social cohesion. Proponents of the institutional theory use indicators of the functioning of social institutions. Researchers studying corporate relations use indicators of corporate social responsibility.

In the first set (1993), all indicators are divided into three categories according to their target orientation: indicators that are a driving force that characterizes human activities, processes and characteristics that affect sustainable development; indicators of the state that characterize the current state of various aspects of sustainable development; response indicators that allow for a political or other kind of response to change the current state.

The group of social indicators included in the *combating poverty* block contains labor indicators: employment growth rate (%); ratio of average female wage to male wage; population living in absolute poverty (%); and ratio of income of the richest to the poorest. In other blocks, we can also point out indicators related to labor: women per 100 men in the labor force; ratio of income to residential rental payment; proportion of the undernourished (%) [18, pp. 9-15].

In 2007, the UN publishes a report headlined *Indicators of Sustainable Development*: Guidelines and *Methodologies*, which contains two blocks with a set of labor indicators. The *Poverty* block includes the following indicators: proportion of population living below national poverty line; proportion of population below 1 USD per day; the ratio of share in national income of highest and lowest quintile. The *Employment* block includes employment-to-population ratio; vulnerable employment; labor productivity and unit labor cost; share of women in wage employment in the non-agricultural sector[10].

[9] *Recommendations of the Conference of European Statisticians on measuring sustainable development*. New York and Geneva: UN, 2014. Pp. xv, 12-13, 15. Available at: http://www.cisstat.com/sdgs/ECE_CES_31_Rus.pdf

[10] Indicators of Sustainable Development: Guidelines and Methodologies, UN. 2007. Available at: https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=108&menu=1515

Since 2008, the official list of indicators of the Millennium Development Goals in the framework of the UN Millennium Declaration has been in force. The indicators for monitoring the progress include labor indicators: GDP growth per employed person; employment rate; proportion of employed population below 1.25 USD per day (PPP values); proportion of contributing family workers and own-account workers in employed population. Poverty eradication indicators include: proportion of the population with an income of less than 1.25 USD per day at purchasing power parity; poverty rate (the share of the poor and the extent of poverty); and the share of the poorest 20% in the structure of consumption. Labor indicators can include gender equality indicators such as the share of women in wage employment in the non-agricultural sector; and the proportion of seats held by women in national parliament[11].

The Conference of European Statisticians (CES) made a significant contribution to the development of SDI. It proposed three sets of indicators: a large set based on a conceptual classification (60 indicators), a large set based on a thematic classification (90 indicators), and a small set based on a thematic classification (24 indicators)[12]. The Organization for Economic Cooperation and Development (OECD) has developed a system of 131 indicators that measure positions of Western countries in achieving these goals[13]. There are many other

systems of indicators developed by different agencies.

The set of SDI in Russia is approved by the Resolution of the Government of the Russian Federation according to which the federal plan of statistical works is supplemented with the subsection "Indicators for achieving sustainable development goals of the Russian Federation". The sub-section includes 90 indicators for achieving sustainable development goals in Russia[14].

For the purposes of comparative analysis at the intergovernmental and domestic levels, all indicators must meet certain criteria:

1. Compliance with sustainable development goals. Each set of indicators should reflect all the most significant aspects of development of the labor market in a country or territory and should be related to sustainable development. Labor indicators should describe income, level and structure of employment, as well as other important characteristics of social and labor relations.

2. Non-redundancy. The set of labor indicators should correspond to the methodological principle of W. Occam: "Entities are not to be multiplied beyond necessity". Indicators should not duplicate the meaning of each other and characterize the same processes.

3. Data availability. Reliable values of all statistical indicators or results of sociological research needed to determine the values of indicators should be available.

4. Taking into account international and Russian experience. In order to ensure comparability with the results of international studies, it is necessary to apply those indicators that have already been successfully used by major international organizations that study sustainable development.

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[11] The official list of indicators for the development goals contained in the Millennium Declaration. UN Statistics Division. 2008. Available at: http://mdgs.un.org/unsd/mdg/Resources/Attach/Indicators/OfficialList2008.ru.doc

[12] *Recommendations of the Conference of European Statisticians on measuring sustainable development*. New York and Geneva: UN, 2014. Pp. xv, 12-13, 15, 77. Available at: http://www.cisstat.com/sdgs/ECE_CES_31_Rus.pdf

[13] Measuring distance to the SDG targets. An assessment of where OECD countries stand. June 2017. Pp. 24-30. Available at: http://www.oecd.org/std/OECD-Measuring-Distance-to-SDG-Targets.pdf

[14] Resolution of the Government of the Russian Federation No. 2033-r dated September 23, 2017. Available at: http://www.gks.ru/free_doc/new_site/m-sotrudn/CUR/cur_news.htm

Almost all existing systems include indicators of social and labor relations and living standards. It is quite difficult to draw a clear line between them; it can be done only conditionally. However, due to the fact that each group of indicators assesses different socio-economic processes and aspects of human life, it is advisable to consider them separately. The authors [19; 20; 21] share a similar viewpoint.

Indicators of sustainable development of social and labor relations

The system of global indicators for achieving UN sustainable development goals[15] includes 14 indicators reflecting social and labor relations. The Interstate Statistical Committee of the Commonwealth of Independent States (CIS)[16] uses 11 indicators. The Organization for Economic Cooperation and Development (OECD)[17] and Russia[18] consider ten indicators. The World Bank (WB)[19] proposes to use nine indicators. And only six indicators were recommended by the Conference of European Statisticians[20] on measuring sustainable development. With the exception of indicators used by CES, all the indicators of the five systems are designed to quantify a particular goal of Agenda 2030 *(Tab. 1)*.

Analyzing the six presented systems of sustainable development indicators of the social and labor sphere, we can note the following. Only one indicator has a cross-cutting value — the annual growth rate of real GDP per employee (labor productivity index). Three indicators are presented in five systems. These include: a) proportion of time spent on unpaid care and domestic work, by sex, age and place of residence; b) unemployment rate, by sex, age and disability; c) proportion of young people (aged 15-24) who do not study, work or acquire professional skills. Two other indicators — a) share of informal employment in non-agricultural sectors, by sex; b) proportion and number of children between 5 and 17 years of age engaged in child labor, by sex and age — are present in four systems. Eleven indicators are present in only one of the six systems.

Sustainable development indicators and living standards

The system of global indicators for achieving the UN sustainable development goals and the system proposed by the Interstate Statistical Committee of the Commonwealth of Independent States included seven indicators reflecting the level of poverty and labor market indicators. The Organization for Economic Cooperation and Development and Russia include five indicators each. The World Bank considers four indicators. And only two indicators were recommended by the Conference of European Statisticians on measuring sustainable development of living standards *(Tab. 2)*.

Considering the above systems of sustainable development indicators of living standards, we can note the following. Two indicators are presented in five systems: a) the proportion of the population living below the international

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[15] The system of global indicators for achieving UN sustainable development goals and fulfilling the tasks of the 2030 Agenda for Sustainable Development. Available at: https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework_A.RES.71.313%20Annex.Russian.pdf.

[16] Draft list of indicators for achieving sustainable development goals for the CIS region. Available at: http://www.cisstat.com/sdgs/CIS-SDG%20001%20indicators%20list%2025-11-2016%20rus.pdf.

[17] Measuring distance to the SDG targets. An assessment of where OECD countries stand June 2017. Available at: http://www.oecd.org/std/OECD-Measuring-Distance-to-SDG-Targets.pdf.

[18] Calendar of publication of official statistical information on indicators of achievement of sustainable development goals of the Russian Federation. Rosstat. Available at: http://www.gks.ru/free_doc/new_site/m-sotrudn/CUR/cur_calendar.htm.

[19] *World Development Indicators 2017. Sustainable Development Goals*. The World Bank. Available at: http://datatopics.worldbank.org/sdgs/.

[20] *Recommendations of the Conference of European Statisticians on measuring sustainable development*. New York and Geneva: UN, 2014. 208 p. Available at: http://www.cisstat.com/sdgs/ECE_CES_31_Rus.pdf

Table 1. Systems of sustainable development indicators for the social and labor sphere

Code	Indicator	System of indicators					
		UN	WB	OECD	CIS	Russia	CES
4.3.1	Level of participation of adults and young people in formal and non-formal education and training in the last 12 months, by sex	+	+	+	+		
5.4.1	Proportion of time spent on unpaid care and domestic work, by sex, age and place of residence	+	+	+[3]	+	+[7]	
5.5.2	Proportion of women in decision-making positions	+	+[1]	+[4]	+	+	
8.2.1	Annual growth rates of real GDP per employee (labor productivity index)	+	+	+[5]	+	+	+
8.3.1	Share of informal employment in non-agricultural sectors, by sex	+	+		+	+	
8.5.2	Unemployment rate, by sex, age and disability	+	+	+	+	+	
8.6.1	Proportion of young people (aged 15-24) who do not study, work or acquire professional skills	+	+	+	+	+	
8.7.1	Proportion and number of children between 5 and 17 years of age engaged in child labor, by sex and age	+	+[2]		+	+	
8.8.1	Fatal and non-fatal occupational injuries, by sex and migration status	+			+	+[8]	
8.8.2	Situation concerning the observance of labor rights at the national level, by sex and migration status	+					
8.8.2	Work intensity index (exceeding the requirements of work on resources: lack of time, health risks, inability to learn)			+			
8.b.1	Existence of a national youth employment strategy that has been developed and is now being implemented	+					
8.b.1	Share of public expenditure on social protection and employment programs in the state budget and GDP				+		
9.2.2	Employment in manufacturing, as a percentage of total employment	+		+	+	+	
9.5.2	Number of researchers (full-time equivalent), per million inhabitants	+	+	+[6]		+	
10.7.1	Employment costs of an employee, as a percentage of annual income in the country of destination	+					
10.7.1	Difference in unemployment level between migrants and the local population			+			
	Employment rate						+
	Employment rate in women						+
	Employment rate in young people						+
	Hours worked (average hours per week)						+
	Average age of labor market exit						+

The following clarifications have been made: [1] including the proportion of women in national parliaments; [2] aged 7 to 14, [3] difference between men and women; [4] share of top management positions occupied by women in major companies; [5] per hour of work; [6] in the workforce; [7] unpaid child care and domestic work; [8] without breaking down by migration status.

poverty line, by sex, age, employment status and place of residence (urban/rural); b) growth rate of household expenditure or per capita income among the poorest 40% of the population and among the population as a whole. Three indicators in different combinations are presented in four systems. Two other indicators are used in three systems: a) proportion of the population living below the official poverty line, by sex and age; and b) proportion of men, women, and children of all ages living in poverty in all its manifestations, according to national definitions. Three indicators are used only by individual systems. Two indicators are used only by the OECD: the income to poverty ratio and the quality of earnings (relationship between income and well-being of employees). The Gini coefficient, which is quite convenient to be used in different systems, is recommended only by the CES.

Table 2. Systems of sustainable development indicators of living standards

Code	Indicator	System of indicators					
		UN	WB	OECD	CIS	Russia	CES
1.1.1	Proportion of the population living below the international poverty line, by sex, age, employment status and place of residence (urban/rural)	+	+[1]	+[3]	+	+	
1.2.1	Proportion of the population living below the official poverty line, by sex and age	+	+[2]		+	+	
1.2.1	Ratio of income to poverty level			+			
1.2.2	Proportion of men, women and children of all ages living in poverty in all its manifestations, according to national definitions	+	+[2]		+		
8.5.1	Average hourly earnings of women and men by occupation, age, and disability	+			+	+[4]	+
8.5.1	Quality of earnings (correlation between the income and well-being of employees)			+			
10.1.1	Growth rates of household expenditure or per capita income among the poorest 40% the population and the general population	+	+	+	+	+	
10.2.1	Proportion of people with incomes below 50% of median income, by gender, age, and disability	+			+		
10.4.1	Share of incomes of employed in GDP, including wages and social security payments	+		+	+	+	
	Gini coefficient						+

The following clarifications have been made: [1] less that 1.25 USD per day, [2] total urban and rural population; [3] less than 1.90 USD per day, [4] without breaking down on the basis of disability.

Method of calculation of the index of sustainable development by labor indicators

We choose four labor factors: the size of people's incomes, income differentiation, unemployment, and employment structure. Each factor includes a number of indicators. Labor indicators that reflect the size of income are aimed at achieving the goals of "decent work and economic growth", "good health and well-being", "poverty eradication" and "reducing inequality". Sustainable development implies a high standard of living for the population, which cannot be achieved without rising incomes. The first indicator is *the ratio of average income to the cost of a fixed set of consumer goods and services*. It characterizes not only the amount of money income of the population, but also its purchasing power. The indicator varies greatly in the North: from 1.2 in Tyva to 3.8 in Yamal-Nenets Autonomous Okrug in 2015. One indicator of expenditure structure is taken into account: *the share of household consumer spending on food*. In 2015,

its values ranged from 26.1 in Khanty-Mansi Autonomous Okrug to 42.4 in the Magadan Oblast. The third indicator – *the ratio of the average wage in the region to the average wage in the country* – assesses wages in uniform prices in the country and demonstrates competitiveness of the labor market in the region. In 2015, the highest value was recorded in Chukotka Autonomous Okrug (234%), the lowest – in the Republic of Tyva (83%).

Labor income differentiation contributes to the achievement of the same goals as the previous group. The rise in inequality is global. It is caused by the reduction in the number of workers with average wage, as a result of mechanization and the introduction of out-sourcing [22, pp. 290-291]. In Russia and in the Russian North, inequality is exacerbated by the income gap between workers in different economic sectors, between urban and rural areas, and between men and women. The first indicator characterizes poverty – *the share of population with monetary incomes below*

the subsistence level. Poverty is high in some regions of the North. For example, it is 38.2 in the Republic of Tyva, and 18.9 in Yakutia, which is also 1.4 times higher than the national average for Russia. Poverty eradication is one of the central goals of sustainable development. The Gini coefficient characterizes the degree of deviation of the line of the actual distribution of total incomes from the line of their uniform distribution. It varies between 0 (perfect equality – everyone's incomes are equal) and 1 (perfect inequality –one person earns everything). In the North, the coefficient is high in oil and gas producing regions and low in the rest ones. *Ratio of women's wages to men's wages* shows the degree of gender equality in the labor market. In Chukotka Autonomous Okrug, the average salary of women is only 62.1% of men's, in Kamchatka Krai – 85.4%.

Labor indicators of unemployment are linked to the goals of "decent work and economic growth" and "poverty eradication". Two indicators show the same phenomenon, but from different angles: *unemployment rate according to sample surveys data* and *registered unemployment rate.* Unemployment problems are observed in most regions of the North. In total, registered unemployment rate in the three Northern regions – in Khanty-Mansi and Yamalo-Nenets autonomous okrugs and in the Sakhalin Oblast – is lower than the Russian average. Unemployment rate is extremely high according to sample surveys in Tyva (18.6%). The third indicator – *average time of job search by the unemployed (in months)* reflects the degree of tension in the labor market.

Labor indicators of the employment structure pursue the goals of "quality education", "gender equality", and "reducing inequality". The first indicator is *average educational level of the employed population*, calculated in the years of training on the most common educational trajectory [23, p. 149] on the basis of sample survey data. It takes into account all levels of education at the same time. A sustainable labor market should encourage education. According to an OECD report, education correlates with such important factors of sustainable development as improving health, reducing crime, increasing charity and volunteering. Educated people feel happier and encourage education in the next generation, and respecting the interests of future generations is an essential goal of sustainable development[21].

The second indicator is *the share of people employed in the mineral production in the total number of employees*. The high value of this indicator in the North of Russia hinders sustainable development due to the exploitation of natural environment, creation of social inequality, and the impact on the way of life of indigenous peoples of the North. In addition, minerals are non-renewable, and sooner or later they will be exhausted, which will cause employment-related problems. Therefore, reducing the dependence of the labor market on mining is considered as one of sustainable development goals for the North. In 2015, in four autonomous okrugs of the North, the share of people employed in extractive industries varied from 18 to 23%.

The third indicator is *the difference in employment between men and women of working age*. Reducing gender inequality in the labor market is among sustainable development goals. In the North, gender gap in employment is generally lower than the national average, but it is high in some regions.

According to a survey of 26 experts from Russian scientific organizations who work in the field of labor economics and demography, each factor and indicator received its weight *(Tab. 3).*

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[21] Measuring Sustainable Development. Report of the Joint UNECE/OECD/Eurostat Working Group on Statistics for Sustainable Development. New York: United Nations, 2008. P. 52. Available at: http://www.oecd.org/greengrowth/41414440.pdf.

Table 3. Labor factors and indicators of sustainable development, their weight according to experts (2017)

Labor factors	Impact on sustainable development, weigh of the factor	Labor indicators	Impact on sustainable development, weigh of the factor
People's incomes	0.284	Ratio of average income to the cost of a fixed set of consumer goods and services	0.363
		Share of household consumption expenditure on food	0.343
		Ratio of the average wage in the region to the average wage in the country	0.294
Income differentiation	0.253	Share of population with cash income below the subsistence level	0.386
		Gini coefficient	0.333
		Ratio of women's wages to men's wages	0.281
Unemployment	0.216	Unemployment rate according to sample surveys	0.362
		Average time of job search by the unemployed	0.353
		Registered unemployment rate	0.285
Employment structure	0.247	Average educational level of employed population, years of study	0.391
		Share of people employed in the mineral extraction in total employment	0.342
		Difference in employment level between men and women of working age	0.267
Source: our own compilation.			

Table 4. Ranking Northern regions of Russia by the degree of sustainable development according to labor indicators, 2000–2015

Degree of labor stability	2000 г.	2005 г.	2010 г.	2015 г.
71–78 high			Yamalo-Nenets AO	Yamalo-Nenets AO Arkhangelsk Oblast Murmansk Oblast Sakhalin Oblast Kamchatka Krai
63–70 average	Khanty-Mansi AO	Khanty-Mansi AO Chukotka AO Arkhangelsk Oblast Yamalo-Nenets AO	Khanty-Mansi AO Chukotka AO Arkhangelsk Oblast Murmansk Oblast Sakhalin Oblast Kamchatka Krai Republic of Karelia Republic of Komi Nenets AO Magadan Oblast	Khanty-Mansi AO Chukotka AO Republic of Karelia Republic of Komi Nenets AO Magadan Oblast Republic of Yakutia
55–62 low	Yamalo-Nenets AO Republic of Karelia Arkhangelsk Oblast Nenets AO Republic of Yakutia Chukotka AO Magadan Oblast Sakhalin Oblast	Sakhalin Oblast Republic of Karelia Nenets AO Magadan Oblast Republic of Yakutia Kamchatka Krai Murmansk Oblast Republic of Komi	Republic of Yakutia Republic of Tyva	Republic of Tyva
47–54 critical	Republic of Komi Murmansk Oblast Kamchatka Krai Republic of Tyva	Republic of Tyva		
Source: our own complilation.				

First, the constituent entity of the Russian Federation with the best value of the indicator for the entire period (2000–2015) was assigned 100 points, and that with the worst value − 1 point. Then, all Northern regions received values on a scale from 1 to 100 by linear scaling based on extreme values. This makes it possible to take into account the extent to which some regions lag behind the leading regions. At the second stage, the values of the regions were determined according to the groups of indicators corresponding to the four factors as the arithmetic mean weighted score of all the indicators included in the group. Similarly, at the third stage, the final index was calculated based on the averages of the four factors. At all the stages, the values were rounded to integers. The maximum possible value of the index is 100 points and can be achieved only if the constituent entity of the Russian Federation occupies leading positions in all the indicators included in the index. The minimum possible index value is one.

Next, integral indices are calculated, the scope of their variation is determined as the difference between the highest and lowest values of the feature in the population under consideration for four years of the fifteen-year period. The difference between the polar values (47−78) was divided into four equal intervals. Then, according to the size of the integral index, all Northern regions were ranked according to the degree of sustainable development in labor indicators *(Tab. 4, Fig. 1)*.

According to the degree of sustainable development, the critical group in 2000 included Kamchatka Krai (54), Murmansk Oblast (54), Komi Republic (51), and Tyva Republic (47). There was one subject − Khanty-Mansi Autonomous Okrug (66) in the middle group. The remaining 8 subjects took their place in the low group. In 2005, the stability of the Northern regions in terms of labor indicators improved significantly. Only the Republic of Tyva remained in the critical group (53). Chukotka and Yamalo-Nenets autonomous okrugs (65) and the Arkhangelsk Oblast (65) moved from the low to the middle group. The other five retained their place in the low group. In 2010, the Northern regions have increased their stability. The Republic of Sakha (Yakutia) remained in the low group (62) and the Republic of Tyva moved there (59). Yamalo-Nenets Autonomous Okrug moved to the high stability group (72), and seven more subjects – to the middle group. In 2015, the position of the Northern regions in terms of labor stability increased significantly. Four subjects joined the high group: Kamchatka Krai (75), Murmansk (72), Sakhalin (72), and Arkhangelsk (71) oblasts. The Republic of Sakha (Yakutia) (68) moved from the low to the middle group. The Republic of Tyva (57) is the only region that remained in the low group of labor stability *(Tab. 5)*.

In general, over the period under consideration, sustainable development assessed according to the employment indicators for the Northern regions was higher than the national level only in 2000. The ratio was 57/56; the evaluation of stability was equal in subsequent years. For reference, we can note that labor stability in the Arctic regions in all the years was slightly above the national level *(Fig. 2)*.

During the period under consideration, the level of incomes in the North grew more slowly than the national average. The poverty rate in the Northern regions decreased, but social inequality increased. The share of people employed in the mineral production in the total number of employees increased. After 2010,

Figure 1. Map of sustainable development of the North of Russia by labor indicators, 2015

Sustainable development index based on labor indicators

| critical | low | average | high |
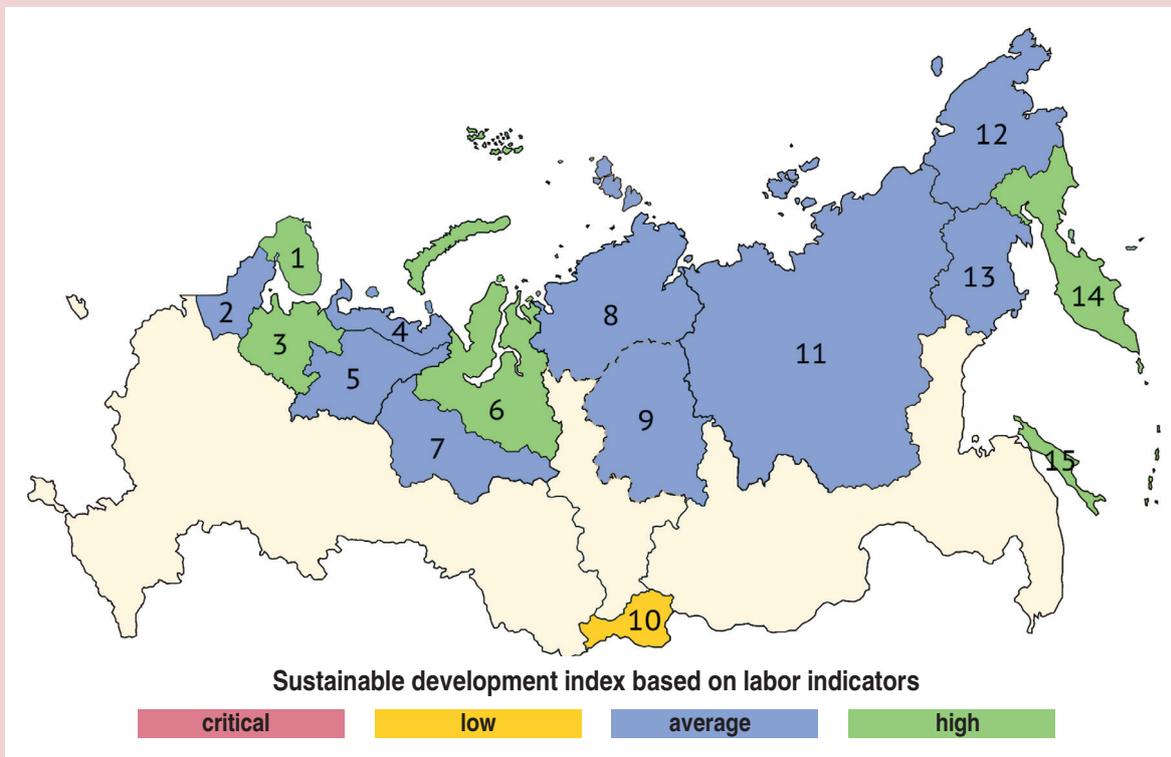
1 – Murmansk Oblast, 2 – Republic of Karelia, 3 – Arkhangelsk Oblast; 4 – Nenets Autonomous Okrug, 5 – Komi Republic, 6 – Yamalo-Nenets Autonomous Okrug, 7 – Khanty-Mansi Autonomous Okrug, 8 and 9 – Taimyrsky, Dolgano-Nenetsky and Evenkiysky districts of Krasnoyarsk Krai, 10 – Tyva Republic, 11 – Sakha Republic (Yakutia), 12 – Chukotka Autonomous Okrug, 13 – Magadan Oblast, 14 – Kamchatka Krai, 15 – Sakhalin Oblast.

Source: our own compilation.

the share of expenditures on food and the level of poverty began to increase. The increase in the integral index is caused primarily by a reduction in gender inequality, an increase in the educational level of the employed, a decrease in unemployment, and an increase in the ratio of income to the value of the consumer basket.

According to the indices of sustainable development calculated by labor factors for 2015, eight regions had the best values: according to "income size" – Yamalo-Nenets (84), Nenets (78) and Khanty-Mansi (70) autonomous okrugs; according to "income differentiation"– Kamchatka Krai (78),

the Magadan Oblast (73) and the Republic of Karelia (71); by "unemployment" – Yamalo-Nenets (94) and Khanty-Mansi (92) autonomous okrugs and the Magadan Oblast (90); according to "employment structure" – Kamchatka Krai (84), the Arkhangelsk (79) and Murmansk (78) oblasts.

Conclusion

The paper considers six systems of indicators that are used to assess sustainable development. Out of the variety of indicators, we selected those that reveal social and labor relations and living standards. We show what specific goal of Agenda 2030 is estimated by the indicators. We note that the systems

Table 5. Sustainable development indices for the Northern regions of Russia,
calculated by labor indicators, 2000–2015

Regions	Sustainable development index calculated on the basis of labor indicators				Sustainable development index, the value of the labor factor for 2015			
	Year				volume of incomes	income differentiation	unemployment	employment structure
	2000	2005	2010	2015				
Russian Federation	**56**	**62**	**66**	**70**	**53**	**68**	**86**	**76**
Northern regions	**57**	**62**	**66**	**70**	**61**	**67**	**87**	**67**
Kamchatka Krai	54	62	69	75	54	78	89	84
Yamalo-Nenets Autonomous Okrug	62	65	72	74	84	67	94	54
Sakhalin Oblast	55	59	68	72	67	64	87	73
Murmansk Oblast	54	61	66	72	59	70	83	78
Arkhangelsk Oblast	57	65	67	71	54	66	89	79
Magadan Oblast	55	60	64	70	59	73	90	62
Khanty-Mansi Autonomous Okrug	66	63	67	69	70	67	92	48
Republic of Sakha (Yakutia)	58	62	62	68	57	66	85	69
Nenets Autonomous Okrug	56	62	70	68	78	69	86	39
Komi Republic	51	61	63	67	55	63	87	69
Republic of Karelia	58	60	65	67	46	71	79	77
Chukotka Autonomous Okrug	55	65	63	65	68	64	84	47
Tyva Republic	47	53	59	57	39	65	47	76
For reference: regions, whose the entire territory is included in the Arctic zone of the Russian Federation	**57**	**63**	**68**	**72**	**69**	**69**	**88**	**66**
Source: our own calculations based on Rosstat data. Available at: http://www.gks.ru								

of indicators for assessing sustainable development do not always have the statistical content provided by Rosstat. This limits the possibility of using global systems for assessing sustainable development in Russia.

We suggest our own approach to the assessment of sustainable development of the Northern territories using 12 labor indicators characterizing the development of social and labor relations and living standards. This approach is a continuation of the work in which the assessment of sustainable development of the Northern territories is based on demographic indicators [24; 25].

Sustainability is considered in the dynamics with constant coefficients with the scaling of the indicators, which allows us to track the

approach of the Northern regions to the achievement of sustainable development goals outlined in the UN documents. The values of the coefficients are determined on the basis of the indicators of not only the Northern, but also all subjects of the Russian Federation, which allows us to identify specific features of labor stability in the Northern regions.

We take into consideration particularly acute socio-economic problems of the North such as the significant share of employment in the mineral sector, high costs of food, social inequality, etc. Due to the well-elaborated technique, we reveal the degree of stability for individual labor factors like the size of incomes, their differentiation, unemployment, and the structure of employment.

Figure 2. Diagram of labor stability in Russia, the North and the Arctic zone of the Russian Federation (2000, 2015)
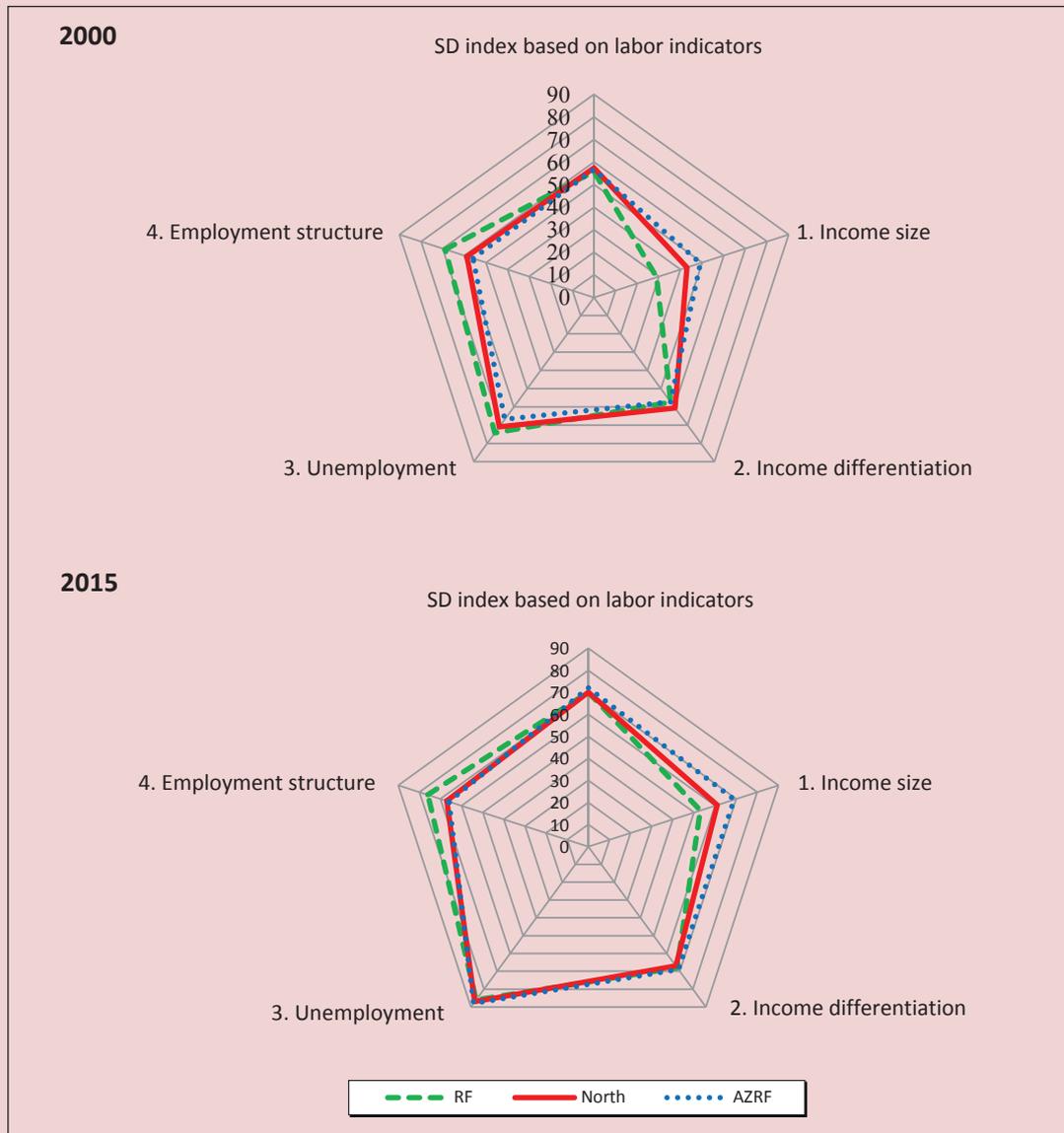
Source: our own calculations based on Rosstat data. Available at: http://www.gks.ru

The degree of labor stability can be assessed as critical, low, average, and high. It is noted that the North of Russia has improved its labor stability. In 2000, the labor stability index was 57, and in 2015 − 70.

A methodology for forecasting demographic and labor stability, including at the municipal level, has yet to be developed. The results will be applied in the practice of strategic planning of the Northern regions. In order to improve their labor stability further, it is necessary to influence the employment structure by increasing employment in non-primary economic sectors. However, the diversification of the labor market may lead to a decrease in the average wage, the main advantage of the regions of the North.

References

1. Uskova T.V. *Upravlenie ustoichivym razvitiem regiona: monografiya* [Managing sustainable development of the region: monograph]. Vologda: ISERT RAN, 2009. 355 p.

2. Osipova M.Yu. *Razrabotka statiko-dinamicheskogo podkhoda k otsenke i upravleniyu ustoichivym razvitiem regiona: diss. … kand. ekon. nauk* [Developing a static-dynamic approach to the assessment and management of sustainable development of the region: Candidate of Sciences (Economics) dissertation]. Perm, 2017. 263 p.

3. Yurkov D.V. *Upravlenie migratsiei kak mekhanizm ustoichivogo razvitiya territorii: diss. … dokt. ekon. nauk* [Migration management as a mechanism of sustainable development of territories: Doctor of Sciences (Economics) dissertation]. Kazan, 2017. 408 p.

4. Borisova N.G., Grigor'ev M.F., Dragileva L.Yu. et al. *Faktory ustoichivogo razvitiya regionov Rossii: monografiya. Kniga 21* [Sustainable development factors in Russian regions: monograph. Book 21]. Novosibirsk: Izdatel'stvo TsRNS, 2015. 164 p.

5. Van Treeck K. *The Role of Labor in Sustainable Development. Dissertation*. Göttingen, August 2017. Available at: https://ediss.uni-goettingen.de/handle/11858/00-1735-0000-0023-3FB0-A (accessed: 17.01.2018).

6. Tarasova N.P., Kruchina E.B. Sustainable development indicators and indices. In: *Ustoichivoe razvitie: priroda — obshchestvo — chelovek: Materialy mezhdunarodnoi konferentsii* [Sustainable development: nature — society — man: proceedings of an international conference]. Moscow, 2006. Vol. 1. Pp. 127-144. (In Russian).

7. Cobb J.B. *For the Common Good: Redirecting the Economy Toward Community, the Environment and a Sustainable Future*. Beacon Press, 1989. 534 p.

8. Cobb C., Halstead T., Rowe J. *Redefining Progress: The Genuine Progress Indicator, Summary of Data and Methodology*. San Francisco, CA: Redefining Progress, 1995. 50 p.

9. Osberg L., Sharpe A. An index of economic well-being for selected OECD countries. *Review of Income and Wealth*, 2002, vol. 48, pp. 291-316.

10. Pearce D., Atkinson G. Capital theory and the measurement of sustainable development: an indicator of "weak" sustainability. *Ecological Economics*, 1993, vol. 8, pp. 103-108.

11. Lawn P., Sanders R. Has Australia surpassed its optimal macroeconomic scale? Finding out with the aid of 'benefit' and 'cost' accounts and a sustainable net benefit index. *Ecological Economics*, 1999, vol. 28, pp. 213-229.

12. Rees W., Wackernagel M. Ecological footprints and appropriated carrying capacity: measuring the natural capacity requirements of the human economy. In: *Investing in Natural Capital*. Washington DC: Island Press, 1994.

13. Kahneman D., Krueger A. Developments in the measurement of subjective well-being. *Journal of Economic Perspectives*, 2006, vol. 20, pp. 3-24.

14. Easterlin R. *Does economic growth improve the human lot? Some empirical evidence. Essays in Honor of Moses Abramovitz*. 1974. Pp. 89-125.

15. Anielski M. *The Economics of Happiness: Building Genuine Wealth*. Canada: New Society Publishers, 2007. 288 p.

16. Layard R. *Happiness: Lessons from a New Science*. UK: Penguin, 2011.

17. Widok A. *Social Sustainability: Theories, Concepts, Practicability. Environmental Informatics and Industrial Environmental Protection: Concepts, Methods and Tools (Part 2)*. Berlin: Shaker Verlag, 2009. Pp. 43-51.

18. Hasan M. *Indicators of Sustainable Development: The Malaysian Perspective*. Available at: www.lgt.lt/geoin/files/S2_Paper1.rtf (accessed: 17.01.2018).

19. Ryabova L.A., Toropushina E.E., Korchak E.A., Toichkina V.P., Novikova N.A. Social sustainability of regions of the Russian North and the Arctic: results of assessment and achievement priorities. In: *Sever i Arktika v novoi paradigme mirovogo razvitiya: aktual'nye problemy, tendentsii, perspektivy: nauchno-analiticheskii doklad* [The North and the Arctic in the new paradigm of global development: current problems, trends, prospects: analytical report]. Apatity: KNTs RAN, 2016. Pp. 276-294. (In Russian).

20. Shabunova A.A., Leonidova G.V. Human capital as an indicator of sustainable development of the territory. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 2011, no. 5 (17), pp. 101-115. (In Russian).

21. Uskova T.V., Kopasova S.S. Sustainable development of the region: from conceptual framework to practical results. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 2008, no. 43, pp. 21-31. (In Russian).

22. Deaton A. *Velikii pobeg: zdorov'e, bogatstvo i istoki neravenstva* [The Great Escape: Health, Wealth, and the Origins of Inequality]. Moscow: Izd-vo Instituta Gaidara, 2016. 368 p.

23. Smirnov A.V. Prediction of the demographic and educational processes on the territories of different levels. *Korporativnoe upravlenie i innovatsionnoe razvitie ekonomiki Severa: Vestnik NITs KPUVI SyktGU (elektronnyi zhurnal)= Corporate Governance and innovative economic development of the North: Bulletin of Research Center of Corporate Law, Management and Venture Investment of Syktyvkar State University (Network Edition),* 2016, no. 1, pp. 146-155. (In Russian).

24. Fauzer V.V., Lytkina T.S., Fauzer G.N. Demographic aspects of sustainable development of the Northern territories. In: *Novye podkhody i metody upravleniya ustoichivym sotsial'no-ekonomicheskim razvitiem regionov: Materialy Vserossiiskoi nauchno-prakticheskoi konferentsii 24-25 oktyabrya 2017 g., IPRE RAN* [New approaches and methods for managing sustainable socio-economic development of the regions: Proceedings of the all-Russian research-to-practice conference, October 24–25, 2017, IPRE RAS]. Saint Petersburg: GUAP, 2017. Pp. 229-234. (In Russian).

25. Fauzer V.V., Lytkina T.S., Smirnov A.V., Fauzer G.N. Demographic indicators for assessing sustainable development of the Northern regions of Russia. In: *Modelirovanie stsenariev ustoichivogo razvitiya severnykh regionov Rossii v sovremennykh usloviyakh* [Modeling sustainable development scenarios for the Northern regions of Russia in modern conditions]. Syktyvkar: Izd-vo SGU im. Pitirima Sorokina, 2017. Pp. 268-277. (In Russian).

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DEVELOPMENT OF MUNICIPAL FORMATIONS

Hierarchical and Spatial Effects in the Development of Municipalities*

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Abstract. The paper presents the results of analysis of the influence of separate levels of public administration hierarchy (regional, municipal) and neighboring territories on the indicators of socio-economic condition of municipal entities. The study was conducted in the context of 300 municipal entities of six subjects of the Russian Federation. The hierarchical and spatial effects were determined in several stages. The impact of separate administration levels on the results obtained by municipal entities was assessed with the use of hierarchical linear modeling (HLM), which is applied in other scientific fields to analyze group and inter-group relations. The connectedness of municipalities was evaluated with the use of spatial statistics methods (Moran Index). The analysis has shown that both vertical and horizontal connections of municipal entities are important. They determine spatial and hierarchical effects. Assessing the change in a given indicator, taking into account both the internal potential and the existing external horizontal and vertical links simultaneously is the most difficult but necessary step in the formation of management decisions regarding municipal entities. Within the present paper, the existence of spatial and hierarchical effects allowed us to build a model that links the change in the volume of social payments and taxable incomes of the population per resident of the municipal entity to the volume of shipped products in the municipal entity and neighboring municipal entities, taking into account their hierarchical subordination. Calculations showed that the role of the regional level of ownership is 21.1%. The change in the volume of social payments and taxable money incomes of the population on average per resident is related to the actions of the municipal authority by 78.9%. The results obtained with the use of the proposed methods would make it possible to make substantiated managerial decisions in regional economic policy and determine the powers of various levels of public administration hierarchy.

Key words: management hierarchy, multi-level analysis, spatial effect, regional administration.

Introduction

A country's administrative-territorial structure consists of its division into certain parts hierarchically subordinated for effective functioning of the vertical of government. A head of a municipality should take into account not only the internal factors in development, but also the regulatory impact of the regional authorities including the possibility of support and funding from budgets of higher authority, especially the development of the neighboring territories. In fact, all three elements are simultaneously taken into account by municipal leaders at the intuitive level. This is largely due to underdeveloped assessment tools which take into account vertical and horizontal links of municipalities in one model. The research carried out in the framework of this work is aimed at expanding the tools of analyzing spatial and hierarchical relations necessary to improve the management of municipalities. The research hypothesis is that the differentiation of socio-economic development of individual territories is determined by joint influence of both internal and external factors carried out within the existing management hierarchy. The scientific novelty of the study lies in substantiating the importance of vertical (management hierarchy) and horizontal (territory) relations of municipalities by constructing a model to distinguish both spatial and hierarchical effects. This provides better understanding of the spatial organization of economic activity, gives an opportunity to take a fresh look at the problem of the country's connectivity, and move to a multi-level planning of territories' development.

The issues of managing hierarchical systems at the national level, or the so-called multi-level public administration, have been raised by researchers around the world [1, 2, 3]. Modern studies show that the mechanism of the structure-level system of economic management "is determined by the system of levers used both at the federal (macro) and regional (meso) level of economic space formation" [4]. The scope of managing socio-economic processes at the municipal level is determined by the state, regional, and municipal policy. To carry out complex analysis it is important to understand the role of all levels of the management hierarchy. At the municipal level, it should strive to meet the needs of people living on the territory of a municipal unit as fully as possible, taking into account the peculiarities of its development. A higher level of power also affects the development of the territory, as indicated by various empirical studies [5, 6, 7]. In turn, the central government, as a rule, determines the general path of the country's development. At a lower level – regional – within the framework of the covered management options, decisions are made to most effectively use the existing potential of territories. The development of each separate local territory (municipality) depends on how regional authorities convey the general concept of federal power to the lower management level (municipal, local) and link it with the region's capacity.

In turn, the development of specific territories is determined by the vertical of power, as well as by own internal factors in development. The development of the surrounding territories has a significant impact. In this regard, more and more studies are aimed at assessing the impact of differentiation in the development of territories [8, 9, 10]

and assessing spatial effects. For example, M.A. Haddad and Z. Nedović-Budić conducted a spatial analysis of the human development index for municipal districts of São Paulo [11], X. Ye and Y.D. Wei – of production, investment, and inequality of standard of living in rural areas of municipal districts in the province of Zhejiang, China [12], A.R. Fazliev estimated changes in the price index in constituent entities of Russia [13], E.A. Gafarova conducted a comparative analysis of various types of spatial models of economic growth [14].

The analysis of these works shows that they mainly compare data on spatial differentiation at certain levels of the management hierarchy (for example, only regional or municipal) without determining the interaction of these levels. If the study touches upon the problems of multilevel and spatial development at the same time, the methods of spatial econometrics are usually limited. For example, the work by X.B. Zhao and S.P. Tong examines the problem of differentiation of standards of living in China at several levels (province, region, urban and rural district) using the indicators of inter-level variation measurement [15]. J. Antikainen and V. Perttu assess regional gross production, employment, and migration in the context of districts and regions based on index analysis limited to comparison of indicator change rate [9]. L. van de Laan determines the impact of changes in the urban system on the regional employment structure using multiple regression but does not take into account the spatial nature of data [16]. Thus, the studies of municipalities do not provide a complete picture of their spatial and hierarchical relations, which largely determines the unrealized potential of inter-municipal interaction.

The review of publications by domestic and foreign researchers highlights the methods of studying spatial and hierarchical effects in territorial development and demonstrates the variety of indicators analyzed in the context of territories and levels of the management hierarchy. It is impossible to cover all aspects of socio-economic development of a territory, but the most common in the above studies are the standard of living and the state of the real sector of economy. In turn, the assessment of standards of living, as a rule, begins with the study of income of the population, and the study of the real sector of the economy includes analysis of production [17]. Indicators "production of goods and services" and "cash income of the population" in one or another interpretation are reflected in regions' rankings[1] and are taken into account when assessing the activities of heads of regions and municipalities[2].

Thus, analysis of indicators presented in the work will help test the proposed tools which imply a multilevel study of the territories' socio-economic development based on combining spatial and hierarchical (multilevel) models.

1. Description of research methods

The method for selecting hierarchical and spatial effects is arranged in several stages.

At the first stage, the average values and variation of indicators of socio-economic development of municipalities in the context

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[1] Quality of life regional ranking in Russia. Available at: http://riarating.ru/infografika/20160225/630010958.html;

The ranking of Russian constituent entities by socio-economic status. Available at: http://riarating.ru/infografika/20150616/610658857.html

[2] On the assessment of efficiency of activity of executive authorities of Russian constituent entities. *Presidential Decree no. 548*, dated 14.11.2017; On the assessment of efficiency of activity of local governments of city districts and municipal areas. *Presidential Decree no. 607*, dated 28.04.2008.

of six Russian constituent entities with common borders with Bashkortostan were analyzed. Within the framework of this stage, we tested the hypothesis of the presence of intergroup differentiation, i.e. the difference of Russian constituent entities in the achieved indicators of municipalities located on their territory. Taking into account the features of formation of statistical values of indicators at the level of municipalities, "volume of social payments and taxable monetary income of the population per 1 resident of a municipal area (city district)" was considered in analysis of population's income. "The volume of shipped own goods, works and services per 1 person in municipalities" was taken as an indicator characterizing production. Both indicators are officially registered by state statistics bodies and are available at the official website of the Federal State Statistics Service in the database of indicators of municipalities[3].

The hierarchical (two-level, nested) nature of data helps build a multilevel unconstrained regression model:

a) for social payments and taxable cash income of the population per 1 resident of a municipality:

Level 1 (lower):

$$NDSV_{ij} = \beta_{0j} + r_{ij} ; \qquad (1)$$

Level 2 (upper):

$$\beta_{0j} = \gamma_{00} + u_{0j} ; \qquad (2)$$

general joint-level model:

$$NDSV_{ij} = \gamma_{00} + u_{0j} + r_{ij} ; \qquad (3)$$

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[3] Database of indicators of municipalities. Available at: http://www.gks.ru/dbscripts/munst/).

b) for volume of social payments and taxable monetary income of the population per 1 resident of a municipal area:

Level 1 (lower):

$$OT_{ij} = \beta_{0j} + r_{ij}; \qquad (4)$$

Level 2 (upper):

$$\beta_{0j} = \gamma_{00} + u_{0j}; \qquad (5)$$

general joint-level model:

$$OT_{ij} = \gamma_{00} + u_{0j} + r_{ij}, \qquad (6)$$

where $NDSV_{ij}$ — social payments and taxable cash income of the population per 1 resident of the i-th municipality of the j-th region in Russia, RUB;

OT_{ij} — volume of shipped own goods, works and services performed per 1 person in the i-th municipality of the j-th region in Russia, thousand RUB;

β_{0j} — function of a general intercept (γ_{00}) for all municipalities, and error of interregional variance (u_{0j}) that explains differences between regions in values of indices achieved by their constituent municipalities;

r_{ij} — error of regional (inter-municipal) variance explaining differences between municipalities within individual regions;

j — index for affiliation of a municipality to a specific Russian constituent entity, (j=1, 2,...,6);

i — index for affiliation to a particular municipality, (i=1, 2,...,300).

Models of this type are constructed by both foreign and domestic researchers [18, 19, 20]. According to this model, two parameters are estimated: inter-regional (σ_{00}) and intra-regional (inter-municipal) variance (σ_j).

The analysis evaluated how between-group variance significantly differs from zero and why the model without intercept variability. The analysis of variance was conducted to compare the models. If a statistically significant difference is found between the models the inter-group variance is non-zero, otherwise the difference is considered insignificant. The interclass correlation coefficient (ICC) is used to test the corresponding hypothesis:

$$ICC = \frac{\sigma_{00}^2}{\sigma_{00}^2 + \sigma_j^2}, \qquad (7)$$

where σ_{00} — inter-regional variance;

σ_j — intra-regional (inter-municipal) variance.

This coefficient demonstrates the share of the total variance that can be explained by mean variation in groups (in this study — in Russian constituent entities), i.e. assess the impact of the region on the development of municipalities. The coefficient value varies in the range from +1, where variation is determined directly by the difference between groups in the absence of variation within the groups, to $\frac{1}{(n-1)}$, , where variation is predominantly intra-group (where n — number of municipalities). The coefficient value close to zero indicates that the upper level of the management hierarchy does not affect the development of objects of the lower level, in our case, municipalities. V. Huta notes that if Intraclass Correlation Coefficient (ICC) has a value of less than 5%, it is not advisable to construct hierarchical models [21].

The statistical significance of the model and, as a consequence, the hypothesis of appropriateness of using hierarchical modeling tools can be tested using the χ^2 criterion which is determined for random effects and involves testing the null hypothesis of absence of group effects [22].

At the second stage of the research, spatial statistical analysis was carried out to test the hypothesis of connection between the neighboring municipalities. Evaluation of the spatial aspect in territorial development was based on the theory of spatial econometrics [23, 24, 25]. Spatial autocorrelation in the

distribution of indicators of socio-economic development of municipalities was estimated for both indicators using Moran's I:

$$Im_{NDSV} = \frac{N}{\sum_i \sum_p w_p} \times$$
$$\times \frac{\sum_i \sum_p w_{ip}(NDSV_i - \overline{NDSV})(NDSV_p - \overline{NDSV})}{\sum_i (NDSV_i - \overline{NDSV})^2}, \quad (8)$$

$$Im_{OT} = \frac{N}{\sum_i \sum_p w_p} \frac{\sum_i \sum_p w_{ip}(OT_i - \overline{OT})(OT_p - \overline{OT})}{\sum_i (OT_i - \overline{OT})^2}, (9)$$

where N − number of municipalities, units;

$\overline{NDSV_i}$, − average social payments and taxable cash income of the population per 1 resident of the i-th municipality, RUB;

$\overline{OT_i}$, − average volume of shipped own goods, works and services per 1 person in the i-th municipality, thousand RUB;

w_{ip} − elements of distance weight matrix between the i-th and p-th municipalities.

The resulting Moran's I value was compared with the expected value E(Im)=-1/(n-1). If Im>E(Im), there is positive spatial auto-correlation, i.e., in general, the values of observations in the neighboring territories are similar. If Im<E(Im) − negative autocorrelation tales place, i.e., in general, the values of observations in the neighboring territories differ. If Im = E(Im), the values of observations in the neighboring territories are random.

The spatial weight matrix is set exogenously so its specification is the most complex and controversial issue in modeling spatial relations. The matrix of adjacency of municipalities was used for calculation:

$$w = \begin{cases} 1, \text{ if municipalities } i \text{ and } p \text{ have} \\ \quad \text{a common border;} \\ 0, \text{ if } i = p; \\ 0, \text{ if municipality } i \text{ has no common} \\ \quad \text{border with municipality } p. \end{cases}$$

At the third stage, the constructed hierarchical (multilevel) model was complicated by including an explanatory variable which is the average value of the analyzed indicator among neighboring municipalities in relation to the i-th municipality:

$$W\_OT_{ij} = \frac{\sum_{j=1}^n \sum_{i=1}^n \sum_{p=1}^n (w_{ip} \times OT_{ij})}{k}, \quad (10)$$

where k − number of municipalities defined according to adjacency matrix w_{ip} as neighboring for each i-th municipality.

As a result, it has become possible to construct the following second class-model (random intercepts) linking changes in social payments and taxable cash income of the population per 1 resident of a municipality with the volume of shipped products in a municipality and neighboring municipalities. At the same time, the indicators of the volume of shipped products in a municipality and in the neighboring areas was not taken into account, but their deviation from the regional average:

Level 1 (lower):
$$NDSV_{ij} = \beta_{0j} + \beta_{1j} \times \left(W_{OT_{ij}} - \overline{W_{OT_J}}\right) + \\ + \beta_{2j} \times \left(OT_{ij} - \overline{OT_J}\right) + r_{ij}, \quad (11)$$

Level 2 (upper):
$$\beta_{0j} = \gamma_{00} + u_{0j}, \quad (12)$$

$$\beta_{1j} = \gamma_{10}, \quad (13)$$

$$\beta_{2j} = \gamma_{20}. \quad (14)$$

General joint-level model:
$$NDSV_{ij} = \gamma_{00} + \gamma_{10} \times \left(W\_OT_{ij} - \overline{W\_OT_{iJ}}\right) + \\ + \gamma_{20} \times \left(OT_{ij} - \overline{OT_J}\right) + u_{0j} + r_{ij}, (15)$$

where $NDSV_{ij}$ − social payments and taxable cash income of the population per 1 resident in an i-th municipality of a j-th region in Russia, RUB;

OT_{ij} — volume of own shipped goods, works and services per 1 person in an i-th municipality of a j-th region in Russia, thousand RUB;

W_OT_{ij} — average volume of shipped own goods, works and services per 1 person in muni-cipalities defined as neighboring to the i-th muni-cipality of the j-th region, taking into account the adjacency matrix, thousand RUB;

β_{0j} — function of a general intercept (γ_{00}) and error of interregional variance 1 (u_{0j});

β_{1j} — slope of regression W_OT_{ij} is constant term γ_{10};

β_{2j} — slope of regressor OT_{ij} is constant term γ_{20};

r_{ij} — error of regional (inter-municipal) variance;

j — index for affiliation to a particular Russian constituent entity (j=1, 2,...,6);

i — index for affiliation to a particular municipality (i=1, 2,...,300).

The idea of including population income as a production factor in this territory is not new. The studies often note that "the income of a unit of society (group of households, household, family or individual) is part (and the corresponding value) of the product. It is obtained as a result of the economic activity of this unit" [26, 27]. When testing this hypothesis and building regression models, the researchers note there is a close relation between the income level and the economic activity of the region, which is estimated by the volume of GRP per capita [28], largely determined by the volume of goods and services. Thus, the proposed model develops the achieved to date provisions taking into account the spatial and hierarchical aspects of changes in the indicators under review.

Constructing the final model makes it possible to take into account the impact of internal factors and the spatial and hierarchical effects of subordination on the standard of living.

In order to determine the role of individual management levels in the development of the Russian territories, the paper analyzes 300 municipalities, six constituent entities (regions) belonging to two federal districts of the Russian Federation (*Fig. 1*). The entities under review are on a conditional border between the European and Asian part of the country. The total area of their territory is 777.6 thousand km². 20.4 million people live on the territory of these six constituent entities, which is almost 13.9% of the total population.

Three out of six analyzed regions are often on top of ten constituent entities according to the results of the all-Russian ranking. The main source of statistical information is data provided by the Federal State Statistics Service. Data on closed territorial entities were not taken into account so the analysis used data on 300 municipalities out of 314.

2. Hierarchical effects in territory's development

The manifestation of features of territory's development can be studied using statistical indicators: average, variation, minimum-maximum indicator value. Analysis of results presented *in tables 1 and 2* demonstrates that the variation in values of indicators of socio-economic development in constituent entities can be in a fairly wide range. This is to the greatest extent manifested in the indicator "volume of shipped own goods, works and services per 1 person in municipalities" (SG). The average values within individual constituent entities for this indicator differ significantly from the sample average, the gap between the minimum and maximum value in a number of subjects is 500-fold, which indicates serious differences between the entities in the achieved values of the indicator of municipalities located on their territory.

Figure 1. Hierarchy tree of the management system in the Russian Federation for territories under review in 2016

Level 0
Russian Federation

Level 1
6 constituent entities

Level 2
314 municipalities

Chelyabinsk Oblast
3.5 mln people. GRP=5935 $/person
43 urban and municipal districts

Sverdlovsk Oblast
4.3 mln people. GRP=7532,5 $/person
73 urban and municipal districts

Perm Krai
2.6 mln people. GRP =6831,8 $/person
48 urban and municipal districts

Orenburg Oblast
1.97 mln people. GRP=6390 $/person
42 urban and municipal districts

Republic of Bashkortostan
4.1 mln people. GRP =5447 $/person
63 urban and municipal districts

Republic of Tatarstan
3.9 mln people. GRP =8239,8 $/person
45 urban and municipal districts

Source: compiled by the authors based on data from the official website of the Federal State Statistics Service. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#.

Table 1. Social payments and taxable cash income of the population
per 1 resident of a municipality, RUB/person

Item	Chelyabinsk Oblast	Sverdlovsk Oblast	Republic of Bashkortostan	Perm Krai	Orenburg Oblast	Republic of Tatarstan
Minimum value, RUB	109047.8	125842.6	97436.4	100896.6	103063.6	116113.3
Maximum value, RUB	394419.9	422245.2	321001.7	348935.9	246082.7	403969.1
Average, RUB						
In all sample	176510,8					
In a region	182307.0	205407.9	143190.9	172935.2	161560.8	189980.7
Variation, %						
In all sample	32,5					
In constituent entity of Russia	35.8	27.3	30.6	30.1	23.0	31.8
Standard deviation in municipalities from average indicator value in neighboring areas (taking into account adjacency matrix), thousand RUB						
In constituent entity of Russia	72850.4	66686.8	39082.8	46869.9	43567.6	55615.4

Source: compiled by the authors based on data from official website of the Federal State Statistics Service. Available at: http://www.gks.ru/free_doc/new_site/bd_munst/munst.htm

Table 2. Volume of shipped own goods, works and services per 1 person in municipalities

Item	Chelyabinsk Oblast	Sverdlovsk Oblast	Republic of Bashkortostan	Perm Krai	Orenburg Oblast	Republic of Tatarstan
Minimum value, RUB	7,4	4,7	11,9	8,3	16,9	36,0
Maximum value, RUB	1097,7	2749,0	1332,2	2649,6	2624,6	2817,7
Average, thousand RUB						
In all sample	289,1					
In a region	278,2	345,4	142,1	374,7	222,4	387,4
Variation, %						
In all sample	150,3					
In constituent entity of Russia	96,4	152,8	150,2	129,2	192,9	129,2
Standard deviation in municipalities from average indicator value in neighboring areas (taking into account adjacency matrix), thousand RUB						
In constituent entity of Russia	327,1	559,0	212,5	460,4	455,0	495,8
Source: compiled by the authors based on data from official website of the Federal State Statistics Service. Available at: http://www.gks.ru/free_doc/new_site/bd_munst/munst.htm						

In general, the variation of municipalities in indicator "social payments and taxable cash income of the population per 1 resident of a municipality" (NDSV) is lower than in "volume of shipped own goods, works and services per 1 person in municipalities" (OT). This is mainly due to the fact that social payments and taxable cash income of the population are largely regulated by both regional and federal regulatory acts. Minimum wages and social benefits are clearly defined, while there are no such standards for the products shipped. The pricing mechanism on the labor market determined by the law of supply and demand also has a certain influence on the variation of the indicator. Empowering inter-regional labor migration and pursuit of higher wages contribute to population's mobility, especially of young people not dependent on a particular territory through property. Accordingly, if there are disparities in supply and demand for labor in one territory they are levelled off in a short period of time, with an equilibrium price (wage) being set, similar in municipalities and even regions. On the other hand, the condition why there is a difference between social payments and taxable cash income of the population per 1 resident of a municipality in the context of Russian constituent entities is the region salary coefficient established depending on climatic conditions and increasing the income of residents living in territories with "harsh" climate.

Table 3. Results of constructing unconstrained models

Item	Model 1 (for social payments and taxable cash income of the population per 1 resident of a municipality)		Model 2 (for volume of shipped own goods, works and services per 1 person in municipalities)	
	INTRCPT1, u_0	level-1, r	INTRCPT1, u_0	level-1, r
Standard deviation (σ)	21014.5	50888.3	78.37	431.5
Variation (σ^2)	441611241.5	2589620657.2	6142.2	186155.85
χ^2	56.26		13.5	
p-value	<0.001		0.019	
ICC	0.14		0.03	
Source: compiled by the authors based on data from official website of the Federal State Statistics Service. Available at: http://www.gks.ru/free_doc/new_site/bd_munst/munst.htm				

Differences in Russian constituent entities in terms of standard deviation of indicators in municipalities from the average value of these indicators in the neighboring areas indicate that in some entities, changes in the indicator are characterized by spatial lag autocorrelation to a greater extent, in others – to a lesser.

The one-way analysis of variance confirms that the variability of socio-economic development indicators at the top level of the hierarchy is significantly different from zero. Results of constructing two-level unconstrained regression models (*Tab. 3*) generally indicate that the differences between municipalities in NDSV are by 14% determined by the differences in Russian constituent entities and by 86% – by the differences in municipalities, while the role of regions does not exceed 3% in terms of OT indicator. The obtained value of chi-square statistics for both models indicates the rejection of null hypothesis (p<0.05) and the interclass variation coefficient equaling zero. The standard deviation values for residual components u_0 and r (for each level of the hierarchy) indicate

that intraregional differences are higher than interregional ones.

Intraregional differences are differences between municipal districts of separate Russian constituent entities, which, according to calculations, are greater than variations of regions in the average achieved value. Thus, we can say that the situation is similar in all regions under review: there are several leading municipal districts and those that are outsiders for regional authorities to work with. Such territories are financed through budget relations. They are provided with assistance in the implementation of special regional projects, search for investors through presenting a territory as a potential space for creating a cluster or a special zone. This, on the one hand, levels municipal districts in terms of economic development as such projects help improve the situation of backward municipal districts. On the other hand, it enhances the differentiation of emergence of territories of advanced development as "growth points" often with their own capabilities, including production, resource, and labor potential. This may be the reason for such a heterogeneous

Figure 2. Social payments and taxable cash income of the population per 1 resident
of a municipality in 2016, thousand RUB/person

Perm Krai

Sverdlovsk
Oblast

Republic of
Bashkortostan

Chelyabinsk
Oblast

Republic of
Tatarstan

Orenburg
Oblast

☐ <126.1
☐ 126.2-145.1
☐ 145.2-164.3
☐ 164.4-183.3
■ 183.4-223.1
■ >223.2

Source: compiled by the authors based on the official website of the Federal State Statistics Service. Available at: http://www.
gks.ru/free_doc/new_site/bd_munst/munst.htm

Figure 3. Volume of shipped own goods, works and services per 1 person
in municipalities in 2016, thousand RUB/person
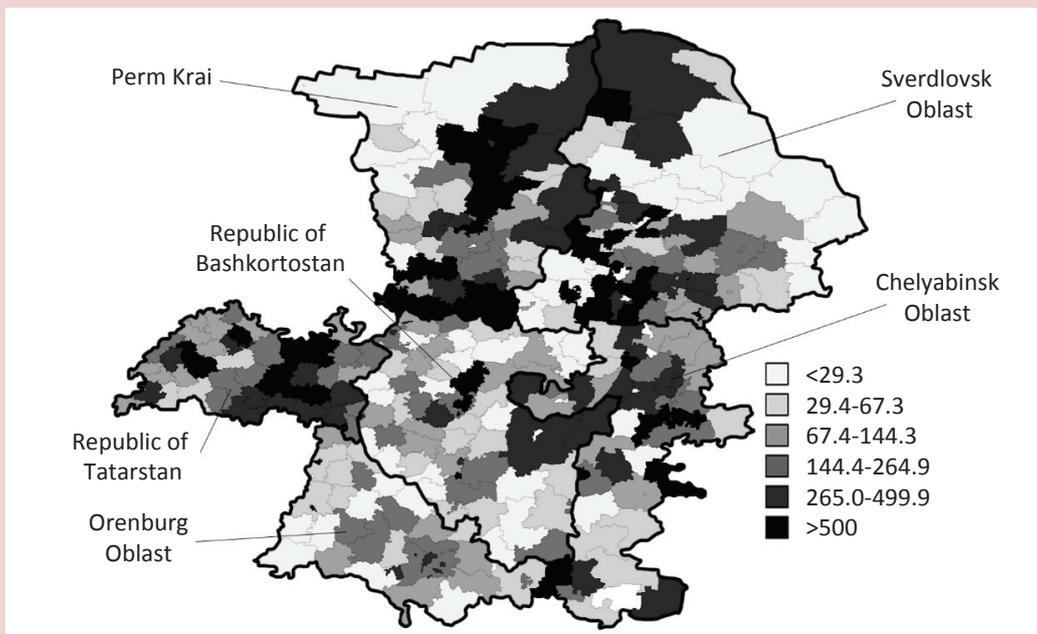
Perm Krai

Sverdlovsk
Oblast

Republic of
Bashkortostan

Chelyabinsk
Oblast

Republic of
Tatarstan

Orenburg
Oblast

☐ <29.3
☐ 29.4-67.3
☐ 67.4-144.3
☐ 144.4-264.9
■ 265.0-499.9
■ >500

Source: compiled by the authors based on the official website of the Federal State Statistics Service. Available at: http://
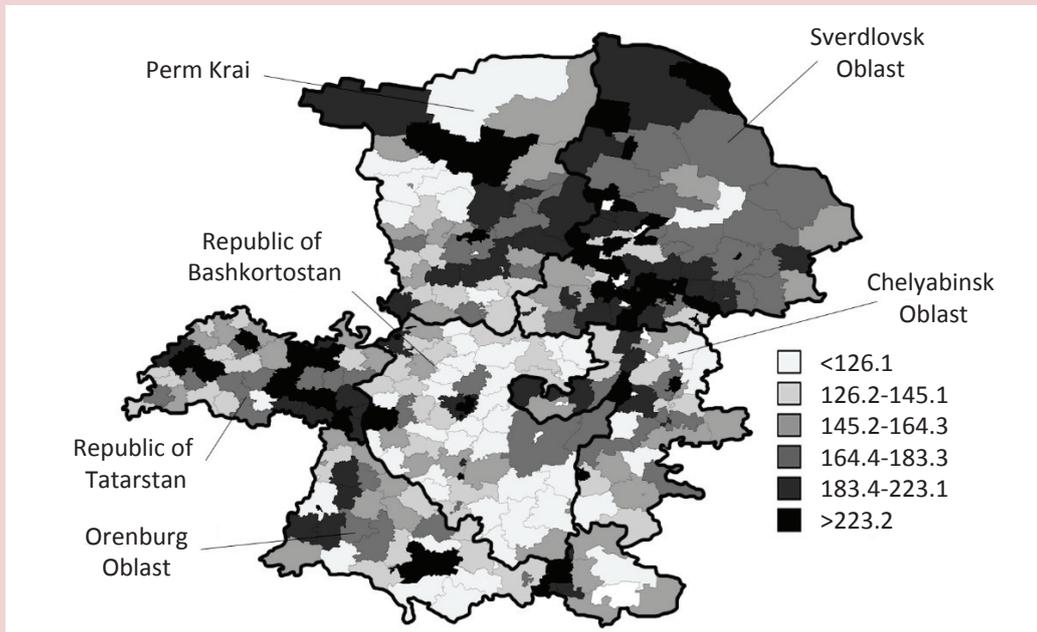www.gks.ru/free_doc/new_site/bd_munst/munst.htm

level of development of municipalities and their high dependence on their own capabilities.

The value of ICC for the second model less than 0.05 indicates that it is not feasible to construct hierarchical models for the volume of shipped products. The weak impact of the upper level on the index values in municipalities can also be manifested in higher variation of different municipalities in terms of the volume of shipped products in the framework of constituent entities of Russia in comparison with the interregional variation. Thus, the variation of average regional values for shipped products is 27.7%, within the regions the variation ranges from 96.4 to 192.9%, while the gap is not so large in terms of social payments and taxable cash income per 1 resident of a municipality: the variation of average regional values for shipped products is 10.9%, ranging from 23 to 35.8% within the regions. Thus, for further study of the hierarchical relations of the socio-economic development of municipalities it is advisable to use the indicator "social payments and taxable cash income of the population per 1 resident of a municipality".

The calculations indicate that interregional differences are less intense than intraregional. Based on regional statistics, many note a decreased differentiation in the development of the country's territory, but this is not completely true. Average values for regions are improved due to high values of growth points with the weakening of the rest of the country. As a result, differentiation is shifted to the municipal level and lies in average values of Russia's constituent entities. Spatial analysis helps identify prosperous municipal districts and their relations with the neighboring territories.

3. Spatial effects in territory's development

In order to determine the relations between the neighboring municipalities, spatial statistical analysis is carried out in the framework of the second stage. Quantile maps presented in *Figure 2* and *3* indicate that there is a spatial relation in the change in development indicators: as a rule, municipalities with high and average indicator values group around municipalities with high values of the indicator under review.

The Moran's I is calculated to confirm the hypothesis of spatial autocorrelation dependencies. The index value comprises:
− by social payments and taxable cash income of the population per 1 resident of a municipality: 0.27;
− by volume of shipped own goods, works and services: 0.13.

Both values are positive, i.e. there is a positive spatial autocorrelation and the values of observations in the neighboring territories are generally similar. At the same time, in terms of NDSV spatial relationship is more marked. Thus, the location of municipal districts with high values of indicators under review is not chaotic. Municipal districts with a favorable situation are as a rule adjacent to those with a similar situation, implying high values of indicators under review. The location of areas with low indicator values surrounded by areas with high values is quite rare. It can be assumed that the development of one area as a whole has a positive impact on the development of the neighboring areas and vice versa. Territory connectivity is noted, which determines the potential of inter-municipal interaction.

In order to determine the average value of the analyzed indicator among the neighboring municipalities in relation to the *i*-th

municipality, a Random intercepts model is constructed:

$$NDSV_{ij} = \gamma_{00} + \gamma_{10} \times \left(W\_OT_{ij} - \overline{W\_OT_{ij}}\right) + \\ + \gamma_{20} \times \left(OT_{ij} - \overline{OT_J}\right) + u_{0j} + r_{ij}, (16)$$

where $NDSV_{ij}$ – social payments and taxable cash income of the population per 1 resident of the i-th municipality in the j-th region in Russia, RUB;

OT_{ij} – volume of shipped own goods, works and services per 1 person in the i-th municipality of the j-th region in Russia, thousand RUB;

W_OT_{ij} – average shipped own goods, works and services per 1 person in municipalities adjacent to the i-th municipality in the j-th region taking into account the matrix of adjacency, thousand RUB;

β_{0j} – function of a general intercept (γ_{00}) and error of interregional variance 1 (u_{0j});

β_{1j} – линейный наклон регрессора W_OT_{ij} eclinear slope of regressor W_OT_{ij} is a constant γ_{10};

β_{2j} – slope of regressor OT_{ij} is constant term γ_{20};

r_{ij} – error of regional (inter-municipal) variance;

j – index for affiliation of a municipality to a specific Russian constituent entity (j=1, 2,..., 6);

i – index for affiliation to a particular municipality (i=1, 2,...,300).

When identifying the hierarchy effects of type 3 regression model we accounted robust estimates (*Tab. 4*).

The resulting regression coefficients indicate a positive relation between social payments and taxable cash income of the population per 1 resident and the volume of shipped own goods, works and services in a municipality (slope coefficient β_2 = 66.04; p<0.001) and the neighboring municipalities (slope coefficient β_1 = 30.0; p<0.001). Thus, an increase in the volume of shipped own goods, works and services per capita by 1 thousand rubles increases population income by average 66 rubles per 1 resident of a municipality, while the change in this indicator by 1 thousand rubles in the neighboring areas increases incomes by 30 rubles per 1 resident in a municipality.

The correlation between indicators "social payments and taxable cash income of the population per 1 resident of a municipality" and "volume of shipped own goods, works and services in a municipality (a) and the neighboring municipalities (b)" in 2016 is graphically presented in *Figure 4*. As can be seen in the figure, the trajectories in the regional context have the same slope, but do not coincide.

Variation values obtained in model 1 (see Tab. 3) and models 3 (*Tab. 5*) help determine the influence of factors on changes in variance of the dependent variable due to the level of hierarchy [29]:

$$r^2 = \frac{\sigma^2_{j\,(model1)} - \sigma^2_{j\,(model3)}}{\sigma^2_{j\,(model1)}} = 0.35.$$

Table 4. Results of fixed effects evaluation (with robust standard errors)

Fixed effects	Coefficient	Standard error	*t*-ratio	*p*-value
For β_0				
γ_{00}	173744.782	8236.242	21.095	<0.001
Slope coefficient for W_OT, β_1				
γ_{10}	30.008	4.7481	6.320	<0.001
Slope coefficient for OT, β_2				
γ_{20}	66.039	10.792	6.119	<0.001
Source: compiled by the authors based on data from official website of the Federal State Statistics Service. Available at: http://www.gks.ru/free_doc/new_site/bd_munst/munst.htm				

Figure 4. Predicted trajectory of changes in social payments and taxable cash income
of the population per 1 resident of a municipality as a result of changes in factors by region
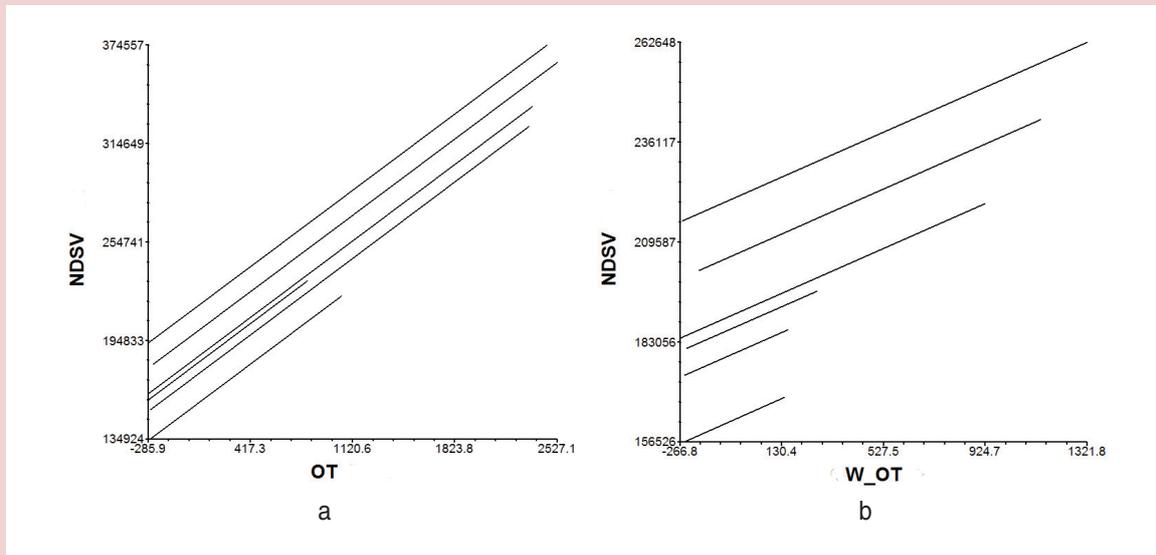
Source: compiled by the authors based on the official website of the Federal State Statistics Service. Available at: http://
www.gks.ru/free_doc/new_site/bd_munst/munst.htm

Table 5. Results of constructing the random intercepts model

Random Effect	Standard deviation (σ)	Variation (σ^2)	χ^2	p-value
INTRCPT1, u_0	21287.42	453154442.64	86.697	<0.001
level-1, r	40997.73	1680814087.24		

Source: compiled by the authors based on data from official website of the Federal State Statistics Service. Available at: http://www.gks.ru/free_doc/new_site/bd_munst/munst.htm

Thus, the volume of shipped own goods, works and services in a municipality and the neighboring municipalities explains 35.1% of dispersion of social payments and taxable monetary income of the population per 1 inhabitant of a municipality.

The calculated value of ICC for model 3 shows that the role of the regional level of affiliation, taking into account its influence on both *NDSV* and *OT*, is 21.1%. Thus, the change in social payments and taxable cash income of the population per 1 resident is 78.9% associated with the actions of municipal authorities.

Thus, the income level of a separate municipality is determined not only by production development in its territory, but also by production development in the neighboring municipalities. The ratio may be different. The model shows that for the area under review it is 2:1 (a *66 RUB* increase in income per 1 resident in a municipality at a *1000*

RUB increase in the volume of shipped own goods, works and services per capita per 1 resident *in a municipal district* to *30 RUB* per 1 resident in a municipality at a 1000 RUB increase in the volume of shipped own goods, works and services per capita *in the neighboring municipalities*). Therefore, municipal districts should pay more attention to inter-municipal interaction as the development of the neighboring territories raises the income of the local population. Thus, the model not only assesses the impact of certain levels of hierarchy on the incomes of the population in a municipality, but also indirectly assesses the connectivity of the territory under review as a result of determining the positive role of neighboring municipalities in its development. Such quantitative assessment provides a more reasonable approach to building inter-municipal cooperation and assessing its potential. The highlighted role of the regional level indicates that the actions of regional authorities have a significant impact on these processes. At the same time, very high ICC values, in our opinion, can be considered as a negative phenomenon manifested in excessive dependence of the development of a municipality, including financial, on the actions of regional authorities.

Conclusions

Studies of domestic and foreign researchers point to the existing interregional differences. The regional differences in the level of development and failure to realize the potential of inter-municipal cooperation are noted as one of the main problems in the draft Strategy for spatial development of the Russian Federation up to 2025. The decision of the latter problem is complicated by its underdeveloped evaluation tools. Moreover, inter-municipal and inter-

regional cooperation is not considered in this Strategy as a complex, hierarchically related phenomenon, especially manifested in the interaction of municipal districts located on the borders of the neighboring constituent entities. As a consequence, the proposals to implement the potential of inter-municipal cooperation are poorly presented in the draft Strategy.

In the framework of the current paper, a municipality is considered as a system having horizontal (territory) and vertical (management hierarchy) ties. The authors highlight inter-municipal and inter-regional variance, as well as the spatial and hierarchical effects. It is determined that the influence of the neighboring municipalities and a higher level of the management hierarchy is manifested in the formation of some indicators more than for others. Thus, the value of the indicator "social payments and taxable cash income of the population per 1 resident of a municipality" depends to a greater extent than the value of the indicator "volume of shipped own goods, works and services in a municipality" on steps taken at the regional level (the ICC value for the first indicator – 0.14, for the second – 0.03). Spatial autocorrelation, i.e. similarity of values in the neighboring territories, is also more evident in indicator "social payments and taxable cash income of the population per 1 resident of a municipality" (Moran's I for the first indicator – 0.27, for the second – 0.13).

The authors have made an attempt to combine both hierarchical and spatial effect within the framework of one model by including the indicator "volume of shipped own goods, works and services in a municipality" in a two-level model of "social payments and taxable

cash income of the population per 1 resident of a municipality" both for a municipality itself (in order to take into account internal factors of income formation) and the average value of the neighboring territories in order to take into account the features of a number of located municipalities.

The results suggest that the variation of "social payments and taxable cash income of the population per 1 resident of a municipality" is associated with the results achieved by the neighboring territories, and the activities of the regional government of a constituent entity a municipality is located in.

The presented approach to analyzing the development of territories simultaneously from the standpoint of spatial opportunities of the district's (region's) economic growth and management functions of authorities depending on the hierarchy of decisions enriches the system of theoretical and applied knowledge of spatial economy. The practical application of the presented model for assessing spatial and hierarchical effects will help improve the system of developing strategies for socio-economic development of territories, as well as eliminate the problem of underdeveloped and sometimes inefficient measures of regional authorities related to inter-municipal cooperation.

The proposed comprehensive view of the problem of socio-economic development differentiation of separate territories involves further study of various indicators characterizing the socio-economic development of territories. This is necessary to identify indicators determined by internal and external (spatial, hierarchical) factors. The choice of indicators for analysis is largely dictated by the objective to develop proposals for public administration bodies at the regional level in terms of improving the strategies for socio-economic development. First of all, these are indicators of human development. At the same time, further development of the research methodology is hindered by lack of tools for reliable assessment of the quality of complex models due to the need to take into account the spatial and nested data structure.

References

1. Stein M., Turkewitsch L. *The Concept of Multi-level Governance in Studies of Federalism.* 2008 International Political Science Association (IPSA) International Conference – International Political Science: New Theoretical and Regional Perspectives. Montréal, Québec, Canada: Concordia University, 2008. pp. 2-35.

2. Hooghe L., Marks G. Types of multi-level governance. *Les cahiers europeens de sciences po,* 2002, no. 3, p. 7. Available at: https://www.sciencespo.fr/centre-etudes-europeennes/sites/sciencespo.fr.centre-etudes-europeennes/files/n3_2002_final.pdf

3. Andrichenko L.V. Division of powers between the authorities of different territorial levels: the problem of centralization and decentralization. *Voprosy gosudarstvennogo i munitsipal'nogo upravleniya=Pubic Administration Issues*, 2013, no. 4, pp. 37-58. (In Russian).

4. Bulatova O.V. The structure-level organization of the system of economic management in sub-regional structures. *Biznes v zakone=Business in Law*, 2010, no. 1, pp. 258-260. (In Russian).

5. Gibson C.C., Williams J.T., Ostrom E. Local Enforcement and Better Forests. *World Development*, 2005, vol. 33, no. 2, pp. 273-284. DOI: 10.1016/j.worlddev.2004.07.013

6. Smith A. Emerging in between: The multi-level governance of renewable energy in the English regions. *Energy Policy*, 2007, vol. 35, pp. 6266-6280. DOI: 10.1016/j.enpol.2007.07.023

7. Moellering H., Tobler W. Geographical Variances. *Geographical Analysis*, 1972, no. 4, pp. 35-50.

8. Kaspshitskaya T.V. *Regional'nyi mekhanizm sokrashcheniya razlichii v urovnyakh sotsial'no-ekonomicheskogo razvitiya gorodskikh okrugov i munitsipal'nykh raionov: dis. ... kand. ekon. nauk: 08.00.05* [The regional mechanism to reduce the differences in the socio-economic development of urban and municipal districts: Ph.D. in Economics dissertation abstract: 80.00.05]. Moscow, 2015. 180 p.

9. Antikainen J., Perttu V. Finnish districts and regional differentiation. *Fennia*, 2002, no. 180(1–2), pp. 183-190.

10. Murgaš F., Klobučník M. Municipalities and Regions as Good Places to Live: Index of Quality of Life in the Czech Republic. *Applied Research in Quality of Life*, 2016, vol. 11, no. 2, pp. 553-570. DOI 10.1007/s11482-014-9381-8

11. Haddad M.A., Nedović-Budić Z. Using Spatial Statistics to Analyze Intra-urban Inequalities and Public Intervention in São Paulo, Brazil. *Journal of Human Development*, 2006, vol. 7(1), pp. 85-109. DOI: 10.1080/14649880500502102

12. Ye X., Wei Y.D. Geospatial Analysis of Regional Development in China: The Case of Zhejiang Province and the Wenzhou Model. *Eurasian Geography and Economics*, 2005, vol. 46(6), pp. 445-464. DOI: 10.2747/1538-7216.46.6.445

13. Faizliev A.R. *Matematicheskie metody i modeli analiza prostranstvennoi struktury sistemy gorodskoi torgovli: dis. ... kand. ekon. nauk: 08.00.13* [mathematical methods and models to analyze the spatial structure of urban trade: Ph.D. in Economics dissertation abstract]. Volgograd, 2014. 178 p.

14. Gafarova E.A. Empirical models of regional economic growth with spatial effects: comparative analysis results. *Vestnik Permskogo universiteta. Seriya: Ekonomika= Perm University Herald. Economy*, 2017, vol. 12, no. 4, pp. 561-574. (In Russian).

15. Zhao X.B., Tong S.P. Unequal Economic Development in China: Spatial Disparities and Regional Policy Reconsideration 1985-1995. *Regional Studies*, 2000, vol. 34 (6), pp. 549-561. DOI: 10.1080/00343400050085666

16. Laan L. Changing Urban Systems: An Empirical Analysis at Two Spatial Levels. *Regional Studies*, 1998, vol. 32(3), pp. 235-247. DOI: 10.1080/00343409850119733

17. Sinel'nikova-Muryleva S.G., Radygina A.D. (Eds.). Mau V. et al. *Rossiiskaya ekonomika v 2016 godu. Tendentsii i perspektivy=Russian Economy in 2016. Trends and prospects.* Issue 38. Moscow: Izd-vo In-ta Gaidara, 2017. 520 p.

18. Garson D. *Hierarchical linear modeling: guide and applications*. USA: SAGE Publications Inc., 2013. 371 p. DOI: 10.4135/9781483384450.

19. Goldstein H. *Multilevel Statistical Models: 4th Edition*. Wiley, 2010. 384 p.

20. Khalikova A.A., Lakman I.A. Multi-level regression modeling of demand on the labor market in the city of Ufa. *Matematicheskoe modelirovanie v ekonomike, strakhovanii i upravlenii riskami: sbornik materialov IV Mezhdunarodnoi molodezhnoi nauchno-prakticheskoi konferentsii: v 2-kh tomakh* [Mathematical modeling in economy, insurance, and risk management: collection or articles for the 4th International Youth Research-to-Practice Conference: in 2 volumes], 2015. Pp. 267-272. (In Russian).

21. Huta V. When to Use Hierarchical Linear Modelling. *The Quantitative Methods for Psychology*, 2014, vol. 10 (1), pp. 13-28. DOI: 10.20982/tqmp.10.1.p013

22. Edwards L.K. (Ed.). Raudenbush S.W. *Hierarchical linear models and experimental design. Applied analysis of variance in behavioral science*. New York: Marcel Dekker, 1993. pp. 459-496.

23. Anselin L. Spatial Dependence and Spatial Structural Instability in Applied Regression Analysis. *Journal of Regional Science*, 1990, no. 30, pp. 185-207.

24. Moran P. The interpretation of statistical maps. *Journal of the Royal Statistical Society*, 1948, series B, vol.10, pp. 243-251.

25. Geary R. The contiguity ratio and statistical mapping. *The Incorporated Statistician*, 1954, vol.5, pp. 115-145.

26. Imamova E.V, Tikhomirova T.P. *Mekhanizm formirovaniya dokhodov naseleniya Rossii* [The mechanism forming the incomes of the Russian people]. Ekaterinburg: Izd-vo GOU VPO "Ros. gos. prof.-ped. un-t", 2007. 126 p.

27. Surinov A.E. *Dokhody naseleniya: Opyt kolichestvennykh izmerenii* [People's income: the experience of quantitative change]. Moscow: Finansy i statistika, 2000. 432 p.

28. Kostyleva L.V. *Neravenstvo naseleniya Rossii: tendentsii, faktory, regulirovanie: monografiya* [The inequality of the Russian population: trends, factors, management: monograph]. Vologda: Institut sotsial'no-ekonomicheskogo razvitiya territorii RAN, 2011. Pp. 90-91.

29. Woltman H., Feldstain A., MacKay J. Ch., Rocchi M. An introduction to hierarchical linear modeling. *Tutorials in Quantitative Methods for Psychology*, 2012, vol. 8(1), pp. 52-69. DOI: 10.20982/tqmp.08.1.p052

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ENVIRONMENTAL ECONOMICS

Recycling in Modern Russia: Need, Challenges, and Prospects*

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Abstract. At present, in connection with the global financial and economic crisis of 2008−2009, the scientific community is discussing issues related to significant changes in the model of economic growth, its sources and factors, taking into account the so-called concept of "denouement" and its "reconciliation" with the geosphere restrictions on economic activity. Against this background, a neo-industrial paradigm of modern development proposed by the Russian economic school in the 2000s and focused on the resource aspect of the economy is gaining professional and public recognition. In this regard, the goals of our study are as follows: to develop the scientific idea of creating a new resource base for social reproduction on the basis of unused production and consumption waste, to identify barriers to establishing a recycling economy in Russia, and to work out proposals for effective development of recycling in the domestic economy. The study is based on an interdisciplinary (integrative) approach, which goes in line with the principles of sustainable economic and environmental growth, humanistic and inclusive development, and public-private partnership; thus, it is of fundamental importance for the analysis of the transformation of the model of economic growth in the process of changing the economic paradigm. In accordance with the above methodological approach, we consider waste resources that make a complete circle of transformations in the process of their movement as a special innovative factor in the economy; we substantiate the feasibility of using the definition of "recycling" in scientific discourse, and define it on the basis of the target task that consists in obtaining resources industrially from waste resources rather than extracting new resources; we propose to consider recycling as a new source of preserving the potential of economic growth for a long period and as a priority area of neo-industrial modernization of the Russian economy. This conceptual approach expands theoretical understanding of the neo-industrial development paradigm in terms of its mechanisms for ensuring environmental and socio-economic principles. The article analyzes the dynamics of environmental investment in the Russian Federation in 2000−2015 in the context of the sources of financing such investment; we model the resource potential of this kind of investment with the use of correlation and regression analysis. It is concluded that the low level of environmental investment is one of the main constraints to the development of recycling in today's Russian economy. We formulate the proposals for expansion and effective functioning of the recycling industry in the Russian Federation.

Key words: economic growth, geosphere restrictions on growth, new industrialization, waste resources, recycling, environmental investment.

Introduction

One of the most notable features of the 2008−2009 global financial and economic crisis was the universal recognition of the need to revive economic growth. The International Monetary Fund, the UN Environment Program (UNEP), and political parties of different countries called for the necessity "... to put the economy back on the track of growth" to ensure its stability [1, p. 110]. Thus, the well-known German politician and publicist Ralf Fuchs in his book *Green Revolution: Economic Growth Without Damage to the Environment* explains the meaninglessness of "zero" economic growth by the fact that the latter, from economic and socio-political points of view, "generates a lot of difficulties: outflow of capital, emigration of active citizens, slowdown of the pace of innovation, erosion of infrastructure, aggravation of the already difficult problems in the pension system and healthcare" [2, p. 104].

Against this background, the scientific community is discussing issues related to significant changes in the model, sources, and driving forces of economic growth, taking into account the so-called concept of "denouement" [3; 4] and its "reconciliation" with the environmental constraints of the "finite" planet [5-8]. We are talking about different manifestations of the growing ecological footprint of national economies, which, according to estimates of some experts, has doubled over the last 40 years and is currently 30% more than our planet's ability to heal itself [1, p. 289]. According to calculations of G.G. Malinetsky, if the level of per capita consumption of the BRICS countries alone matches that in the U.S., then it will take the natural resources of five planets like Earth to satisfy it [9, p. 17].

It is important to note that as the ecological footprint continues to grow, it leads to further strengthening of competition in the global market of raw materials. Depletion of natural resources came into conflict with the drive of society toward further economic growth in the conditions of its slowdown [10, p. 178]. The validity of this conclusion is confirmed by recent and current events in Iraq, Libya, Syria, Ukraine, and other countries.

The logic of the analysis suggests that the natural resource-based model of economic development established in the world practice has reached an impasse. On the one hand, the growing shortage of natural resources has already become a barrier to real GDP growth. At the same time, we are talking not only about energy carriers – hydrocarbons (there is still a certain "reserve" and alternatives like renewable energy resources hat are being implemented today), but mainly about mineral resources, which form the material basis of all final products. According to experts, world's energy reserves will be depleted in 40–50 years (coal – in over 100 years); as for the sufficiency of many types of mineral resources, it is estimated at 10–20 years [11, p. 134].

The existence of geospheric limits to economic activity has long been known. At the end of the 18th century, this question was raised by T. Malthus in his work *An Essay on the Principle of Population* (1978); he puts forward a thesis that population growth is always ahead of the growth of resources required to provide food and housing. And although Malthus's ideas for a number of reasons were more than once subjected to fair criticism and sharp condemnation, the scientific community still shows interest in certain provisions of his theory (G.T. McCleary, J.L. Simon, E. Boserup, E.A. Hayek, M. Spence, etc.).

In a 1972 report *The Limits to Growth* commissioned by the Club of Rome and prepared by a group of scientists led by Donella and Dennis Meadows substantiated the idea that the ecosystem, which goes beyond its resource base, inevitably moves to a collapse [12]. The key provisions and conclusions of the report became a theoretical and methodological basis for new concepts of economic growth such as the "zero" growth theory that recognizes negative impact of high GDP growth on the environment (D.H. Meadows, Y. Randers, J. Forrester, G. Malinetsky, etc.); institutional models of economic growth that link the growth of environmental problems to the flaws in the institutional environment (G. Myrdal, E. de Soto, R. Nureyev); "new theories of growth" recognizing the compatibility of economic growth with environmental protection measures (R. Lucas, P. Romer, M. Spence).

By the beginning of the 21st century, the discussion about the geosphere limits of the economy had already turned into an acute dispute over climate change and energy

security (or the so-called "peak oil"), the two interrelated environmental issues affecting the intensity of economic activity. In this regard, for example, P. Sukdev, a well-known economist from Deutsche Bank, in his commentary on T. Jackson's book *Prosperity Without Growth* writes: "Many people today speak about an ongoing economic crisis that is a result of the crisis in the sphere of production of fuel, food and finance, and about a simultaneously developing environmental and climate crisis, suggesting that there is a common cause – the wrong economic model" [1, p. 288]. Such a dispute produced a *Green New Deal* (2008), which received not only a quick recognition among scientists and politicians from different countries [1; 2; 8; 11; 13-16], but also strong international support (UNEP *A Global Green New Deal* (2009).

Noting the advantages of the "green" project for solving the identified environmental problems, scientists at the same time emphasize the importance of restoring and/or maintaining for a long-term the potential of economic growth in world countries and attempt to identify its new sources, "pillars", "engines" and factors [8]. For example, Fuchs points out that "the current European debt crisis has clearly demonstrated all the madness of the criticism of growth... The question is not whether Europe needs economic growth, but how to strengthen the growth potential and in what direction to move?" He proposes "... to focus not on increasing or decreasing GDP, but on the resource aspect of the economy" [2, pp. 105-106].

In this context, a growing professional and public recognition is attached to a neo-industrial paradigm of modern development, which is substantiated and discussed on the pages of the Russian journal *Ekonomist* by many authors since the early 2000s [18, pp. 3-10;

19, pp. 12-14]. S.S. Gubanov (the recognized founder of the named concept) points out that the major feature of industrialization is not just the development of high, technetronic technologies of production and final consumption, not just a technological progress of tools and productive forces, but the rise to a historically qualitatively new stage of social development, when "the economy begins its gradual transformation from an antagonist of wildlife into its ally, that is, it begins its functioning in the form of recycling" [18, p.6]. From the viewpoint of the mentioned paradigm, it becomes possible to justify a new type of economic growth driven by the dominance of social rather than private capital (profit) in the economic system, the capital that focuses on active rather than passive attitude of society toward environmental aspects of production and social existence, toward preserving the environment and improving the quality of life [20, p. 1117]. Against this background, attention is drawn to the international initiative "3R", which assumes an integrated approach to solving the problem of growing production waste and energy efficiency.

It is known that only 2% of the world's natural resources are currently being used productively; the remaining 98% go to waste. In addition, the products having a short period of use (from 0.5 to 5 years) also go to waste [21, p. 179].

Unfortunately, in modern conditions of economic thinking, applied technologies, and organization of production, production and consumption waste is mostly either destroyed or accumulated in large areas (special landfills, dumping places, etc.), contributing, in addition to environmental pollution, to the removal of a large number of valuable raw materials from economic circulation. Moreover, the content of valuable components (iron, copper, lead, tin,

tungsten) and elements (cadmium, bismuth, selenium, tellurium, rare earth and noble metals) in waste is often close to their content in the extracted natural resources.

In view of the above, a new start to a long period of economic growth can only be given by the timely creation of a new resource base for the reproduction of the economy, and it will be based on unused production and consumption waste [22]. In this case, discussions center on a new definition – "waste resources" [10; 21]. In our opinion, neo-industrial response to the geosphere challenges of the modern era is concentrated in this conceptual approach.

Research methodology

The study is based on an interdisciplinary (integrative) approach, which implies the need to analyze historical, legal, political, economic and other prerequisites for the development of socio-economic systems and institutions [23, p.239], the approach is of fundamental importance for the substantiation of priority directions of economic policy of the state and the change of the economic paradigm, transformation of the model of economic growth, its sources and factors, taking into account major trends and patterns of the modern era.

This methodological approach is based on the following theoretical and methodological principles:

– general principles of moving toward sustainable economic and environmental growth, to neo-industrial development based on the interpretation of the definitions of "sustainable development" and "neo-industrial development" in a broad sense;

– principles of humanistic and inclusive development, predetermined by the action of social capital and the idea of an inclusive society;

– principles of public-private partnership, the observance of which contributes to the establishment of domination of the total capital of society over private capital (profit) in the economic system.

In accordance with the indicated methodological approach, we define waste resources as a special innovative factor in economic growth that reduces the severity of the problem of "geosphere limits to growth"; the definition of "recycling" is introduced into scientific use, and the latter is considered a new source of neo-industrial economic growth.

In addition, the article uses correlation and regression analysis, which allows us to build an econometric model that characterizes the impact of main sources of financing on the volume of environmental investment in the Russian Federation and the willingness of the state and economic entities to invest in real capital.

Prior to building the regression, we carry out correlation analysis and determine multicollinearity of the factors. The assessment of the model adequacy was based on the use of computational and graphical methods of estimating the regression model residuals for normality. In order to build graphs and econometric models, we convert value indicators to constant prices by extrapolation or deflation.

Research results

The beginning of the 21st century was marked by almost universal decline in GDP growth rates and by crisis manifestations in the economy, including the tangible (not only for the whole world, but also for Russia) depletion of the natural resource base. At the same time, industrial and household waste continued to accumulate in the environment; it was accompanied by air, soil, groundwater and surface water pollution and other hazards

Dynamics of GDP growth rates, indicators of waste generation and environmental investments in fixed assets, %
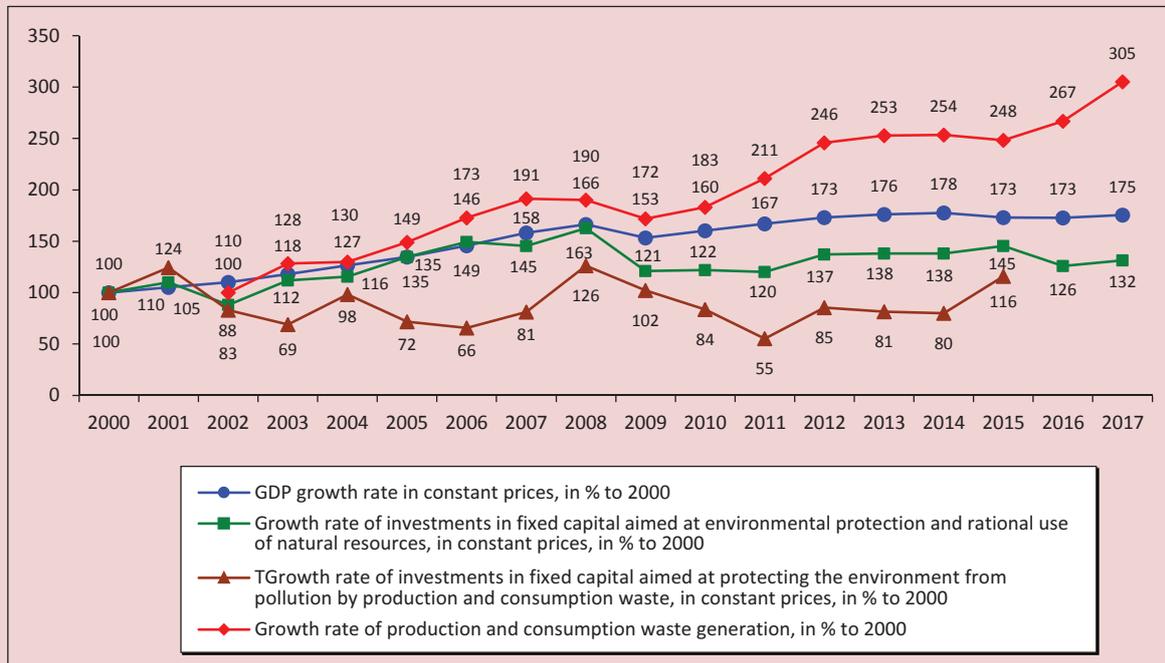
to ecosystems. Thus, according to official statistics of Russia, more than five billion tons of production and consumption waste has been formed annually since 2012 in the country, and the milestone of six billion tons (6,221 billion tons) was overcome in 2017[1]. The growth rate of waste generation significantly exceeded the growth rate of GDP and environmental investment *(Figure)*[2].

The data from the Figure illustrate the growing amount of waste since 2005 against the background of reduced environmental investments in general and investments in

environmental protection from pollution by production and consumption waste in particular (in constant prices of 2000). According to official statistics, the volume of annual waste generation in 2017 was three times higher than in 2000, while the volume of environmental investments increased only by 32%. It is noteworthy that only 8−9% of the total environmental investments are allocated to waste disposal. During almost the entire period under consideration (except for 2001, 2008 and 2015), they were below the 2000 level.

According to Rosprirodnadzor (Federal Service for Supervision of Natural Resources of Russia), due to a low level of waste use (average 48% per year), its accumulation in the environment continues. Today, 90−120 billion tons of waste has accumulated in Russia, and the damage they inflict on the economy is estimated at 4.6 % of GDP [20, p. 1117].

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[1] Generation, use, treatment, and disposal of production and consumption waste in the Russian Federation. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics#

[2] The revaluation of GDP and fixed capital investment in fixed prices (2000) was carried out by extrapolation of the base period indicators using physical volume indices (in % to the previous year). The data for 2016−2017 on investments in environmental protection from pollution by production and consumption wastes are not publicly available.

At the present stage of socio-economic development, when Earth has almost no ecosystems that are not affected by anthropogenic impact, the problem of handling production and consumption waste as unused raw materials can be assessed as one of the most acute from the standpoint of wildlife and the task of "going beyond natural limitations" [13].

It is important to note that waste, which is basically an unused valuable raw material, unlike natural resources, have their own specifics. Staying in a repeated cycle of its movement (raw material − product − waste − raw material′ − product′ − waste′ − raw material″..., etc.), waste goes through a complete circle of transformation. In other words, there is a closed resource cycle, in which there is no need to engage new natural resources in economic circulation. This can be done on the basis of industrial reproduction of raw materials from production and consumption waste [24, p. 20]. In this context, waste is presented as a resource with an incomplete form of consumption; it is advisable to use the term "waste resources" for the definition of such a situation [21, p.12].

In addition, it is necessary to point out the terminological uncertainty of the process of industrial reproduction of raw materials and waste. In this process, the target is not the extraction of new resources from nature, but their industrial production from those resources that are already available, but are currently in the form of waste as a result of primary consumption. The designated process of target transformation of one form of resources into another for the industrial reproduction of raw materials can be terminologically defined as "recycling". This conceptual approach is the basis for positioning the content of recycling in a broad sense as an environmentally oriented closed system of commodity production, which

has the ability to return industrial waste and consumption waste in economic circulation through reuse, including a set of measures to minimize waste generation [24; 26].

It is necessary to note that in the context of the neo-industrial paradigm of modern development, which affirms the priority of socially responsible behavior of the state, business and society and the interests of social capital over the "selfish motives" of private capital [18, pp. 6-7], recycling is put forward as an indicator of the progressiveness of a new stage of socio-economic development. This means that it can be considered as one of the most important factors in non-industrial economic growth, as it meets its criteria, such as innovation, inclusiveness, and environmental friendliness [20, pp. 1116-1117]. Let us further substantiate the proposed theoretical position.

1. An industrially reproducible raw material base cannot do without appropriate innovative technologies, which in the future will have an increasing demand. It should also be taken into account that all the products resulting from the industrial reproduction of raw materials are high-tech and therefore competitive products, the demand for which will also grow.

2. Resources industrially recoverable from waste are a subject of exports. According to the official data of Bureau of International Recycling (BIR), about 600 million tons of materials are processed annually in the world, and 1/3 of them is exported; secondary resources already cover 40% of the needs of the world industry; private companies annually invest 20 billion USD in research in the field of recycling.

3. The creation of a closed-loop economy — the real economy of the 21st century — will have a positive impact on the creation of a large number of high-performance jobs, which corresponds to the principle of social inclusion

(a principle of social capital), which is currently actively implemented in the most advanced industrialized countries. Income growth through the creation of new high-tech jobs increases the availability of social benefits to the wider population, including benefits such as education, health, labor qualification, clean living environments, etc.

4. Active development of recycling helps reduce environmental costs and losses, which, of course, are public rather than private. We are talking about serious environmental challenges that accompany the traditional natural resource-based model, such as CO_2 emissions, global warming, changes in the hydrological cycle, ocean oxidation, pollution of water sources, etc. Against this background, recycling appears as a key condition for the implementation of a new social philosophy, which is contrary to the philosophy of private profit inherent in a raw materials exporting model used by the national economy of Russia.

The above, in our opinion, is the reason to consider recycling as a priority direction of neo-industrial modernization of the country; it enables going beyond the natural limitations, and hence obtain the potential for economic growth.

It is important to note that the Russian Federation started to implement an integrated approach to the issue of growing waste and energy efficiency only in 2014, after several amendments to Federal Law 89-FZ "On production and consumption waste" dated June 24, 1998 were introduced. And although the regulatory legal acts adopted in recent years show the desire of state institutions to address the lingering problems in the field of industrial and household waste management, many of its aspects remain unresolved. Thus, the introduction of recycling standards occurs without proper definition of the

term "disposal". In the Russian regulatory framework, it combines various methods of waste management (disposal, incineration, composting, secondary use) without specifying their priority.

The fact that Article 4 "Waste as an object of ownership" was included in Federal Law 458 "On amendments to Federal Law 89-FZ dated June 24, 1998" should be assessed as a positive phenomenon from the point of view of implementing recycling in the Russian economy. However, it is necessary to mention that the valuations that fill this provision with economic content still remain undeveloped.

In addition, we should point out that Russia's waste management standards, environmental charges, as well as penalties for non-compliance with the rules of responsibility lag far behind European ones. In many cases, it is the stricter liability standards that motivate European manufacturers to use relatively safe methods for disposal of old products. In Russia, manufacturers often find it cheaper to evade the responsibility for the environmentally safe end of the product life cycle than to meet the requirements in the field of recycling; this fact significantly reduces the possibility of rapid and effective development of recycling.

Undoubtedly, the low technological level of waste processing enterprises does not contribute to the development of the resource recycling sector in the Russian economy. Currently, the vast majority of waste sorting facilities (WSF) in the country use mainly manual labor. Some of them use magnets to separate scrap metal. Only in 2011, in Saratov, the first WSF, which uses an automated system that selects components on the basis of the optical mechanism, was launched; the second such complex was commissioned in Kostroma in 2013.

The high level of manual labor input used in collecting and preparing many types of

industrial and household waste for the use as secondary resources does not stimulate the development of recycling that would ensure environmentally sustainable development.

We should note that WSF in Russia in most cases use imported units and assemblies (for example, pre-shredder, bag pulper, large fraction separator, metal separator, RDF shredder, press, etc.). However, a number of Russian enterprises that manufacture waste sorting equipment (OAO Stankoagregat (Moscow), OAO Avtopark No. 1 Spetstrans (Saint Petersburg), OAO Lipetsk pilot plant Hydromash, OOO Ekomashgrupp (Tver), Megalion group of companies (Tver), etc.) are ready to produce the units and assemblies if there is a guaranteed demand and appropriate governmental support for such investment projects. In addition, in our opinion, it is necessary to implement additional measures to stimulate R&D in order to improve the competitiveness of domestic equipment used for waste processing. It is clear that the funds that will come from the disposal fees in the framework of the so-called "tax maneuver" will not be enough for these purposes.

The development and implementation of recycling technologies require significant investments and funding sources. Such investments can have a positive impact on overall productivity, promote employment growth, and under certain market conditions can bring significant profits; and most importantly, they can play a critical part in protecting the integrity of the environment [27]. In this regard, we have carried out the modeling of the resource potential of environmental investment[3] in Russia, which includes, in addition to investments related to the improvement of ecosystems and the replacement of traditional technologies with clean or low-carbon technologies, investments in improving the efficiency of resource use (waste reduction, recycling, efficient use of energy).

The dynamics of environmental investment in the Russian Federation (taking into account its funding sources) is shown in *Table 1.*

These tables show that there is a tendency toward reducing the volume of budget financing of environmental investment (from 34.2% in 2007 to 9.1% in 2015) with the growing

Table 1. Dynamics of investments in fixed capital allocated to environmental protection
and sustainable use of natural resources in the Russian Federation in 2000–2015
in the context of funding sources (in actual prices of that period, %)

Indicator	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total investment, %	100	100	100	100	100	100	100	100	100	100	100	100
Including at the expense of the funds of:	3.8	7.8	10.4	14.0	8.6	11.2	12.1	13.0	13.1	10.5	11.5	4.2
federal budget	17.7	15.0	18.2	20.2	20.7	12.0	14.6	13.3	9.7	6.3	4.1	4.9
budgets of subjects of the Russian Federation and local budgets	21.5	22.8	28.6	34.2	29.3	23.2	26.7	26.3	22.8	16.8	15.6	9.1
total budget investments	74.3	75.9	70.0	63.6	68.0	75.5	72.5	72.0	69.4	78.7	83.4	88.0
other sources	3.5	1.4	1.4	2.1	2.7	1.3	0.8	1.6	7.8	4.4	1	2.8
Source: Federal State Statistics Service of Russia.												

[3] Due to the lack of necessary statistical information we did not carry out the correlation and regression analysis of the resource potential of investment in recycling.

dominance of enterprises' own funds (up to 88%) in the structure of these funding sources. Other sources shown in the Table include raised funds, as well as the funds of environmental foundations allocated from the federal, regional, and local budgets. However, their role in financing the investments is very small: 3.5% in 2000, 1.2% in 2005, 1.1% in 2006, 0.2% in 2008, 0.3% in 2010, 0.04% in 2012, and 0.002% in 2014.

We use the correlation and regression analysis to assess the extent of the impact that the main sources of formation (the sources, which, due to their economic nature, determine the magnitude and dynamics of these investments) have on the volume of environmental investments in the Russian Federation. We select the volume of investments in fixed assets aimed at environmental protection and rational use of natural resources as an effective indicator (Y). Five indicators, reflecting the value of the resource potential of the investment activity at the macro level are considered as factor variables (X) that influence the dynamics of the indicator under consideration. These variables are as follows: consolidated budget revenues; gross profit in the economy, including gross mixed income; balanced financial result (profit minus loss); the amount of amortization accrued during the year; loans, deposits and other allocated funds granted to organizations, individuals, and credit institutions, including loans granted to foreign states.

Since the volume of environmental investments depends not only on the dynamics of macroeconomic indicators reflecting the sources of their financing, but also on the willingness of the state and economic entities to invest in fixed assets, then another three indicators reflecting the sources of investment in fixed assets (budget investments, own funds, credit and borrowed funds) were used to assess

the resource potential of these investments, in addition to the above-mentioned indicators.

The correlation and regression analysis of the impact of these indicators on the volume of environmental investments revealed the existence of multicollinear dependence between them, which did not allow us to build a multifactorial model of resource potential. We built single-factor models that reflect the impact of each indicator on the volume of environmental investment. As we know, the value of the correlation coefficients allows us to assess the degree of influence of factor characteristics on the effective indicator, and their polarity ("+" or "−") shows the type of influence, either direct or reverse. The correlation coefficients we calculated for all the analyzed indicators are positive, i.e. they all have a direct impact on the volume of environmental investments. At the same time, the greatest influence is exerted by the indicators of budget investments in fixed capital and own funds allocated to the investments in fixed capital. They were selected to model the resource potential of environmental investments.

The initial data for the regression analysis of the impact of indicators X1 and X2 on the value of investments in fixed assets aimed at environmental protection and rational use of natural resources are presented in *Table 2*.

There is a linear relationship between the effective and factor features, which allows us to estimate the closeness of the correlation between them using a linear correlation coefficient (0.707 for the features Y and X1, and 0.633 for the features Y and X2).

But when studying cause-and-effect relationships on time series of the data, it is necessary to take into account the presence of autocorrelation of the levels, which is caused by the presence of trends in each series under consideration.

Table 2. Source data for building a model for resource potential of
"environmental" investments in constant prices[4], million rubles

Year	Investments in fixed capital aimed at environmental protection and rational use of natural resources (Y)	Budget investments in fixed capital (X1)	Own funds allocated for investments in fixed capital (X2)
2000	16934	214119	379439
2001	19390	215292	462036
2002	15030	192675	389334
2003	18712	197922	436065
2004	16888	172278	418760
2005	21258	218887	465853
2006	22359	258740	525824
2007	20157	300542	551900
2008	28865	402685	746676
2009	20283	331883	555483
2010	18911	279308	576277
2011	18128	310814	670728
2012	21005	314724	770428
2013	21520	337941	790863
2014	26050	293170	778749
2015	22525	289369	782202
2016	19297	260136	792745
Source: Federal State Statistics Service of Russia.			

In order to obtain a correct picture of the correlation, not distorted by autocorrelation, we excluded the main trend from the levels. The obtained significant correlation coefficients on the trend residuals (0.613 for the features Y and X1, and 0.657 for the features Y and X2) suggest that there is a linear dependence between the initial data series, which is not distorted by autocorrelation.

As a result of the regression analysis, we obtained univariate regression equations, which have the following form:

$$\tilde{Y}_t = 10077{,}75 + 0{,}04 \times X1_t, \qquad (1),$$

$$\tilde{Y}_t = 12400{,}13 + 0{,}01 \times X2_t. \qquad (2)$$

Having checked the residuals of the obtained models, we see that they have no autocorrelation (actual DW values are above dU = 1.38 at 5% significance level).

Multiple correlation coefficient characterizes the closeness of the linear correlation between the resulting and factor features. On the Chaddock scale, there is a high statistical correlation between investments in fixed assets aimed at environmental protection and rational use of natural resources and budget investments (71%). The statistical correlation between environmental investments and the total amount of own investments in fixed capital is significant (63%). The values of the coefficient of determination that shows what part of the total variation of the dependent variable is determined by the factor included in the statistical model, indicates the acceptability of the models obtained, in particular, 50% for X1, and 40% for X2. The regression coefficients obtained for all single-factor models should be considered significant, since the probability of adopting the inverse hypothesis for them (p-value) is significantly less than 0.05.

[4] Revaluation of indicators in constant prices (1999) was carried out with the help of deflation method by means of the price index of producers of industrial goods.

At the same time, the best values of all regression indicators were demonstrated by equation (1), which establishes a relationship between the volume of environmental investments and budget investments in fixed assets. According to the obtained model (equation 1), in the current institutional environment, the growth of budget investments in fixed assets by one billion rubles leads to a 40 million rubles increase in investments in fixed assets aimed at environmental protection and rational use of natural resources, which, however, can not be interpreted as a significant effect.

Given the high share of own funds in financing investments in environmental protection and rational use of natural resources in Russia, we can point out that their amount plays a key role in business decisions regarding the volume of environmental investments. Therefore, incentives to expand this source of financing will be attractive for business entities. This conclusion is confirmed by the results of the correlation and regression analysis (*Table 3*). The model presented in the form of the equation (2) can be used to estimate the real effect (independent of inflation rate) of the state instruments that allow business entities to release own funds provided they are allocated to environmental investments.

According to the model we obtained (equation 2), under the current institutional environment, the increase in the volume of own funds allocated to investment in fixed capital by one billion rubles leads to an increase in the investments in fixed capital aimed at environmental protection and rational use of natural resources only by 10 million rubles. In our opinion, such a minor increase in environmental investments in response to the increase in the volume of own funds invested in fixed assets is due to the residual principle of financing of environmental activities. The high degree of wear of the main production equipment determines the priority of invest-ments of own funds in the active part of the main production assets and only after that – in environmental capacities.

Thus, the dependences we constructed demonstrate low elasticity of "environmental" investments on the value of the analyzed factors (sources of financing), as evidenced by the value of the regression equation less than 1, as well as the coefficient of elasticity calculated as a product of the correlation coefficient and the ratio of the values of the factor and resulting features average for the analyzed period. Moreover, the coefficient of elasticity of environmental investments in the total volume of budget investments in fixed assets is equal to

Table 3. Results of the regression analysis of the influence of the variables X1 and X2 on investments in fixed capital aimed at environmental protection and natural resource management

Indicator	Budget investments in fixed capital (X1)	Own funds allocated for investments in fixed capital (X2)
Durbin–Watson (DW) statistic	1.96	1.61
Multiple correlation coefficient R	0.707	0.633
Coefficient of determination	0.50	0.40
Standard error	2447.51	2682.84
Student's t-test value	3.68	4.73
F-test value	15.04	10.001
Significance level p-value	0.001	0.006
Elasticity of Y with respect to X	1.02	0.56
Source: our own calculations.		

1 (the so-called unit elasticity), and the total amount of own funds invested in fixed assets was only 0.56 (not elastic).

This proves not only the weak interest of business entities in investing in environmental protection and rational use of natural resources, but also the inefficiency of the current system of environmental regulation in Russia. The resulting models of the resource potential of "environmental" investments, in our opinion, indicate that in Russia in the current institutional environment, it is impossible to provide the amount of funding required for the formation of recycling economy in the medium term.

The problems in the field of production and consumption waste management in the Russian economy that we described above lead to the fact that our country lags significantly behind the developed economies in this regard.

Proposals

Within the framework of the problem related to the search for options and ways to resume economic growth and preserve its potential for the long term in a situation of growing "ecological debt" and "ecological footprint", the scientific community should focus on the change of the foundations of civilizational development — the transfer of the economy from the traditional (natural) resource supply to the industrial reproduction of raw materials. In this case, the material basis can be found in the production and consumption waste, the reserves of which are currently very significant. At the same time, recycling, as an expression of the essence of the process of industrial creation of raw materials from waste resources on the basis of new industrialization, makes it possible to "go beyond natural limitations" [13] on the basis of the formation of a closed-loop economy, which can continue to grow without violating environmental restrictions or completely exhausting the resources [1, p. 70].

In our opinion, the minimum necessary condition for the transition to a recycling economy can be described by the expression of the relationship of growth rates of three key indicators: economic growth, investment in resource recycling, and waste generation (3):

$$T_{IR} \geq T_{EG} \geq T_{WG} , \qquad (3)$$

where T_{IR} is the growth rate of investments in the recycling industry;

T_{EG} — rate of economic growth;

T_{WG} — growth rate of waste generation.

The rate of growth of environmental investments should exceed the rate of economic growth to compensate for the already accumulated environmental footprint of past periods. The rate of economic growth in the transition to new sources of raw materials (waste resources) should exceed the rate of growth of waste, some of which will become secondary raw materials and resources. Ideally, the growth rate of waste generation should be zero or negative, as the waste capacity of the Russian economy, as well as other indicators of environmental production processes, significantly exceeds the level of developed foreign countries.

With regard to the current stage of socio-economic development of Russia, we consider it necessary to implement the following priority measures so as to expand and effectively develop recycling:

1. To improve the regulatory framework in the field of waste management. It is necessary to implement further step-by-step and systematic development of relevant norms and legal mechanisms to establish the expanded responsibility of producers for the environmentally safe completion of the product life cycle; to adjust the legislation in the field of secondary material resources; to continue to

expand the powers of the subjects of the Russian Federation in the field under consideration.

2. To form a new economic mechanism that would include waste resources in the economic development of the country, which implies:

a) modernization of pricing, which means determining the total cost of production, including the cost of waste treatment;

b) compliance with the principle of economic responsibility of the producer and consumer of the product;

c) compliance with the principle of social justice, which means in this case that the fee for the processing of waste is tied to the consumer of the product (the consumer pays for the processing);

d) creation of a favorable macro-environment for the accelerated attraction of investments in the resource recycling industry, the main components of which should be as follows:

— state guarantees in the form of subsidies to reimburse part of the costs of interest on loans and borrowings attracted by private investors for the implementation of projects related, first, to the development of new and/or adaptation of existing technologies for waste processing, focused on the principles of the concept of "Zero waste", the selection and localization of the best technological practices of waste disposal (for example, pyrolysis), and, second, related to the construction, technical re-equipment or reconstruction of production facilities of waste processing enterprises;

— providing a set of benefits and preferences (for example, benefits on loans and taxes for joining the engineering and transport infrastructure) to enterprises engaged in waste processing with the use of "green" technologies and supplying secondary raw materials

with improved environmental qualities; creating conditions under which it becomes economically unprofitable for the owner of waste to store it;

— promoting the use of waste products of the Russian industry and the export of secondary raw materials that are not in demand by domestic producers, etc.

3. Creating an effective form of management of recycling. Taking into account the significance and scale of the identified problem, the management of recycling should be based on the principles of public-private partnership. Recycling management is not a self-regulating system; it should involve the government, business, and society. The modern focus on self-regulation of business is not consistent here.

4. Training of qualified specialists in the implementation of the state program for industrial reproduction of raw materials.

Conclusion

Summarizing the above, we consider it necessary to note that our study contributes to scientific knowledge in the following ways:

1) it puts forward and substantiates the scientific idea of the need to create a new resource base of the economy in the form of industrially reproducible raw materials from waste resources as an adequate response to the known dilemma of economic growth and a possible solution to the problem of geosphere restrictions of the latter;

2) it provides theoretical substantiation for recycling, the active development of which is predetermined by the dominance of the interests of social rather than private capital in society, as one of the most important priority directions in the neo-industrialization of the Russian economy, which can give a new start to the long-term period of its growth by

establishing the unity of environmental and socio-economic principles;

3) it assesses the resource potential of environmental investment in the Russian economy on the basis of the econometric model constructed in the framework of the study;

4) it formulates the minimum necessary condition for transition to recycling economy in the form of expressing the interrelation of growth rates of three key indicators (economic growth, investments in recycling, waste generation).

References

1. Jackson T. *Protsvetanie bez rosta. Ekonomika dlya planety s ogranichennymi resursami* [Prosperity without Growth. Economics for a Finite Planet]. Moscow: AST-Press kniga, 2013. 304 p.

2. Fuchs R. *Zelenaya revolyutsiya. Ekonomicheskii rost bez ushcherba dlya ekologii* [Green revolution. Economic growth without damage to the environment]. Moscow: Al'pina non-fikshn, 2016. 330 p.

3. Booth D. *Hooked on Growth: Economic Addictions and the Environment*. New York: Rowman & Littlefield Publishers, 2004. Pp. 139-168.

4. Jakson T. *Material Concerns: Pollution, Profit and Quality of Life*. London: Routledge, 1996.

5. Gubanov S. *Derzhavnyi proryv. Neoindustrializatsiya Rossii i vertikal'naya integratsiya* [Sovereign breakthrough. Neo-industrialization of Russia and vertical integration]. Moscow: Knizhnyi mir, 2012. 223 p.

6. Gubanov S. New industrialization and the sector of recycling. *Ekonomist=Economist,* 2014, no. 12, pp. 3-11. (In Russian).

7. Grigor'ev O.V. *Epokha rosta. Lektsii po neoekonomike. Rastsvet i upadok mirovoi ekonomicheskoi sistemy* [The era of growth. Lectures on neo-economics. The rise and decline of the world economic system]. Moscow: Kar'era-Press, 2014. 448 p.

8. Spence M. *Sleduyushchaya konvergentsiya: budushchee rosta v mire, zhivushchem na raznykh skorostyakh* [The Next Convergence: The Future of Economic Growth in a Multispeed World]. Moscow: Izd-vo Instituta Gaidara, 2013. 336 p.

9. Malinetskii G.G. *Chtob skazku sdelat' byl'yu... Vysokie tekhnologii put' Rossii v budushchee* [To make a fairy tale come true... High technology − Russia's way to the future]. Moscow: Librokom, 2012. 224 p.

10. Kamenik L.L. Modernization of the Russian economy. Recycling − a new vector of business development. *Ekonomika i predprinimatel'stvo=Journal of Economy and Entrepreneurship*, 2015, no. 3 (56), pp. 177-184. (In Russian).

11. Lipina S.A., Agapova E.V., Lipina A.V. *Razvitie zelenoi ekonomiki v Rossii: vozmozhnosti i perspektivy* [Development of green economy in Russia: opportunities and prospects]. Moscow: LENAD, 2018. 328 p.

12. Meadows D.H., Randers J., Meadows D.L. *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind*. New York: Universe Books, 1972. 211 p.

13. Meadows D.H., Randers J., Meadows D.L. *Predely rosta: 30 let spustya* [Limits to Growth. The 30-Year Update]. Moscow: BINOM, Laboratoriya znanii, 2012. 358 p.

14. Krugman P. *Vozvrashchenie velikoi depressii? Mirovoi krizis glazami nobelevskogo laureate* [The Return of Depression Economics and the Crisis of 2008]. Moscow: EKSMO, 2009. 336 p.

15. Bobylev S.N. Green economy: perspectives for Russia. *Ekologicheskoe pravo=Environmental Law,* 2011, no. 6, pp. 39-42. (In Russian).

16. Bobylev S.N., Zakharov V.M. "Green" economy and modernization. Ecological and economic foundations of sustainable development. *Na puti k ustoichivomu razvitiyu: Byulleten' In-ta ustoichivogo razvitiya Obshchestvennoi palaty RF=On the Way to Sustainable Development: Bulletin of the Institute for Sustainable Development of the Public Chamber of the Russian Federation*, 2012, no. 60, p. 90. (In Russian).

17. Porfir'ev B.N. Green economy: global trends and prospects. *Vestnik Rossiiskoi akademii nauk=Herald of the Russian Academy of Sciences,* 2012, vol. 82, no. 4. pp. 323-344. (In Russian).

18. Gubanov S.S. On the economic model and long-term strategy of the new industrialization of Russia. *Ekonomist=Economist,* 2016, no. 2, pp. 3-10. (In Russian).

19. Tatarkin A., Andreeva E. Perspektivy neoindustrial'nogo razvitiya Rossii v usloviyakh tekushchikh sdvigov Prospects of neo-industrial development of Russia in conditions of current shifts. *Ekonomist=Economist,* 2016, no. 2, pp. 11-22. (In Russian).

20. Kormishkina L.A., Kormishkin E.D., Koloskov D.A. Economic growth in modern Russia: problems and prospects in the context of neo-industrial paradigm. *Journal of Applied Economic Sciences,* 2016, vol. 11 (6), pp. 1115-1119.

21. Kamenik L.L. *Resursosberegayushchaya politika i mekhanizm ee realizatsii v formate evolyutsionnogo razvitiya* [Resource-saving policy and the mechanism of its implementation in the format of evolutionary development]. Saint Petersburg, 2012. 480 p. Available at: http://elib.spbstu.ru/dl/2504.pdf/download/2504.pdf

22. Schwab K. *Chetvertaya promyshlennaya revolyutsiya* [The Fourth Industrial Revolution]. Moscow: Eksmo, 2017. 208 p.

23. Shevelev A.A. The principle of systematicity in economic theory: the need for a new vision. In: Osipov Yu.M., Pulyaev V.T., Ryazanov V.T. *Ekonomicheskaya teoriya na poroge XXI v.* [Economic theory on the threshold of the 21st century]. Moscow: Yurist", 1998. 768 p. (In Russian).

24. Kormishkina L.A., Kormishkin E.D., Koloskov D.A. Recycling as a special factor of the Russian economy growth in the formula of neo-industrial development. *Espacios,* 2017, vol. 38, no. 54, p. 20. Available at: http://www.revistaespacios.com/a17v38n54/a17v38n54p20.pdf

25. Popov A. Recycling and its importance in the neo-industrial development model. *Ekonomist=Economist*, 2015, no. 9, pp. 24-29. (In Russian).

26. Kormishkina L.A., Kormishkin E.D., Koloskov D.A. Neo-industrial content of economic growth: criteria, indicators, factors and prospective assessment for Russia. *Indian Journal of Science and Technology,* 2016, vol. 9, no. 47. DOI: 10.17485/ijst/2016/v9i47/108699.

27. D'Alessandro S., Luzzati T., Morroni M. Energy transition towards economic and environmental sustainability: feasible paths and policy implications. *Journal of Cleaner Production,* 2010, no. 18, pp. 291−298.

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Impact of Socio-Economic and Environmental Changes on the Use of Hunting Resources by the Autochthonous Population of the Arctic*

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Abstract. The state and possibilities of use of hunting resources are of great cultural and socio-economic importance for the indigenous population of the North; they also affect the safety of people living in sparsely populated Arctic territories. The paper considers the historical experience of organization and legal regulation of hunting as a type of economic activity in the Arkhangelsk Governorate [*Arkhangelskaya guberniya*] in the 19th — early 20th century; it also provides the quantitative and cost characteristics of hunting resources. We present the results of sociological surveys of hunters from Nenets Autonomous Okrug and the Arkhangelsk Oblast conducted in 2015–2016, the data on the population status of game animals hunted by people in the Arctic territories. Hunting in the Arkhangelsk Governorate was most developed in Pinezhsky, Pechorsky, and Mezensky counties [*uezdy*]; there was almost no government intervention in this activity until the end of the 19th century. It was assumed that a small number of hunters (less than 3% of the population of the Governorate) can not cause irreparable damage to the population of game animals. Currently, amateur and sports hunting and hunting tourism are developing in the Arkhangelsk Oblast and in Nenets Autonomous Okrug. The number of registered hunters is about 4% of the total population of these territories. Hunting resources are used more often for own consumption. Geese and ducks for a quarter of respondents become the main food in their families for several days a year. To rural residents, hunting is determined by both basic needs (food production) and socio-cultural goals (continuation of family tradition, lifestyle). To urban residents, hunting is mainly their hobby. The development of hunting tourism, according to one third of respondents, does not benefit the local community. The number of hunters and their specialization are determined by organizational and legal conditions and by the opportunities for the sale of hunting products. The problem of underutilization of some types of hunting resources and the risk of depletion of others is aggravating.

Key words: Arctic territories, socio-economic conditions, natural and climatic changes, rational nature management, autochthonous population, hunting resources, tourism.

Introduction

The state and use of hunting resources is closely connected with the general problems of environment protection and social development. Maintaining the population of economically important mammals and birds and preserving endangered species is the goal and result of social development within a certain system of environmental prohibitions and imperatives. The degree of people's involvement in environmental management determines the differences in their perception of environmentally necessary and socially acceptable approaches to nature protection. In today's global community, the discussion about hunting remains active: "on the example of people's significantly different attitude towards hunting animals and birds, which some glorify and others furiously curse, we can see how heterogeneous are our views on environmental ethics" [1].

The processes of urbanization and shift of human activities towards the virtual sphere tend to estrange people from nature more and more. Destructive changes in the traditional hunter community pose threats including loss of knowledge and experience of nature management as an important component of culture and a mechanism for adaptation to the changing natural environment. Studies in Europe and the US mark a decreasing number of hunters capable of controlling the number of wild animals [2, 3]. In Russia, against the

gradually increasing population engaged in amateur hunting, a decrease in hunting activity is recorded due to registered hunters who rarely or never hunt during the year, the number of professional hunters is reduced [4, 5]. In modern society hunting becomes an active form of recreation, changing the social structure of the hunter community, the hunters' attitude to nature and interest in hunting [6, 7, 8, 9]. The importance of measures to preserve the traditions of hunting in rural areas where this activity remains part of people's lifestyle [3, 10], as well as to form the social mechanisms of inclusion of population groups in hunting in order to manage ecosystems is increasing [10, 11].

The modern structure of the hunter community distinguishes the following groups: (1) rural residents represented by traditional hunters whose interest in hunting is formed within a family; (2) residents in cities with rural origin, the so-called rural immigrants; (3) hunters whose hobby of hunting is formed and supported by the media and social networks; (4) hunters motivated by the desire to benefit through regulation of ecosystems; (5) followers of a certain lifestyle interested in consumption of natural products of hunting; (6) residents from the outskirts of cities with the motives typical for other groups [9]. The given classification reflects the differences between groups of hunters in their place of residence, in relation to hunting traditions, and in their dominant interests. The resource component of hunting in this case is not taken into account, although it can be assumed that the structure and volume of hunting resources for the selected groups of hunters may vary significantly.

Hunting is one of the types of traditional nature management of indigenous population living in the North of Russia significant in cultural and socio-economic terms [12].

According to the results of recent surveys of indigenous peoples of the North, the preservation of all traditional forms of management including hunting is of the greatest importance since they remain the basis of existence [13]. Production of hunting resources here is still based on the principles of subsistence farming where hunting for hunters themselves is a source of products used for domestic consumption [14]. In Arctic sparsely populated territories characterized by transport inaccessibility hunting plays a special role in ensuring the safety of human habitation. Measures to control the population of carnivores, wolves that affect the number of reindeer remain relevant. The termination of organized Arctic fox and fox hunting in the 1990s was one of the reasons for complicated epizootic situation with rabies in the Nenets Autonomous Okrug today [15].

The use of animal resources and hunting rules go beyond the local framework of regional problems and in recent decades are on the arena of international interests. In 2008, Russia ratified the Agreement on international standards for humane capture of wild animals and thus banned the use of leghold traps. As a result of twenty years of activity of the International Fund for Animal Welfare (IFAW) in Russia, in 2009 the fishing regulations for the Northern fisheries basin were made, prohibiting Greenlandic seal pups hunting. Currently, there are requirements for Russia's accession to the international intergovernmental structure for conservation of African-Eurasian migratory waterbirds (AEWA). Along with rare bird species, the Agreement protects birds whose number is large enough to hunt in different countries within their flight route [16]. The likely consequence of adopting this international agreement is the introduction of a ban on spring hunting in Russia.

Setting environment related objectives based on the priorities of the environmental policy of universal and global importance is designed to ensure consistency and predictability of environmental actions, comparability of results of decisions with global trends. However, there is currently no global governance regarding natural resource management and environmental protection. In fact, each international organization creates an autonomous management regime for both natural resources and international environmental problems [17]. Decisions on a particular environmental problem are usually made amid absence of sufficient scientific information and knowledge of the causal nature of phenomena and processes. The issues of compensatory measures for population groups dependent on natural resource management are not sufficiently studied.

In territories where features of traditional nature management are preserved, where legislative acts contradict with traditions and needs of local communities, mass violations of rules arise, that is, the created laws do not work [18]. The use of hunting resources based on uniform rules, regardless of the economic and socio-cultural situation, are resisted if they conflict with the established patterns of behavior and habits of communities. The institutionalization of socio-cultural characteristics of territories as a permanent element of environmental management, that is, the use of socio-cultural methodology [19], is the basic principle of environmental management through which the state's international law on the use of natural resources for developing and meeting the needs of its citizens should be implemented.

The purpose of this research is to identify the impact of socio-economic and environmental conditions on the possibility to meet the interests of the autochthonous population in use of hunting resources in the Arctic (for example, the Arctic zone of the European North of Russia).

Methods and materials

The study applies an interdisciplinary approach to understanding the nature of hun-ting as a type of economic activity and environmental management of the autochthonous population at present and in historical retrospect; what it does for the population of the Arctic territories, and how it develops in the changing socio-economic and environmental conditions. The implementation of the stated approach is provided through using the historical and genetic method in studying the historical experience of organization and legal regulation of hunting in Russia in general and in the European North in particular in the 19th-early 20th century; sociological methods to analyze the opinion of people engaged in hunting; and monitoring the state of hunting resources.

In order to characterize the hunting resources by the population of the Arkhangelsk Guberniya (province) in the 19th — early 20th century, documents from funds of the state archive of the Arkhangelsk Oblast published and the "all-submitted reports" of Arkhangelsk governors to the Emperor published in the 1870s—1910s, annexes thereto, reviews of the Arkhangelsk Guberniya, and reports of the Arkhangelsk Guberniya Statistics Committee were used. The information on the number of people engaged in hunting, number of animals and "bird pairs" is analyzed, as well as sales from fishing in rubles. It should be noted that during this historical period information from hunters was collected using the method of questioning by officials, then the information was processed by the Arkhangelsk Guberniya Statistics Committee and the Office of the Arkhangelsk Governor.

In order to analyze the current situation we use the method of secondary analysis of materials of expert interviews on the regulation of hunting and surveys on the socio-environmental aspects of extraction of resources of migratory birds. In particular, we use materials of 26 expert interviews conducted in 2015 among the representatives of the authorities and operating enterprises interested in the development of tourism, experienced hunters and local residents of the Nes village in the Nenets Autonomous okrug. Materials of surveys among the residents of rural settlements of the Nenets Autonomous okrug and the city of Mezen in the Arkhangelsk region in 2016 were also used. The survey involved 236 hunters, including 145 villagers and 91 citizens. The method of "snowball" was used for selecting the respondents, that is, the search for respondents engaged in hunting was carried out with the help of respondents themselves. The state of hunting resources was considered based on available data on the performance of the number and qualitative changes in the structure of animals and birds that are objects of human take in the Arctic territories.

Results

The Russian legislation regulating hunting as a type of economic activity did not limit it on the territory of the Arkhangelsk Guberniya until 1892. It was assumed that a small number of hunters dispersed over large areas of the province cannot cause irreparable damage to exploited bioresources. At that time, the Arkhangelsk province was the largest province in the European Russia, which included large areas of the present republics of Karelia and Komi, the Arkhangelsk and Murmansk oblasts, and the Nenets Autonomous Okrug.

Hunting was not an "exclusive" activity of any uyezd (county) or separate locality. It was most developed in the Pinega, Mezen, and Pechora uyezds. The gradually declining interest in hunting in the Guberniya was facilitated by the increased volume of logging from year to year, development of sawmilling and woodworking, reduction of forest areas in general and in the territories adjacent to the settlements. Timber works became more attractive for the population in comparison with other types of activity because of higher profitability. According to data for 1913, the value of animals taken by hunters in the province comprised 180.1 thousand rubles. The taken 94.9 thousand species included squirrels (59.9 thousand species), stoats (21.5), ice foxes (3,9), as well as foxes, martens, bears, and "other wild animals". Production of birds recorded in pairs amounted to 509.6 thousand pairs — hazel grouse (369.4 thousand pairs), partridge (60.9), black grouse (41.5), and "other forest and water birds" (37.8). According to statistical reports, revenues from bird hunting in the province in general was comparable to revenues from animal hunting and amounted to 187.7 thousand rubles. A significant share of all revenues from hunting in the province belonged to hunters in the Pechora uyezd (3.9 thousand people) and in the same 1913 amounted to 144.9 thousand rubles. Unlike other uyezds, most revenues were derived from animal hunting (114.4 thousand rubles), rather than from bird hunting. The average income from hunting per hunter of this uyezd comprised 37.5 rubles per year (compare: similar indicators of income from fisheries reached almost 60 rubles)[1].

The total number of hunters in the Arkhangelsk Guberniya in the late 1890—1910s varied, reaching maximum values in 1891 and 1913 (13.0 and 12.7 thousand people respectively), minimum — in 1893 and 1915

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[1] Review of the Arkhangelsk Guberniya for 1913. Arkhangelsk, 238 p.

(6.2 and 6.6 thousand people). The share of hunters in the pre-war 1913 amounted to 2.7% of the total population of the guberniya. A sharp decrease in the number of hunters in 1893 and 1915 was caused not by environmental and biological, but also by socio-political factors[2].

The decrease in the number of hunters in 1915 relative to the previous 1914 was caused by mobilization measures in connection with Russia's entering the First World War. The reduced number of hunters in 1893 needs a more detailed explanation. At the beginning of 1892 in Russia, "Rules of hunting"[3] were "highly approved" and adopted. The document was short, extremely abstract, it almost did not take into account the specific features of the outskirts of the Russian Empire. The language was ambiguous. Article 18 of the "Rules of hunting" completely banned the use of traps (noose, drag net etc.) for hunting upland game. Its practical application in the Arkhangelsk Oblast caused sharp discontent of hunters and members of their families with the actions of the authorities. The developers of the "Rules" did not take into account that the use of simple and cheap traps in the Arkhangelsk Guberniya was much more common than hunting using firearms, which requires more money. Police officers who were now assigned to prosecute those responsible for hunting in traditional ways were unable to perform their duties due to the fact that the hunting areas were far from populated areas. The "Rules of hunting" also did not take into account the situation in the domestic market in Russia, where meat and bird feather were in stable and growing demand:

"clean" game, i.e., pressured, not stained with blood, is valued more than fresh. There were no penalties provided for buyers of game; no legal and organizational procedures for confiscating, storing and selling game. As a result, statistics characterizing the take of upland game and the number of hunters in the Arkhangelsk Guberniya decreased in 1893 and the next few years. However, there is also evidence of massive violations of hunting rules; game buyers continued to deliver dozens of partridge carts, including illegally obtained ones, to the fairs[4]. Only in the 1900s the situation with hasty and ill-considered introduction of the "Rules" in 1892 was stabilized through a series of events conducted by the authorities – stimulation to buy cheaper firearms and ammunition and their persistent spread among hunters[5].

Hunting in the territory of the Russian Federation is currently regulated by Federal law "On hunting and conservation of hunting resources" (2009) and the Hunting rules approved by Order of the Ministry of Natural Resources and Environment of the Russian Federation (2010). These legal acts are peculiar in a way that they are related to the laws of the Russian Federation, which guarantee the rights of indigenous peoples of the North, Siberia and the Far East, as well as the population living in places of traditional economic activity of these peoples. Thus, in order to ensure the traditional way of life and implementation of traditional economic activities of the indigenous peoples of the North, in addition to the common list of wildlife objects classified as hunting resources, loons, gannets, gulls, terns, and auks are also included in this list. According to the rules of hunting (2010), in hunting grounds located

[2] Review of the Arkhangelsk Guberniya for 1915. Arkhangelsk, pp. 6–7; Annex to the all-submitted report of the Governor of Arkhangelsk on the state of the Arkhangelsk Guberniya for 1893. Arkhangelsk, 1894. Pp. 26–28.

[3] Full collection of laws of the Russian Empire. Collection 3. Vol.12, no. 8215–9216 and annexes. Saint Petersburg, 1895. Pp. 81–82. No. 8301.

[4] State archives of the Arkhangelsk Oblast. Fund 4 – Arkhangelsk guberniya Government. Series 10. Vol. 1. Files 479, 425; Vol. 2. File 689.

[5] Review of the Arkhangelsk Guberniya 1902. P. 34.

on the isles of Kolguev, Vaigach in the Arctic Ocean and its seas, hunting geese in spring is prohibited. This rule, according to Federal law on hunting and conservation of hunting resources, does not apply to indigenous peoples of the North, Siberia, and the Far East, as well as to population not belonging to them but living in places of their traditional economic activity.

The modern period of using hunting resources in the Arctic zone of the European North of Russia is characterized by cessation of hunting fur animal species. Loss of interest in hunting these species was the result of the post-Soviet socio-economic reforms in Russia at the end of the 20th century, elimination of the system of public procurement of fur skins, and depreciation of fur products. The termination of hunter societies significantly reduced the number of hunters specializing in hunting large predators. The problem of regulating the increased number of brown bears and wolves, which negatively influences the elk population is aggravated. Thus, in the Arkhangelsk Oblast, according to the winter route statistics, the elk population decreased from 53 thousand species in 2016 to 39 thousand in 2018, and the number of wolves during the same period, on the contrary, increased from 1.1 thousand to 1.3 thousand species. At the same time, there is a growing demand for economically important mammals and birds that make up the meat diet of the autochthons.

The species and quantitative composition of hunted birds and mammals is closely related to the natural population dynamics of these species. This can be most clearly seen in isolated Arctic island territories, such as the Isle of Kolguev. The abundance of anseriformes on the island in the period from the end of the 19th century up to the present has significantly fluctuated. The most numerous species of Kolguev geese and the main objects of island's residents' take in the late 19th– early 20th century were brant geese and bean geese. Currently, brant geese can only be found off the coast of the island when they fly by; the number of bean geese significantly reduced. The population of white-fronted geese in the past was the third highest among geese, three times less than that of bean geese. Now white-fronted geese are the most numerous species not only among geese, but also among waterfowl on the island. Cases of hunting barnacle geese on the Isle of Kolguev in the 1980s were isolated; they were rare and were listed in the Red Book of Endangered Species of the USSR (1984). However, in the first decade of the 19th century, the share of white barnacle geese in the total number of anseriformes hunted on the island during the hunting season (about 9.5 thousand species) was more than 30% [20]. The exponential growth and the increased range of barnacle geese helped ornithologists talk about the invasion of this species in the Western sector of the Russian Arctic.

On the territory of the Arkhangelsk region and the Nenets Autonomous Okrug amateur and sports hunting takes place, hunting tourism is developed. According to data provided by the Media center of the Government of the Arkhangelsk Oblast, the total number of registered hunters of these two territories in 2014 amounted to about 48 thousand people[6] or 3.9% of the total number of residents there.

Hunting is one of the most popular ways of nature management. According to the survey participants, almost all adult male population is engaged in hunting in rural settlements,

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[6] Media center of the Government of the Arkhangelsk Oblast. Ministry of natural Resources and Forestry of the Arkhangelsk Oblast. August 22, 2014. Available at: http://dvinanews.ru/-71t4tdh4 (accessed: 09.07.2018).

women are also among hunters. The population of the Arctic territories traditionally starts hunting from early age. Most of the surveyed hunters in Mezen got their first hunting experience at the age of 15.

The number of respondents' days spent hunting varies from one to sixty or more days a year. At the same time, 1—10 days are usually spent hunting by almost a quarter of respondents; 11—30 days — more than half of the total sample; 31—60 days — less than a quarter of respondents; more than 60 days a year — one-twentieth of the respondents. In spring they mostly hunt geese during their migration to breeding grounds. Among waterfowl the main objects of hunting, according to the results of a survey of hunters in Mezen (sample — 91 people) were: barnacle goose (705 birds taken by the surveyed hunters per year), white-fronted goose (700), bean goose (471), mallard (338), European teal (208), brant goose (117), and pintail (108). The greatest share of birds taken during the year is comprised by partridge (1294).

Hunting resources are taken by the autochthonous population most often for their own consumption. Thus, in Mezen, a significant part of respondents (3/4) gave a negative answer to the question "Have you ever had to buy, sell, barter birds taken?". Almost a quarter of respondents agreed with the statement that the geese and ducks they hunt become the main food in their families for several days a year. The products of hunting prevail in the diet of rural residents. According to the subjective assessment of the inhabitants of the village of Nes, 40—70% of the consumed meat products are goose and partridge meat, the rest — venison.

Interest in hunting, however, is not limited to the need of the indigenous population to obtain resources. This is confirmed by the answers to the open question "Why do you consider yourself a hunter?" which deals with the problem of respondents' socio-cultural self-identification. For some respondents (about 20% out of 236 respondents), their identification as a hunter is determined by the fact of hunting for resources, the social role of a breadwinner: "because I'm a breadwinner", "I get food for the family". The answers mark the necessity to hunting for life support: "it is necessary to hunt as we live by hunting", "for me it is a source of livelihood, living". Among the respondents there is a common idea that they consider themselves hunters due to a family tradition: "all ancestors were hunters, and I have been doing this since childhood", "this goes our tradition, my father is a hunter". Hunting acts as a basis for self-identification with the inhabitants of the North, with a particular way of life: "in the North, any worthy man considers himself a hunter, a breadwinner", "...in the North, without hunting I do not consider myself a northerner", "...this is part of the way of life". Respondents consider themselves hunters because hunting is their favorite pastime", "the dictates of the soul", their passion; it is a hobby that brings "a sense of satisfaction, pride", "rest to the soul". The feeling of love and belonging to nature also underlies the attitude to oneself as a hunter: "I love nature", "I like: nature, rest", "I love nature; the main thing is not hunting, but being with nature, relaxing"; "... I consider myself involved in nature: food, communication with nature".

The self-identification of hunters living in the city and in rural settlements differs. Urban residents prioritize hunting as a favorite hobby. Rural citizens consider themselves hunters as they are engaged in hunting and maintain traditions and lifestyle; hunting is rarely mentioned as a hobby. As a rule, the answers

reveal several grounds for respondent's self-determination as a hunter.

The majority of proposals and comments on the questionnaire, which respondents could express in free form, reflect the interests of the population to create more favorable organizational and legal conditions for hunting and taking resources. Almost half of the respondents suggested that the spring hunting period should be brought in line with migration periods of geese. Some hunters spoke about the need to strengthen state and public control over observance of rules of hunting, including the activity of tourist hunters "...who vandalize the nature".

The dependence of hunting efficiency on natural and climatic conditions is currently of particular relevance. Changing snow/ice regime makes traditional hunting areas inaccessible. The participants of expert interviews name early snowmelt one of the main reasons why periods of transit are reduced and flight routes of geese are shifted in spring. More frequent climatic deviations increase the probability of discrepancy between the periods of goose transit and the period when hunting in spring is allowed. In this case, pre-set hunting dates become an obstacle for hunting migratory birds.

The socio-economic transformation of the Arctic territories, the development of tourism potential and hunting tourism creates prerequisites for competitive relations in the hunter community. There are conflict situations due to the limited number of available places for successful spring hunting, when traditional hunting areas of the autochthonous population are used for commercial purposes to create tourist recreational centers there. The projected development of the transport infrastructure and the road network of the Arctic territories will increase the availability of hunting resources for tourist hunters. According to the opinion of the participants of expert interviews, this may have a negative impact on the state of hunting resources and the possibility of hunting for the autochthonous population. According to more than one third of respondents, the development of hunting tourism is not beneficial to the local population; they comment that "the creation of tourist zones limits population's access to hunting areas", tourists "interfere", "use hunting resource of the local population".

Discussion and conclusion

Thus, the population of the Arctic zone of the European North of Russia associates hunting with the interests of different levels — from meeting basic needs (food production) to socio-cultural goals (continue tradition, lifestyle). The importance of hunting as a business has been lost; the resources are procured by the population for their own consumption. Hunting itself becomes a commodity in the market of tourist services.

The results show how hunters' specialty and the structure of the hunting community change. On the one hand, these changes are explained by natural factors, where processes of natural population dynamics of hunting species have a significant impact: for example, with an increase in the population of barnacle geese the number of birds of this species increased and exceeded the rest traditionally hunted ones. On the other hand, organizational and legal conditions and opportunities for selling hunting products are important. Thus, the elimination of the system of public procurement of furs, as well as changes in market conditions of fur materials led to the fact that fur animal species ceased to be hunted in the European North. As a result, hunters have to adapt to a complex combination of natural and socio-economic conditions. Such adaptation is achieved through hunting other permitted and available animal species. As a result, the

problem of underutilization of some types of resources and risks of depletion of others is exacerbated, which generally affects the state of the biosystems of the Arctic.

The revival and development of commercial hunting amid economic globalization and strengthened environmental requirements is an pressing challenge for the regions with hunting resources. The historical experience of organizing and regulating hunting in the European North demonstrates the influence of the state on the performance of extraction of bioresources in different institutional conditions. Currently, there are possibilities for rental relations in the hunting sector and the development of hunting tourism. At the same time, there is still the need for guaranteed sales of hunting products, which is necessary to ensure the profitability of hunting as a traditional type of economic activity and environmental management of the autochthonous population of the Arctic.

References

1. Shtil'mark F.R. Absolute defense as the highest form of environmental ethics. *Gumanitarnyi ekologicheskii zhurnal=Environmental Journal for Humanities*, special edition, 2001, vol. 3, pp. 127-128. (In Russian).

2. Decker D.J., Stedman R.C., Larson L.R., Siemer W.F. Hunting for wildlife management in America: Shifting perspectives and future outlook. *The Wildlife Professional*, 2015, no. 9 (1), pp 26-29. Available at: https://lrl.people.clemson.edu/WebFiles/Decker.etal.2015_TWP-HuntinginAmerica.pdf (accessed: 30.05.2018)

3. Milbourne P. Hunting ruralities: Nature, society and culture in 'hunt countries' of England and Wales. *Journal of Rural Studies*, 2003, vol. 19, no. 2, pp. 157-171. Available at: https://doi.org/10.1016/S0743-0167(02)00054-2 (accessed: 30.05.2018)

4. Andreev M.N. Hunters population in the European Russian and the Urals. *Agrarnaya nauka Evro-Severo-Vostoka=An Agrarian Science of Euro-North-East*, 2005, no. 6, pp. 124-128.

5. Vinober A.V. Hunting sector: is there Renaissance to come? *Gumanitarnye aspekty okhoty i okhotnich'ego khozyaistva=Humanitarian aspects of hunting and the hunting sector*, 2016, no. 1, pp. 5-16. (In Russian).

6. Velichenko V.V. *Voprosy ekologo-ekonomicheskoi otsenki prirodnykh resursov okhotnich'ego khozyaistva* [Eco-economic assessment of natural resources in the hunting sector]. Yakutsk: Izdatel'sko-poligraficheskii kompleks SVFU, 2010. 128 p.

7. Erofeeva I.V., Bocharnikov V.N. Hunting as person's reflection in conceptualized sphere of specialized magazine discourse. *Gumanitarnyi vector=Humanitarian Vector*, 2018, vol. 13, no. 1, pp. 144-152. (In Russian).

8. Ericsson G., Heberlein T.A. "Jägare talar naturens språk" (Hunters speak nature's language): A comparison of outdoor activities and attitudes toward wildlife among Swedish hunters and the general public. *Zeitschrift für Jagdwissenschaft*, 2002, no. 48, supplement 1, pp. 301-308. Available at: https://doi.org/10.1007/BF02192422 (accessed: 30.05.2018)

9. Larson L.R., Decker D.J., Stedman R.C., Siemer W.F., Baumer M.S., Enck J.W. Hunter recruitment and retention in new york: a framework for research and action. *Human Dimensions Research Unit Series Publication 13-04*. Department of Natural Resources, Cornell University, Ithaca, New York, 2013. 72 p. Available at: https://docviewer.yandex.ru/view/279138482/?*=eYCGrhbN8qgnUAdcSicCTHdjmQx7InVybCI6InlhLW1haWww6Ly8xNjU1MDcyODYzMDU4NzYwMDIvMS4zIiwidGl0bGUiOiJIRFJFJVUmVwb3J0MTMtNC5wZGYiLCJ1aWQiOiIyNzkxMzg0ODIiLCJ5dSI6IjMwNTk0NDY3MTE1MTE3NzQ0NjAiLCJub2lmcmFtZSI6ZmFsc2UsInRzIjoxNTI0MjMwMDc3Mzg3fQ%3D%3D (accessed: 30.05.2018)

10. Stedman R.C., Heberlein T.A. Hunting and rural socialization: contingent effects of the rural setting on hunting participation. *Rural Sociology*, 2001, vol. 66, no. 6, pp. 599-617. Available at: https://doi.org/10.1111/j.1549-0831.2001.tb00086.x (accessed: 30.05.2018)

11. Larson L.R., Decker D.J., Stedman R.C., Siemer W.F., Baumer M.S. Exploring the social habitat for hunting: A comprehensive view of factors influencing hunter recruitment and retention. *Human Dimensions of Wildlife*, 2014, no. 19 (2), pp. 105-122. Available at: https://www.tandfonline.com/doi/abs/10.1080/108712 09.2014.850126

12. Syroechkovskii E.E., Klokov K.B. Using the questionnaire method for studying the influence of hunting waterfowl in the Russian Arctic. *Kazarka: byulleten' rabochei gruppy po guseobraznym Severnoi Evrazii=Brants: Bulleting of the Working Group on Anseriformes in the North Eurasia*. Moscow: MGU im. Lomonosova, 2010, vol. 13, pp. 76-103. (In Russian).

13. Koptseva N.F. Expert estimation of the environmental situation in areas of indigenous minorities in the Siberian Arctic (material of Krasnoyarsk Krai). *Ekologiya cheloveka=Human Ecology*, 2017, no. 6, pp. 30-35. (In Russian).

14. Trudov Yu.N. Assessment of the tourist potential of the region's hunting sector (case study of the Vologda Oblast). *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 2013, no. 6(30), pp. 113-118. (In Russian).

15. Romanenko T.M., Anufriev V.V., Vylko Yu.P., Laishev K.A., Ivkina M.V. On the epizootic situation with rabies in deer breeding in the Nenets Autonomous Okrug. *Vestnik GAU Severnogo Zaural'ya=Bulletin of State Agrarian University of the North Trans-Urals*, 2016, no. 1(32), pp. 91-98. (In Russian).

16. Dereliev S. Afro-evraziiskoe soglashenie po vodno-bolotnym ptitsam: pochemu Rossii neobkhodimo prisoedinit'sya k dogovoru? *I All-Russian Ornithological Congress: reports abstracts* (Tver, January 29– February 4, 2018). Tver: Tverskoi gosudarstvennyi universitet, 2018. Pp. 94-95.

17. Kopylov M.N., Kopylov S.M., Mokhammad S.M.A. International regimes of international environment management: stating the problems. *Vestnik Volgogradskogo gos. un-ta=Bulletin of Volgograd State University*. Series 5. Law, 2015, no. 2 (27), pp. 138-150. (In Russian).

18. Balyan M.G. Environmental Doctrine of the Russian Federation amid addressing global issues of environment protection amid globalization. *Zakon i parvo=Law and Justice*, 2008, no. 7, pp. 98-99. (In Russian).

19. Fomenko G.A. *Upravlenie prirodookhrannoi deyatel'nost'yu: osnovy sotsiokul'turnoi metodologii* [Environmental Management: the Framework of the Socio-Cultural Methodology]. Moscow: Nauka, 2004. 390 p.

20. Anufriev V.V. The resources of game animals on the islands. Kolguev and Vaigach. *Russkii ornitologicheskii zhurnal*=The *Russian Journal of Ornithology*, 2016, vol. 25, express-issue 1259, pp. 860-865. (In Russian).

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FOREIGN EXPERIENCE

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Development Opportunities of Liner Maritime Passenger Traffic in the Republic of Croatia

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Abstract. The main issue addressed in this paper relates to the analysis of maritime passenger ports in the Republic of Croatia and the impact of this type of maritime transport on tourism in the Republic of Croatia. Liner maritime passenger traffic is important for the development of coastal economies, especially tourism and trade, in preventing the emigration of the island population. Accordingly, it is necessary to

invest in the modernization of liner passenger ships in order to respond to the difficult winter conditions of sailing, and the prolongation of the tourist season would lead to more frequent passenger lines. Considering that the liner maritime passenger traffic represents a significant type of transport in Croatia, the conducted research was directed toward that segment specifically. In order to achieve the set goals of this paper, the secondary and the primary research have been conducted. The aim of the primary research was to explore satisfaction of the consumers with the services of liner maritime passenger traffic in Croatia, and to identify possibilities for further improvements. A highly structured questionnaire has been used as the survey instrument. The survey was conducted during September 2017 on the sample of 119 respondents. Research results indicate that the major part of the respondents believe that it is necessary to increase the number of the lines. Also, they agree that high quality maritime passenger traffic is a prerequisite for adequate development of life and tourism on Croatian islands. Results reflect that respondents are not satisfied with the offer of additional services during the ride and they have marked that the prices of additional services, as well as the prices of the tickets are too high. It is crucial to increase the number of lines in the future and to ensure the entry of some new players on the Croatian market of liner passenger traffic.

Key words: Croatia, maritime transport, liner passenger transport, maritime passenger ports, tourism.

Introduction

Maritime passenger traffic has been significantly expanding globally over the last decade. Modern passenger terminals are the prerequisite for the optimal running and development of liner maritime passenger traffic and cruises. An adequate and well-organized maritime passenger terminal is crucial for the development of many complementary services related to maritime passenger traffic, primarily promoting the upgrade of the tourist supply and development of tourism [1]. For the purpose of satisfying the regular needs for passenger transport from the starting to the destination point (ports), maritime shipping has developed liner passenger shipping, where passenger shipping has gained its type of shipping and its market. Liner maritime passenger traffic is organized on the limited regional markets, where the trips, sail routes and ports of load and discharge are constant and already pre-defined [2]. Liner passenger traffic is conducted under the current national and international rules and regulations. The participants in this type of traffic are the shipping companies, the passengers and the brokers (intermediaries) in providing transport services [3]. Liner shipping companies that provide global liner services hold an exceptionally important role in attracting the load and developing maritime ports [2].

The presence of a transport complex functioning according to the needs of economy in a certain territory represents one of the basic development conditions [4]. One of the crucial prerequisites for the development of traffic and tourism, and for satisfying the passenger demands for transport, is the presence of maritime passenger ports. It is possible to stimulate a healthy development of the passenger port system by implementing port policies in line with the goals and measures of the overall economic policy framework of the country in question. Ports deliver value to the shipping companies, as well as to the intermediary service providers. They are locations where ships and loads are managed, with achieving operational efficiency [5]. The role of modern maritime ports is particularly important for the overall economic welfare of the specific region [6]. Developed countries have long since realized that the growth of ports and port systems are one of the

major preconditions for the development of national economy, i.e. the economy of the gravitational zone that belongs to a specific port. Ports represent a part of the entire country's traffic system in which all the traffic is accumulated. Ports operate according to the fundamental economic principles in order to provide adequate services, at the lowest costs possible, and help expand economy globally [7]. Considering the growing competition in the shipping industry, providing high quality services that generate pleasure in customers is crucial for the maintenance and the very survival of a company. Generally, a shipping company can satisfy its clients by offering high quality services or by providing a variety of services. One of the ways for distinguishing oneself from the competition is providing high quality services [8].

The very purpose of this paper is to explore the consumers' satisfaction with the liner passenger traffic services in the Republic of Croatia, with the aim of providing recommendations for the future development. To achieve the goal, the secondary and the primary research have been conducted. After the introductory part, there follows the chapter explaining in more detail the liner shipping, liner shipping disadvantages and measures for further development of this economic branch in the Republic of Croatia. The third chapter gives an overview of the existing research, while in the fourth chapter the instrument used in the primary research is explained, the results of the research are presented and limitations and suggestions for future research are listed.

The term and characteristics of liner maritime passenger traffic

Liner maritime passenger transport is a special type of passenger and vehicle transport from seaport to seaport using special ships, organized on limited regional markets, where there is a need for continuous transportation. One of the key prerequisites for the development

of transport, tourism and the satisfaction of passengers' needs for transport are maritime passenger ports. The economic potential of Croatian seaports is characterized by a favorable geographic position. Shipping agents have played the crucial role in organizing the liner shipping, being initiators and managers of this type of maritime ships exploitation [9]. In liner shipping, freight charges are formed as tariffs, and there are two types of tariffs: class tariff, set for specific groups of load, and commodity tariff, set for every type of load separately [10].

Economic potential of Croatian maritime ports is based on the favorable geographical position. Croatian maritime ports can ascribe their competitive advantage, in relation to other ports in the European Union, to the deep intrusion of the Adriatic Sea, which enables the most efficient and the shortest traffic connection of Croatian mainland with the eastern Mediterranean, and with Asian and East African countries through the Suez Canal. The amount of traffic in maritime ports depends on their geo-traffic position, the area of their gravitational zones, the size of the port capacity, the infrastructure and the substructure, the number of liner services, organization of the port operations and the competence of the port staff [11]. The Republic of Croatia has 409 ports open for public transport, out of which there are 95 ports with a least one regular ferry service [12]. There are six ports open for public transport that are of specific (international) economic interest for the Republic of Croatia, in Rijeka, Zadar, Šibenik, Split, Ploče, and Dubrovnik [13]. Croatian seaports have been integrated in a comprehensive network of European traffic corridors, which is recognized as the development potential that enables the inclusion in the trading flows on the inner, European market, as well as the global market. It also allows the transformation of the port systems into modern logistic and distribution centers [12].

In the area of maritime shipping, public transport is the important factor in the coastal liner traffic, because it enables permanent and regular connection of the islands and the mainland, as well as travelling between the islands. Without this, there would be no sustainable development of the inhabited islands in the inland maritime waters and territorial waters of the Republic of Croatia. In Croatia, public transport in the coastal liner maritime traffic provides navigation on regular basis between Croatian islands (73 island ports) and the mainland (22 mainland ports). Public transport in the coastal liner maritime traffic is characterized by unprofitability, and is therefore subsidized from the budget resources, in cases when the shipping companies cannot cover the actual costs of the line from their revenue. The shipping companies in the liner maritime traffic provide transport services based on the concession contracts or the public service contracts, which the shipping companies conclude with the Coastal Liner Services Agency. The public transport system includes 56 state service lines (27 ferry lines, 16 fast ferry (catamaran) lines and 13 regular lines). The system is maintained by 13 shipping companies with the fleet of 77 ships: 17 passenger ships, 17 fast passenger ships and 42 ferries. The largest liner shipping company is Jadrolinija Rijeka, fully owned by the state, and there are 12 private shipping companies in the system [12]. Out of 13 shipping companies that provide the liner passenger transport, Jadrolinija holds the first place. It had 86.4% share in the total passenger transport, and 89.7% in the vehicle transport. In the second place, there is Rapska plovidba, but with a considerably smaller share in the passenger transport (6.2%) and with 10.3% in the total vehicle transport.

Liner passenger shipping is of extreme importance for the development of the coastal economy, tourism in particular and of trade. It is crucial for the prevention of emigration from the islands, and it influences the government balance-sheet because of the revenues from foreign passengers. For the steady development of a country, it is important to ensure a sustainable development of the islands and prevent further outflow of the island population. In line with this, coastal liner maritime passenger transport is crucial for the development of the islands, and it is performed by the total of 56 public shipping lines, crucial for the entire country [12]. Prominent factors that have positive influence on maritime passenger transport are tradition in connecting the islands to the mainland and between themselves, expertise, knowledge and experience, continuity and traffic connection, safety and good organization. Characteristics of Croatian maritime passenger traffic are [14]:

1) constant rise in demand,
2) society aiming at the development of the islands,
3) renewal of the passenger fleet supported by the government and
4) state subsidiaries for the unprofitable lines.

Table 1. Basic guidelines of the maritime passenger transport

Maritime passenger transport	
BASIC ELEMENTS	BASIC INFRASTRUCTURE
1. seafarers and other employees at the passenger shipping companies, 2. passenger ships as a means of transport, 3. sea as the traffic route, 4. passengers and vehicles as the objects of maritime transport.	1. construction and maintenance of the maritime passenger ports (passenger terminals), 2. construction and maintenance of the signaling and other devices and equipment at the beginning and the end of the maritime route.
Источник: Delibašić T, Vidučić V. Međuovisnost putničkog morskog brodarstva i turizma u Hrvatskoj. *Zbornik radova Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praksu*. 2003, Rijeka: Faculty of Economics, University of Rijeka, 21(2), p. 80.	

For the economic and, therein, tourist valorization of the Kvarner islands, being among the most frequently visited islands in the Adriatic, traffic connections with the adjacent mainland has always played the crucial role. In the past, these connections were maintained by the steam ships, while today, ferries hold the most important role. The combination of the ferry and road transport has included the islands in the Croatian transport system. This transport is exceptionally important for achieving the integration of the islands with the mainland, i.e. the unification of the entire country's territory, because of the demographic revitalization of the islands, and as the essential basis for the economic growth of the islands and tourism [15]. The tourist service is closely connected to the transport service. Without the transport service, there is no tourist service, for the transport service always precedes the other one. Transport and tourism are important because they increase the prosperity of individuals, providing them with the transport service, and therefore interconnecting them and giving the possibility of using other material, spiritual and cultural values. Both these activities positively affect other economic branches [16].

Liner passenger transport is important for the improvement of the demographic situation on Croatian islands. Passenger liner traffic should take into consideration the needs of the islands population, those that live there permanently and those that visit occasionally (tourists and holiday homes owners), many of whom stay there for longer periods and have needs like the permanent residents. Most of the 20th century demographic development of Croatian islands was characterized by a depopulation that started in 1921 and ended in the last decade of the same century. It was caused by long-term emigration from the islands, primarily because of the development policy of the State where the emphasis was placed on the industrialization of the land. It is also important to point out that most researchers state that the increase in the number of inhabitants in the last decade of the 20th century has increased due to fact that huge number of Croatians has declared their holiday homes as a place of their residence[17]. Due to the Census of Population, Households and Dwellings from 2011 the number of inhabitants on Croatian islands was 124.955, which was only 2.07% compared to the 2001 [18, 19]. In the period from 2011 to 2014, a slight increase (2.4%) of the population of Croatian islands was achieved, primarily due to the numerous development and revitalization measurements and investments in the islands [20]. For the last few years, there is still no official data, but decrease in number of inhabitants at Croatian island is expected due to imigration of inhabitants and lack of faith in the major life style changes. It is certainly important to point out that the cost of living on the Croatian islands is considerably higher than on the mainland. As well inhabitants on islands are not encouraged with the number of lines and nor high prices of services of liner companies. Even state subsidies are not having a significant influence on keeping inhabitants on islands. If it is observed the number of inhabitants on islands, on the individually level, than it is evident decreasing trend on smaller islands. It is also important to point out that the total number of inhabitants on the islands has increased to a large extent as a result of consequence of the migration of older and economically inactive population.

One of the characteristics of the maritime passenger shipping is its seasonality which has negative influence on the organization of the passenger ships. The negative aspect is seen in high technological overload for old ships and long working hours for the crew members. The positive side of the seasonality is the possibility it provides to the shippers of generating considerable revenue, which enables business

activities during the off-season, when the costs surpass the revenue. The biggest challenges shipping companies in liner maritime transport in Croatia face are unfavorable age structure of the fleet, high fuel prices in the total transport costs, and significant seasonal oscillations. Technical, technological and organizational inferiority in relation to the ports of the developed countries, slow port manipulations, low investments in modernization of the port capacities and their poor maintenance have lowered the appeal and competitiveness of Croatian ports. Most neglected are the small ports that serve the needs of the locals, and investing in them would ease the transport of goods and passengers between the islands and the mainland, as well as among the islands. The biggest limitation in the development of the maritime passenger traffic mostly comes from the low demand for shipping capacities in the off-season, i.e. the problem of seasonality.

Croatian liner shipping has come into a crisis because of the slow replacement of classic general cargo ships with container and semi-container ships and irresponsible usurious credits, which has led the largest domestic shipper "Croatia Line" to go bankrupt, along with some other smaller shipping companies. This has brought a major blow to the once strong liner fleet, and liner services in domestic ports have also considerably decreased at the expense of national economy. There are also other limitations to further development of maritime economy, most obvious being: lack of the investment and working capital, unfavorable exchange rate, exodus of many workers and experts into developed countries, low investments in research and modern technologies development, strong competition of specific maritime economy branches in developed countries on the global maritime market, regular conjectural fluctuations, crises and recessions on the market, considerable

slow technical and technological development of some maritime branches as a consequence of the Domestic war and long-term low investment, insufficient coordination and competence inconsistencies of the government in the public guidance of some maritime branches [21]. In the Republic of Croatia, the greatest drawback in liner maritime passenger traffic is the monopolistic position of Jadrolinija - the company for passenger and cargo transport. Jadrolinija, with its high prices, slow modernization of the fleet and lack of ships in the high season, affects passengers and gives the tourists a poor picture of Croatia. Likewise, Jadrolinija, with its monopolistic policy, smothers smaller shipping companies and makes fair competition impossible. More and more European tourists decide to travel to Croatian coast, and most of them opt for travelling by road. Tourists that choose Croatian islands as their destination are the most significant users of liner maritime passenger transport, and it is therefore important to ensure a good mainland traffic connection of the maritime passenger ports with the emissive tourist areas. Maritime passenger transport depends on the successfulness of the tourist season, especially on the Croatian islands. As has already been stated, one of the limitations to the development of maritime passenger transport is insufficient demand for shipping capacities during the off-season. The problem of seasonality can be mitigated by prolongation of the season and supply on the islands, and attention should be directed towards the tourists of higher purchasing power. In line with that, modernization of liner passenger ships is necessary in order to navigate during the heavy winter conditions, and the prolongation of the tourist season would lead to more frequent lines. In order to impose more control over the budget, i.e. exceptionally high privileges the population on Croatian islands enjoys, the Coastal Liner Services Agency has started a

project of informatization of the coastal liner maritime transport (SEOP). The SEOP system has introduced more control over the privileges used by the passengers, and over the shippers as well. The buying of the tickets is made simpler, the privileges of the islanders are identified with a special kind of island pass, the preconditions for keeping the accurate record and control of the number of passengers and vehicles and the use of the budgetary resources have been ensured.

In the context of the coastal passenger liner traffic, the goals and associated measures have been adopted, relating to [12]:

GOAL 1: Improve the system for providing public services of connecting the islands with the mainland and among the islands with the aim of contributing to the sustainable development of the islands through the development of socially sustainable, economical and efficient system of public coastal maritime liner transport in the Republic of Croatia.

MEASURE 1: Redefine the liner traffic system (the line system, the relation of ferry, classic and fast ferry - catamaran lines);

MEASURE 2: Connect the coastal maritime liner traffic with other types of traffic, in line with the traffic strategy of the Republic of Croatia;

MEASURE 3: Conduct a gradual, effective and transparent system of privileged transport for the islands' population and economy.

GOAL 2: Enable providing public services based on the principles of safety, stability, punctuality and commodity.

MEASURE 1: Introduce informatization in coastal maritime liner transport, which will enable business transparency and upgrade the availability of the service;

MEASURE 2: Plan and construct assigned ships for the lines that connect small islands with no road infrastructure;

MEASURE 3: Stimulate development and the use of new technologies in coastal maritime

liner transport, and the use of ecologically acceptable ships in the coastal maritime liner shipping system.

Literature review

In foreign scientific literature, there are a number of research papers dealing with the analysis of the maritime liner market – *compe-titive strategies* (J.E. Davies [22], P. Evangelista A. Morvillo [23], P.M. Panayides, K. Cullinane [24], R. Midoro, E. Musso, F. Parola [25], P. Cariou [26], D.Y. Lin, C.C. Huang, M. Ng [27], K.F. Yuen, V.V. Thai, Y.D. Wong [28], *port integration – strategic alliances* (D.K. Ryoo, H.A. Thanopoulou [29], R. Midoro, A.A. Pitto [30], D.W. Song, P.M. Panayides [31], A. Frémont [32], T. Nottteboom, J.P. Rodrigue [33]; R. Agarwal, Ö. Ergun [34], P.M. Panayides, R. Wiedmer [35], E. Hirata [36], *the quality of the services in the industry* has also been researched (V.V. Thai [37], A. Miremadi, S. Ghalamkari, F. Sadeh [38]; S.T. Huang, E. Bulut, O. Duru [39]; Y. Shin, V.V. Thai [40]; S. Han et al. [41], Y. Shin et al [42].

K.F. Yuen and V.V. Thai [8] analyzed the quality of the service, as well as the satisfaction of the consumers in the maritime liner transport. In the research, they point out that the satisfaction of the consumers is defined as the cognitive and affective reaction to the process of the service, where the experience of the consumers is compared with their expectations from the service. The quality of the service is determined by 4 key dimensions: reliability, speed, responsiveness and value. The crucial difference between the quality of the service and the consumers' satisfaction is that the quality relates to the very core of service providing management, while the satisfaction reflects the experiences consumers have with that service. The improvement of the quality that is not based on the needs of the consumers, will not lead to consumers' satisfaction. In line with that, they point out that the quality

of the service can only be seen as one of the prerequisites of the consumers' satisfaction [8].

Liner shipping companies specify services that are performed at the appropriate time as being the priority, not the price, i.e. the value. Therefore, it can be implied that the differentiation based on the services performed at the appropriate time is more effective that the application of cost management [8].

J. Othelius and U. Wemmert [43] conducted the analysis of the consumers' needs and the quality of the service at the leading container shipping company Maersk Line. The research analyzed two segments of the consumers – the direct consumers and the shipping agents. The results have shown that the consumers define and prioritize the needs differently. Although the clients have expressed the needs in a similar manner, their perception on what represented the need and how they wanted it to be satisfied is different. In line with that, what is considered a quality service differs among the consumers, and between the two segments of the consumers. Likewise, the research has presented the differences in providing the services at different stages at Maersk Line, which exist because the needs of the consumers have not been met. The difference in the service providing and the consumers satisfaction with the service is present if the needs are not included in the service. Hence, the supply at Maersk Line did not completely satisfy the needs of their consumers. Furthermore, the differences in "the delivery" of the service exist if the service ensures the satisfaction of the needs, although the consumers do not understand how the needs will be met during the delivery. This discrepancy meant incompatibility between the supply of the service at Maersk Line and the consumers' perception on what is actually delivered. Direct buyers delivered their goods with fewer suppliers than the shipping agents. Moreover, they do not possess as much knowledge of the area or the possibilities for solving the problems that can arise during the transport. Direct buyers were more dependent on their suppliers of the maritime means of transport than the clients of the shipping agents. As the result, relations that are marked with trust have become more important than the factors like efficiency and price for this segment of the consumers [44].

A. Miremadi, S. Ghalamkari and F. Sadeh [38] explored the satisfaction of the consumers with the quality of the service in the maritime industry in Iran. The research analyzed the quality of the service of the most prominent shipping companies, like the IRISL (Islamic Republic of Iran Shipping Line) and the maritime area, operating ports and shipping agents. The purpose of this research was to measure expectations and perceptions of the consumers in maritime industry in Iran by implementing the SERVQUAL model. The results have shown that there is a significant discrepancy between the consumers' expectations and the perception of the managers in the Iranian ports and industry. Furthermore, the research has revealed that certain factors, like investing and monitoring at different time help improve general conditions of the Iranian ports. Ambiguity in the processes leads to conflict in the service providing, and therefore, integrated control systems for the prevention of those discrepancies and for the redefinition of the processes are needed. The research suggests that deep market research on the evaluation of the services periodically, along with the organization of the qualified staff that would improve their knowledge in order to finally create a marketing strategy model to the satisfaction of the consumers in the Iranian ports [38].

During the research of the quality of the service in the maritime liner industry in Asia, a comparison of numerous leading companies has been conducted, and the key factors of the implementation of the quality of the service have been established. Among several

technical measures, the implementation of the ISO 9001 framework has been ascertained as a highly influential factor for the consumers' satisfaction. The implementation of the ISO 9001 can ensure consumers trust in the liner delivery services. For this reason, strategies and standards are very important for the shipping companies. *Table 2* shows the results of the conducted empirical research in Asian countries, i.e. it shows the demands of the consumers and the two most important demands: cheaper service and shorter transit time. Likewise, the need for the combination of the logistic capabilities is evident, with the aim of improving liner activities. The accent placed on more diversified services can significantly increase the satisfaction of the consumers and avoid the battle of prices of the transport on the shipping market [39].

The domestic literature overview has shown that up until now, two researches that relate to the maritime passenger liner traffic have been conducted. So, the problematic of the one paper is directed towards the research of the management and the quality of the services of the shipping hospitality at fast international lines in the Republic of Croatia. The research has shown that the standardization of the food and meal offer in the sense of regulating

individual meals a la carte or the daily menus should be insisted upon. The offer should be based on the wishes and preferences of the passengers, which can be achieved with the continuous system of conducting surveys, i.e. gathering information on the passengers' satisfaction with the assortment on offer, as well as with the service quality, and adjustment of the food assortment to the modern trends of healthy diet [44].The other paper deals with preferences of the customers in choosing the type and the size of the vessel, based on the example of Split-Dalmatia County, where three groups of respondents have been surveyed: passengers, long-time captains (navigating the lines of the area in question — Split-Dalmatian area) and the maritime economy experts. The passengers have given most significance to regular maintenance of the line, with minimal travel discontinuations over the year (23%), then the maintaining the line over the entire year (15%), while the third place occupies the speed of the navigation (13%) [45]. The research results conducted on the captains have indicated that most importance is given to the technical and technological characteristics of the vessel that maintain this demanding line (18% of the respondents), then the condition of the ports (17%). The third

Table 2. Most important consumers/clients' demands when choosing the shipping company

RANK	CONSUMERS DEMANDS
1	Cheaper service
2	Shorter time needed for the transport of goods
3	Cargo security
4	Less time needed for the customs service
5	Responsible running
6	Qualified staff
7	Intermodal service
8	Quick response to demands
9	Cargo tracking system
10	Simple paperwork
11	Reputation
12	Shorter cargo handling time

Источник: Huang S.T., Bulut E., Duru O. Service quality assessment in liner shipping industry: an empirical study on Asian shipping case. *International Journal of Shipping and Transport Logistics*, 2015, vol. 7 (2), p. 233.

survey has encompassed 28 experts from the areas of maritime passenger traffic – where five groups of criteria have been considered: institutional, hydro-meteorological, technical, technological, economic and socio-cultural group. The most importance has been given to hydro-meteorological conditions (30%) that are present on the specific navigational route and the season when the navigation is performed, while the least significance has been given to socio-cultural features (10%) [45].

Research on the satisfaction of the consumers with maritime passenger liner transport in the Republic of Croatia

Research instrument and data collection

Maritime transport in Croatia, as well as in many other countries, represents an extremely important transportation activity. Not only because of importance for the functioning of the national and international trade system, but because of the connection of islands with mainland. By the very least, liner shipping, apart from the scarcity of the possibility of using air transport, is the only link between the Croatian islands and the mainland. The importance of maritime liner transport in Croatia is best reflected by the fact that 13.53 million of passengers in 2017 have been transported by maritime and coastal transport [19].

For the purpose of this paper, the primary research has been conducted, using the questionnaire as the research instrument. The research was based on the method of collecting data via the Internet, by posting the questionnaire on Facebook. The respondents from all over Croatia participated in the research, varying in age, men and women over 18, and of different education (*Table 3*).

The research was conducted in September 2017 on the sample of 119 respondents. The questionnaire consisted of 12 questions. The

Table 3. Socio-demographic characteristics of the respondents

		Frenquency
GENDER	Male	43 (36.44%)
	Female	75 (63.56%)
AGE	below 18	2 (1.69%)
	18 - 25	55 (46.61%)
	26 - 35	49 (41.53%)
	36 - 45	11 (9.32%)
	46 - 55	0 (0.00%)
	over 56	1 (0.85%)
QUALIFICATIONS	No lower qualifications/no elementary education	0 (0.00%)
	Elementary education	3 (2.54%)
	Qualified (a three-year vocational school)	1 (0.85%)
	Highly qualified (a four-year vocational school or a gymnasium)	37 (31.36%)
	Student	29 (24.58%)
	Higher or highest level of education	42 (35.59%)
	Master's/doctorate	6 (5.08%)
WORK STATUS	Employed; contract of indefinite duration	57 (48.31%)
	Employed; contract of definite duration	13 (11.02%)
	Part-time job	6 (5.08%)
	Working via the student service (SC)	20 (16.95%)
	Working undeclared	2 (1.69%)
	Self-employed	3 (2.54%)
	Unemployed	17 (14.41%)
Source: compiled by the author based on the collected data.		

first part of the questionnaire encompassed questions with one possible answer, while the other part of the questionnaire consisted of the statements that relate to the maritime passenger liner traffic, where the respondents were asked to express their level of agreement. They could state their level of agreement with the grades 1–5, where 1 = completely disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=completely agree. The questions also encompassed socio-demographic factors like age, gender, residence, education, working status and monthly income. The aim of the research via the questionnaire was to present the findings on the satisfaction of the consumers with the maritime passenger liner transport in the Republic of Croatia, i.e. to what extent the users of the liner transport are satisfied with the number of lines, quality and organization, services during the navigation, staff courtesy, and the very prices of the tickets.

In the research, there participated 119 respondents, but one of the respondents had skipped the questions related to the socio-demographic characteristics, so, for this feature, there were the total of 118 respondents, 43 men and 75 women. Most respondents belonged to the age group between 26 and 35, only two respondents were below 18, and no respondents were between 46 and 55. Out of the total number, most respondents (42) have higher or high education (college, university), and there were no respondents with no lower qualifications (no elementary education). Most respondents are employed: indefinite employment contract (57) or student service (20), only two of them work undeclared, there are three self-employed and six part-time respondents (Table 3). Out of the total number of the respondents, 90.76% live in Zagreb or the vicinity, 0.84% live in northern Croatia, Slavonija, Istria, Primorje and Gorski kotar. None of the respondents were from Lika, Kordun or Banovina.

Research results

The answer to the question *"How often do you use maritime passenger liner transport (ferries) in the Republic of Croatia?"* for most of the respondents, 94.02% of them, was that they travelled one to four times a year, 3.42% of them travel once a week, 2.56% of the respondents travel once a month, and no respondents travel on the daily basis. Most respondents stated that the reason they travel was holidays (79.49%), 10.26% stated they travelled for business, 9.40% visits relatives, and 0.85% stated other reasons. Likewise, most of the respondents travel with the family (41.03%), 40.17% travel with friends, 11.97% travel alone, and only 6.84% of them travel with an organized group. Most of the respondents think that there should be more lines introduced during the high tourist season, most of them stating that in that way, there would be less traffic jams, the waiting period between the lines would be shorter, there are too many tourist during the peak season, trip planning is made difficult, and there are no lines from the islands during the night. Fewer respondents think that there is no reason for introducing additional lines, because there are enough lines during the tourist season. A small number of the respondents have no opinion on the question.

Table 4 shows the level of agreement with the statements relating to maritime passenger liner transport, where 1=completely disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=completely agree. Based on the results, it can be clearly concluded that 50.00% of the respondents completely agree with the statement that *"During the peak tourist season there should be more lines introduced"*. Most of the respondents (63.56%) completely agree with the statement that *"The quality of maritime passenger liner transport is a prerequisite for the development of life and tourism on the islands"*. 40.68% of the respondents neither agree, nor disagree with

Table 4. The level of agreement of the respondents relating to the
satisfaction with maritime passenger liner transport services

STATEMENTS	1	2	3	4	5	Weighted Average
During the tourist season there should be additional lines introduced	6.78%	8.47%	16.10%	18.64%	50.00%	3.97
The quality of maritime passenger liner transport is a necessary prerequisite for the development of life and tourism on the islands	5.08%	1.69%	11.86%	17.80%	63.56%	4.33
During the tourist season, the shippers are well-organized and there is no long waiting time for the transfer	5.93%	18.64%	40.68%	28.81%	5.93%	3.1
The ships for passenger liner transport are dated and in need of modernization	5.08%	4.24%	28.81%	35.59%	26.27%	3.74
The offer during the navigation is poor and dissatisfying	7.63%	16.95%	38.98%	26.27%	10.17%	3.14
The prices of additional services (food, drinks) on liner drinks are too high	1.69%	5.08%	24.58%	27.12%	41.53%	4.02
It is necessary to introduce online tickets in the near future	3.39%	0.85%	6.78%	11.02%	77.97%	4.59
I am satisfied with the ratio of price and quality of the service provided at maritime passenger liner transport	3.39%	27.12%	53.39%	12.71%	3.39%	2.86
I am satisfied with the staff courtesy during the travel on maritime passenger liner transport	4.24%	8.47%	44.07%	34.75%	8.47%	3.35
I would use maritime passenger transport services more often if the prices of the tickets were lower	5.93%	9.32%	28.81%	24.58%	31.36%	3.66
It is necessary to increase competitiveness for most of the existing lines.	8.55%	5.13%	29.08%	27.35%	29.91%	3.65
Source: compiled by the author based on the collected data.						

the statement that *"During the tourist season, the shippers are well-organized and there is no long waiting time for the transfer"*, while 35.59% of the respondents agree that *"The ships for passenger liner transport are dated and in need of modernization"*. Most of the respondents neither agree nor disagree with the statements that *"The offer during the navigation is poor and dissatisfying"* (38.98%), *"I am satisfied with the ratio of price and quality of the service provided at maritime passenger liner transport"* (53.39%), *"I am satisfied with the staff courtesy during the travel on maritime passenger liner transport"* (44.07%). Furthermore, most of the respondents completely agree that the prices of additional services (food, drinks) on liner ships are too high, and that is necessary to introduce online tickets in the near future. Likewise, most respondents completely agree

that they would use maritime passenger transport services more often if the prices of the tickets were lower, and they also agree that it is necessary to increase competitiveness for most of the existing lines.

During the evaluation of the drawbacks, most respondents answered that long waiting time is the biggest drawback (44.92%), then, there is the ticket price (34.75%), insufficient ship capacity (16.95%). 3.39% of the respondents stated "something else", out of which only four of them wrote the reasons. One person stated that the reason was insufficient number of departures per day, the other person wrote that he/she did not know, while the third person does not see any disadvantages. No respondents wrote that they saw unkind staff as a disadvantage in maritime passenger liner transport.

Limitations and recommendations

The conducted research on the satisfaction of the users with the maritime passenger liner transport services in the Republic of Croatia has certain limitations. The main limitation relates to the lack of research on that topic in the Republic of Croatia, and the old data, and is therefore difficult to compare the data to other researches. Considering the fact that the research was conducted via an online questionnaire, the research could be affected by the method of data collection, because it is impossible to control the conditions in which the respondents fulfil the questionnaire, and there is also the issue of whether the questions were completely clear. Furthermore, the questionnaire was conducted *online*, and it can be assumed that many people could not participate, mostly senior citizens, persons of lower education and lower pay class. It should be noted that the research was conducted in September, when the number of tourist on the Croatian coast is decreasing.

For the purposes of a research without limitations, a paper questionnaire should be constructed, and the research should be conducted during the peak tourist season, especially from the middle of July till the middle of August. The paper questionnaires should be distributed to the tourist boards in cities and towns where maritime passenger liner transport is performed, and they could collaborate with the shipping companies and distribute them to the tourists during the trip or before they board the ships. It would be necessary to translate the questionnaire into English and German language, so that the questions would be asked in three different languages. But, for this kind of research with no limitations, more financial means are needed, as well as more time for collecting and analyzing the data.

In the following surveys of similar topics, data could be collected by polling managers of liner shipping companies as well as captains of liner. Due to enormous importance of state institutions for development of measures for Croatian islands and for liner navigation, it would certainly be necessary to interview key persons that are creating those measures. In that way the assessment of the status of liner shipping in Croatia could be rounded up as all interested parties would be included.

Conclusion

Coastal liner shipping is a special form of maritime shipping that uses special ships, like the RO-RO passenger ships, catamarans and classic passenger ships for the transport of passengers and vehicles. Passenger shipping can be divided into liner and cruise shipping, where liner shipping plays an important role in connecting the islands to the mainland and the islands among themselves, and the island economy, while cruise shipping is important for the satisfaction of the tourist needs.

Considering that Croatia has a developed coast and numerous islands, and that it is a tourist destination, passenger liner shipping is an important prerequisite for the development of the coastal region and prevention of emigration from the islands. This type of transport in Croatia is performed by RO-RO passenger ships and high-speed passenger ships. Maritime passenger traffic depends on the dynamics and successfulness of the tourist season, primarily on Croatian islands. One major limitation to the development of maritime passenger transport is insufficient and unsteady demand for the transport, which leads to the ship capacities not being fully used, i.e. big oscillations during the winter and summer months, making many lines unprofitable and in need for government support. Besides seasonality, there are other issues that arise in Croatian shipping, like unfavorable age structure of the fleet, insufficient number of passenger lines during the season, monopolistic position of the largest shipping company (Jadrolinija),

constant traffic congestions, and the lack of investment and working capital. In order to solve these issues, it is of great importance to prolong the tourist season and the offer on the islands, invest in the modernization of the ships, increase the number of lines during the peak season, weaken the monopolistic position in transport and foster competitiveness, build access roads, detour freeways and other road infrastructure.

An important prerequisite for the functioning of the passenger shipping, and the precondition for satisfying the needs of the consumers, are passenger ports which more or less attract the passengers with their services and diversity they offer. Maritime passenger terminals for domestic and international traffic have to be equipped for the purposes of liner shipping, for the ferry transport, and provide easy navigation for the cruise ships as well. Ports represent a major economic strength and hold an important position in Croatian national economy and international passenger trade. There are six ports open for public transport that are of significant economic interest for the Republic of Croatia, situated in Rijeka, Zadar, Šibenik, Split, Ploče, and Dubrovnik, and 13 different shipping companies, with Jadrolinija being the largest.

The conducted research on the satisfaction of the consumers with maritime passenger liner transport services has led to the conclusion that most respondents think that there should be more lines introduced, the reasons for that being that it would decrease traffic congestion and waiting time; planning is made more difficult and there are no night lines from the islands. Also, most respondents think that the quality of maritime passenger liner transport is crucial for the development of life and tourism on the islands, and that the ships are dated and in need of modernization. Most respondents state that the staff on the ships is courteous, but the offer is poor, and the prices of the services and the tickets are too high. Most respondents would use maritime passenger liner transport services more often if the ticket prices were lower, and they support more competition on the most of the existing lines, and purchase of the tickets online. Due to vast knowledge and tradition in maritime shipping, the government resolution for subsidizing unprofitable lines and "The strategy for maritime development and integral maritime policy in the Republic of Croatia for the period between 2014 and 2020", maritime passenger traffic in Croatia has considerable prospects for the successful development in the future.

References

1. Jugović A., Kesić B., Jakomin I. Organizacija i razvoj pomorsko-putničkih luka. *Informatologia*, 2007, vol. 40 (2), pp. 146-152.

2. Glavan B. *Ekonomika morskog brodarstva*. Zagreb: Školska knjiga, 1992. 246 p.

3. Kesić B., Jugović A. *Menadžement pomorskoputničkih luka*. Rijeka: Pomorski fakultet, 2006. 240 p.

4. Bardal A.B. The transport complex of the Far East: development trends and economic role. *Economic and Social Changes: Facts, Trends, Forecast*, 2018, vol. 11 (2), pp. 24-36. DOI: 10.15838/esc.2018.2.56.2.

5. Robinson R. Ports as elements in value-driven chain systems: the new paradigm. *Maritime Policy & Management*, 2002, vol. 29 (3), pp. 241-255. DOI: 10.1080/03088830210132623.

6. Hlača B., Rudić D., Hirnig S. Rail transport-an important factor in the port of Rijeka development. *PROMET-Traffic&Transportation*, 2010, vol. 22 (5), pp. 379-388. DOI: 10.7307/ptt.v22i5.203.

7. Vilke S. Značenje tržišnog pristupa za razvitak luka. *Pomorski zbornik*, 2003, vol. 41 (1), pp. 337-359.

8. Yuen K.F., Thai V.V. Service quality and customer satisfaction in liner shipping. *International Journal of Quality and Service Sciences*, 2015, vol. 7 (2/3), pp. 170-183. DOI: 10.1108/IJQSS-02-2015-0024.

9. Bendeković J., Aržek Z. *Transport i osiguranje*. Zagreb: Mikrorad, 2008. 391 p.

10. Mitrović F. *Ekonomika pomorstva*. Split: Pomorski fakultet u Splitu, 2007. 123 p.

11. Žuvela I. Koncepcija i strategija razvitka pomorskog gospodarstva Hrvatske. *Pomorski zbornik*, 2000, vol. 38 (1), pp. 11-60.

12. S*trategija pomorskog razvitka i integralne pomorske politike Republike Hrvatske za razdoblje od 2014. do 2020. godine. 2014. May.* Available at: http://www.mppi.hr/UserDocsImages/POMORSKA%20STARTEGIJA%20 VRH%202207201%20web%2026-7_14.pdf (accessed: 10.09.2017).

13. *Ministry of the Sea, Transport and Infrastructure. Luke.* Available at: http://www.mppi.hr/default.aspx?id=480 (accessed: 23.04.2018).

14. Delibašić T., Vidučić V. Međuovisnost putničkoga morskog brodarstva i turizma u Hrvatskoj. *Zbornik radova Ekonomskog fakulteta u Rijeci:* časopis za ekonomsku teoriju i praksu, 2003, vol. 21 (2), pp. 77-92.

15. Turk H., Mirković D. Trajekti u turističkoj valorizaciji kvarnerskih otoka. *Hrvatski geografski glasnik*, 1993, vol. 55 (1), pp. 135-148.

16. Vidučić V., Mitrović F., Tomašević M. Definiranje sinergijskog odnosa turističkih migracija i iskorištavanja kapaciteta linijskih putničkih brodova. *Informatologia*, 2008, vol. 41 (3), pp. 203-209.

17. Lajić I., Mišetić R. Demografske promjene na hrvatskim otocima na početku 21. stoljeća. *Migracijske i etničke teme*, 2013, vol. 29 (2), pp. 169-199. DOI: 10.11567/met.29.2.3.

18. *Croatian Bureau of Statistics. Statistical Yearbook of the Republic of Croatia 2011, Year 43, December 2011.* Available at: https://www.dzs.hr/hrv_eng/ljetopis/2011/sljh2011.pdf (accessed: 15.10.2018).

19. *Croatian Bureau of Statistics. Statistical Yearbook of the Republic of Croatia 2017, Year 49, December 2017.* Available at: https://www.dzs.hr/Hrv_Eng/ljetopis/2017/sljh2017.pdf (accessed: 15.10.2018).

20. Romac D. Čovjek *po mjeri otoka ili otoci po mjeri investitora?* 24.10.2017. Available at: https://www.dw.com/ bs/%C4%8Dovjek-po-mjeri-otoka-ili-otoci-po-mjeri-investitora/a-41084434 (accessed: 16.10.2018).

21. Žuvela I. Koncepcija i strategija razvitka pomorskog gospodarstva Hrvatske. *Pomorski zbornik*, 2000, vol. 38 (1), pp. 11-60.

22. Davies J.E. Competition, contestability and the liner shipping industry. *Journal of Transport Economics and Policy*, 1986, vol. 20 (3), pp. 299-312.

23. Evangelista P., Morvillo A. Cooperative strategies in international and Italian liner shipping. *International Journal of Maritime Economics*, 2000, vol. 2 (1), pp. 1-16. DOI: 10.1057/ijme.2000.3.

24. Panayides P.M, Cullinane K. Competitive advantage in liner shipping: a review and research agenda. *International Journal of Maritime Economics*. 2002, vol. 4 (3), pp. 189-209. DOI: 10.1057/palgrave.ijme.9100045.

25. Midoro R., Musso E., Parola F. Maritime liner shipping and the stevedoring industry: market structure and competition strategies. *Maritime Policy & Management*, 2005, vol. 32 (2), pp. 89-106. DOI: 10.1080/03088830500083521.

26. Cariou P. Liner shipping strategies: an overview. *International Journal of Ocean Systems Management*, 2008, vol. 1 (1), pp. 2-13. DOI: 10.1504/IJOSM.2008.017778.

27. Lin D.Y., Huang C.C., Ng M. The coopetition game in international liner shipping. *Maritime Policy & Management*, 2017, vol. 44 (4), pp. 474-495. DOI: 10.1080/03088839.2017.1295325.

28. Yuen K.F., Thai V.V., Wong Y.D. Corporate social responsibility and classical competitive strategies of maritime transport firms: A contingency-fit perspective. *Transportation Research Part A: Policy and Practice*, 2017, vol. 98, pp. 1-13. DOI: 10.1016/j.tra.2017.01.020.

29. Ryoo D.K., Thanopoulou H.A. Liner alliances in the globalization era: a strategic tool for Asian container carriers. *Maritime Policy & Management*, 1999, 26 (4), pp. 349-367. DOI: 10.1080/030888399286790.

30. Midoro R., Pitto A. A critical evaluation of strategic alliances in liner shipping. *Maritime Policy & Management*, 2000, vol. 27 (1), pp. 31-40. DOI: 1 0.1080/030888300286662.

31. Song D.W., Panayides P.M. A conceptual application of cooperative game theory to liner shipping strategic alliances. *Maritime Policy & Management*, 2002, vol. 29 (3), pp. 285-301. DOI: 10.1080/03088830210132632.

32. Frémont A. *Empirical evidence for integration and disintegration of maritime shipping, port and logistics activities. OECD/ITF Joint Transport Research Centre Discussion Paper*. 2009. No. 1. Pp. 1-33. DOI: 10.1787/227565346707.

33. Notteboom T., Rodrigue J.P. Containerisation, box logistics and global supply chains: The integration of ports and liner shipping networks. *Maritime Economics & Logistics*, 2008, vol. 10 (1-2), pp. 152-174. DOI: 10.1057/ palgrave.mel.9100196.

34. Agarwal R., Ergun Ö. Network design and allocation mechanisms for carrier alliances in liner shipping. *Operations Research*, 2010, vol. 58 (6), pp. 1726-1742. DOI: 10.1287/opre.1100.0848.

35. Panayides P.M., Wiedmer R. Strategic alliances in container liner shipping. *Research in Transportation Economics*, 2011, vol. 32 (1), pp. 25-38. DOI: 10.1016/j.retrec.2011.06.008.

36. Hirata E. Contestability of Container Liner Shipping Market in Alliance Era. *The Asian Journal of Shipping and Logistics*, 2017, vol. 33 (1), pp. 27-32. DOI: 10.1016/j.ajsl.2017.03.004.

37. Thai V.V. Service quality in maritime transport: conceptual model and empirical evidence. *Asia Pacific Journal of Marketing and Logistics*, 2008, vol. 20 (4), pp. 493-518. DOI: 10.1108/13555850810909777.

38. Miremadi A., Ghalamkari S., Sadeh F. Customer satisfaction in port industry (a case study of Iranian shipping). *2011 International Conference on Sociality and Economics Development*, 2011, vol. 10, pp. 58-62.

39. Huang S.T., Bulut E., Duru O. Service quality assessment in liner shipping industry: an empirical study on Asian shipping case. *International Journal of Shipping and Transport Logistics*, 2015, vol. 7 (2), pp. 221-242. DOI: 10.1504/IJSTL.2015.067852.

40. Shin Y., Thai V.V. The impact of corporate social responsibility on customer satisfaction, relationship maintenance and loyalty in the shipping industry. *Corporate Social Responsibility and Environmental Management*, 2015, vol. 22 (6), pp. 381-392. DOI: 10.1002/csr.1352.

41. Han S., Cao B., Fu Y., Luo Z. A liner shipping competitive model with consideration of service quality management. *Annals of Operations Research*, 2017, pp. 1-23. DOI: 10.1007/s10479-016-2386-y.

42. Shin Y., Thai V.V., Grewal D., Kim Y. Do corporate sustainable management activities improve customer satisfaction, word of mouth intention and repurchase intention? Empirical evidence from the shipping industry. *The International Journal of Logistics Management*, 2017, vol. 28 (2), pp. 555-570. DOI: 10.1108/IJLM-11-2015-0220.

43. Othelius J., Wemmert U. *Analysis of customer needs and service quality at a liner shipping company*. Gothenburg: Chalmers University of Technology, 2014. 108. p.

44. Šimundić B., Lovreković D. Menadžment i kvaliteta usluga brodskoga ugostiteljstva u Hrvatskoj. *Tourism and Hospitality Management*, 1997, vol. 3 (2), pp. 393-406.

45. Mrvica A. *Racionalizacija pomorskog povezivanja kopna i otoka te otoka međusobno u Republici Hrvatskoj*. Doctoral dissertation Rijeka: Faculty of Maritime Studies. 2015. 229 p.

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SOCIAL DEVELOPMENT

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Assessing the Factors That Determine People's Financial Behavior: an Experience of Using Regression Analysis Based on Panel Data*

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Abstract. Financial behavior determines people's engagement in economic life and is therefore critical to social, financial, and economic stability. Numerous studies conducted in Russia since the mid-1990s point out the existence of "system problems" in the financial behavior of the country's population; the problems include moderate savings and investment activity, passive pension strategies, and a low level of financial literacy. The reasons for this situation lie not only in the "Soviet past", or in the prevalence of paternalistic sentiments, or in the specifics of "national mentality" in relation to money, or in the limited amount of free cash that people have, or in the "blind spots" of financial legislation. It is necessary to understand that financial behavior is a complex socio-economic phenomenon, formed by the impact of many different factors. Therefore, it is important to study factors that influence the content of people's

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financial behavior. The goal of the paper is to identify macroeconomic factors in people's financial behavior; the factors that can be taken into account in the regulation of the financial sector and the social sphere. The distinctive features of our research are as follows: we develop own system of indicators and our own classification of macroeconomic factors that determine people's financial behavior; besides, we use the regression analysis method based on panel data. Data of the Federal State Statistics Service and the Bank of Russia on 80 subjects of the Russian Federation for the period from 2010 to 2016 are used as the information base of our study. We find out that indicators that characterize people's incomes have the most statistically significant impact on the financial behavior of Russians. In particular, the volume of bank deposits of individuals has a positive correlation with people's monetary incomes, and the indebtedness of individuals on the loans granted to them is positively related to the accrued wages and consumer spending. We reveal a noticeable positive impact of demographic factors (birth rate and life expectancy) on financial behavior, while the impact of institutional (number of credit institutions) and general economic (inflation and unemployment) factors turns out to be the least significant. The findings prove that the current political course aimed to support the birth rate, promote public health, and optimize the financial system is correct. However, the results of the study indicate the need to develop and implement more effective measures in terms of social policy and improving the living standards of citizens.

Key words: financial behavior, econometric methods, panel data, income, birth rate.

In modern Russia the main criterion for public administration efficiency is the ability of the state to improve the citizens' quality of life by ensuring sustainable economic growth and increasing real incomes and opportunities for their beneficial use [1; 2]. In this context it is important to address the topic under review as the financial behavior of the population not only forms a certain standard of living and contributes to household welfare, but also provides the economy with necessary funds, thereby supporting investment processes in the country. In the opposite case (systemic long-term problems in citizens' financial actions) we have to deal with retirement of a significant share of assets, their inaccessibility to enterprises and local authorities either as investment funds or as consumer demand[1].

Issues related to the regulation of financial behavior, study of factors and motives determining its content are reflected in works by domestic and foreign researchers and various research groups. For example, since the early 2000s, VTsIOM together with ZIRCON analytical group monitors the financial behavior of Russians and some of its types (saving, credit and investment). The results of sociological research studies demonstrate that among Russians most widely use the consumer behavior model, "I spend everything I earn", they only save in case when there are money left after consumption; every fifth considers loans as their most adequate practice[2].

Similar findings are demonstrated by regional studies. The results of long-term studies of financial behavior, population's standard of living and quality of life, conducted at the Vologda Research Center of the Russian

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[1] Alieva I.A. Financial behavior of the population: theoretical aspect. Available at: https://krsu.edu.kg/vestnik/2016/v2/a29.pdf

[2] Financial behavior of Russians. Available at: https://wciom.ru/database/open_projects/finansovoe_povedenie_rossiyan/

Academy of Sciences suggest that people's financial behavior is concentrated on using traditional financial products (savings and loans), is associated with a low level of financial literacy, and is characterized by a permanent increase in the volume of deposits and consumer loans (in monetary terms). At the regional level, moderate saving and credit activity is marked among of the population (according to sociological studies in the Vologda Oblast[3] in 2016, 23% of the population have savings and 22% − outstanding loans). People are focused on consumption to meet current needs (48% use all funds for consumer spending); a significantly smaller shareof people (39%) prefer "passive savings" where consumer needs are satisfied initially and only then the remaining funds are saved; a small share of people (13%) is focused on "priority saving" where savings are used for meeting consumer needs. For a long time (since 2001 − the first year of observations), commitment to traditional forms of saving − keeping funds in commercial banks (50%) and in cash (46%) − has prevailed; "new market" forms (securities, deposits in mutual funds, non-state pension funds, insurance policies) are less common (up to 10%). There is a focus on the "marketing" component of banks' activities (awareness − 43% and brand loyalty − 27%) to the detriment of accounting for deposit characteristics and conditions of its provision (interest rate, ease of

disposal of funds, favorability of contract terms − about 20−24%), lack of attention to security and reliability a bank in terms of deposit insurance (10%). The prevalence of "moderate" self-assessment of the level of financial literacy is marked (the share of satisfactory assessments − 35%, unsatisfactory − 55%, only 10% of people assess their skills as good and excellent); at the same time, the key issues of financial literacy for many years remain the same: lack of focus on savings, low budget discipline (most people do not keep record of their incomes and expenses), low prevalence of the practice of comparing financial services, unawareness of the deposit insurance system.

According to NAFI Research Center[4], in 2017 only a bit more than one third of Russians (36%) had savings in the form of bank deposits in banks, stocks, bonds, and other securities or cash. The most common way to invest money is opening and making a deposit in SBERBANK (48% of those who have savings); the second most popular way is saving money in rubles and storing it in cash (34%). 21% of respondents have deposits in other commercial banks. Less traditional investment options are used much less often: deposits in pension funds (9%), purchase of foreign currency (8%), purchase of securities (3%), and deposits in mutual funds (3%). A new mass product proposed by the Ministry of Finance − federal loan bonds ("people's bonds") − is considered attractive by 17% of Russians, the rest (83%) prefer bank deposits[5]. The market of non-cash payments is also slowly developing − as of the beginning of 2017, the share of non-cash payments in the total volume of payments amounts only

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[3] Hereinafter (unless otherwise specified) we use data from sociological surveys "The Study of Population's Saving Behavior" (2001−2012) and "The Quality of Life"» (2014 and 2016). Surveys are conducted using the method of hand-out survey at the place of respondents' residence in the cities of Vologda and Cherepovets and in 8 districts of the Vologda Oblast (Babayevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Kirillovsky, Nikolsky, Tarnogsky, and Sheksninsky). The total sample is 1500 people aged 18 years and over. The sample is targeted and quota. The sample representativeness is ensured through proportions between urban and rural population, the inhabitants of settlements of different types (rural settlements, small and medium cities), the sex and age structure of the adult population. The sampling error does not exceed 3%.

[4] Federal loan bonds: assessing the attractiveness for the population. NAFI. Available at: https://nafi.ru/analytics/obligatsii-federalnogo-zayma-otsenka-privlekatelnosti-dlya-naseleniya/

[5] *Ibidem.*

to 30%[6]. According to the results of other nationwide surveys, 61% of Russians make rash purchases even in situations of personal budget deficit[7], ¾ are informed about tax credits but only 10% of respondents executed them[8], only 50% of respondents keep record of a family budget and 46% have long-term financial goals which they try to achieve[9].

According to official statistics, when administering funds people primarily seek to meet consumer demand and various monetary liabilities to the state and creditors. Thus, for the last 10 years the main share of cash income allocated to purchasing goods and paying for services (74% in 2008, 74% — in 2012, 75% — in 2017), as well as to paying mandatory payments and contributions (12% in 2008, 11% — in 2012, 12% — in 2017)[10]. The share of funds saved ranges between a rather narrow interval (6—14%), while during 2015—2017 there was a significant reduction in savings — from 14 to 8%[11]. Such patterns in income management are manifested in a rather moderate growth in the volume of individual deposits in commercial banks compared to loans granted to the population: for example, in 2011, compared to 2010, the increase in deposits amounted to 14%, in loans — 28%,

in 2017 compared to 2011 it is 5 and 10%, respectively. In other words, the predominance of consumer behavior practices including those financed by borrowed funds is obvious.

On the one hand, the current situation corresponds to the objectives of executive authorities aimed inter alia at supporting consumer demand (for example, through actions such as increasing minimum wage, wage indexation in public sector, support for the social security system, development of mechanisms for demand side financing, etc.). On the other hand, the government is also interested in "educating the domestic mass investor: since 2015, Russians can open individual investment accounts; since 2017 the Ministry of Finance issues special federal loan bonds for the population (OFZ-n), the concept of individual pension capital is being developed"[12]. Above all, scientific interest in the problems of financial behavior does not subside, researchers seek to find opportunities for greater involvement of the population in operations on the financial market. The research presents the results of the study of factors in population's financial behavior conducted to identify the most significant of them. It is assumed that accounting the identified factors in public administration will increase people's involvement in the financial sector and improve its financial situation. The research studies the existing classification of factors and justifies the author's view on the set of factors in population's financial behavior; regression analysis of the influence of factors is conducted with the use of panel data, which made it possible to take into account the time and spatial effects.

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[6] Dolzhenkov A. State employees will be broke. *The Expert,* 2017, no. 4, pp. 38-40.

[7] Rash purchases: financial illiteracy or the illusion of economic freedom? *NAFI.* Available at: https://nafi.ru/analytics/stikhiynye-pokupki-finansovaya-bezgramotnost-ili-illyuziya-ekonomicheskoy-svobody/

[8] Tax deductions: known but not used. NAFI. Available at: https://nafi.ru/analytics/nalogovye-vychety-znaem-no-ne-oformlyaem/

[9] Russia ranks 9th in financial literacy among G20 countries. *NAFI.* Available at: https://nafi.ru/analytics/rossiya-na-9-meste-po-finansovoy-gramotnosti-sredi-stran-g20/

[10] Data from Rosstat. Category — "Quality of life".

[11] On the one hand, a decline in the share of savings in household expenditure may be quite a natural process associated with the cessation of influence of the precautionary motive, which prevailed in 2015—2016, on the behavior of Russians. On the other hand, this may be due to grown real wages and unwillingness/inability to postpone necessary purchases. Moreover, a reduction in interest rates on bank deposits could also have had an impact.

[12] Siluanov has announced new investment opportunities for the population. *Rossiiskaya gazeta,* 2018. Sept 6th. Available at: https://rg.ru/2018/09/06/siluanov-anonsiroval-novye-vozmozhnosti-dlia-investicij-naseleniia.html (accessed: 18.10.2018).

The research depth of the problem

In foreign science, the theoretical and methodological framework of studying people's financial behavior was formed by the 1970s on an extensive basis of empirical research; in domestic science, the transformation processes of the early 1990s became an incentive for studying financial behavior. Two approaches to the interpretation of the considered economic category are mainly used:

1) financial behavior as various types of citizens' financial activity (savings, investment activity, insurance, debt and credit behavior, money games, etc.) [3];

2) financial behavior as people's activity in receiving, spending, and other use of money pursuing a variety of goals[13].

The researchers agree that people's financial behavior is determined by many factors of both objective (monetary income, trends in the development of financial institutions, money supply, inflation, exchange rate, interest rates, etc.) and subjective nature (estimates and expectations regarding the country's economic prospects, credibility of banking institutions, desire to save/not save, learned behavior patterns, etc.) (*Tab. 1*).

All these factors are interrelated, i.e. the influence of objective economic conditions on human behavior is inevitably mediated by their subjective views on economic processes [4]. This statement demonstrates the classification of factors in financial behavior proposed by S.J. Heckman and S.D. Hanna [5, p. 189]. The researchers rely upon the conceptual model developed by S. Beverly [6] taking into account individual and institutional factors. According to S.J. Heckman and S.D. Hanna, individual factors include: economic resources and needs, social networks, financial literacy, and psychological variables. Economic resources and needs are determined by classic economic variables – income and expenditure. Social networks refer to the extent to which financial practices are encouraged or discriminated in the society (or in the social environment where a person operates). Financial literacy reflects a person's level of understanding financial concepts and products. Psychological variables include monetary attitudes (attitudes to money) and personality traits that can influence financial management such as person's motivation to save up. Among institutional factors highlighted by S.J. Heckman and S.D. Hanna are: features of access, incentives, and assistance. Features of access characterize the degree to which it is convenient and easy to access financial institutions and receive necessary services or advice. Incentives are institutional factors, both financial and non-financial, that make financial actions more attractive. Assistance involves simplification of formalities, i.e., specially designed plans (for example, pension or mortgage) that can be used by people to significantly simplify complex financial decisions.

Some foreign studies have shown[14] that the use of income as a determinant of financial decision-making is a rough approximation and the impact of income expectations needs to be further considered. In particular, it was found that household savings are influenced by the expected future income. It is also indicated that the emergence of short-term and long-term "uncertainties" associated with income,

[13] See: Bogomolova T.Yu., Tapilina V.S. Financial behavior of households in Russia in the mid-1990s. *Economics of Contemporary Russia*, 1998, no. 4, pp. 58–69; Zarubina N.N. *Economic sociology: tutorial and workshop*. 3rd edition. Moscow: Yurait, 2015; A.V. Novikov, A.V. Yarasheva (Eds.). *Financial sociology: textbook*. Moscow: Finansovyi universitet, 2016. 344 .

[14] Arent S. *Expectations and Saving Behavior: An Empirical Analysis*. IFO Working Paper, 2012, no. 128. Available at: http://www.cesifo-group.de/DocDL/IfoWorkingPaper-128.pdf

Table 1. Classification of factors determining people's financial behavior

Author	List of factors
A.V. Kostomarova	Income level, availability of loan, accumulated property, GDP (GRP) performance, institutional factors (social insurance and taxation schemes), unemployment rate, state budget balance, share of entrepreneurs, performance of real estate prices, demographic structure, people's expectations regarding the future economic situation, other cultural and social factors
N.Yu. Abbas	Factors characterizing the source of savings: income level, income structure, income regularity and stability, forms of remuneration
	Factors influencing the formation of the consumption process: age and social structure, level of development of state social support, regional factor
	Factors directly affecting the structure of savings and their investment potential: availability of various forms of investment, profitability of savings, etc.
D.V. Agrba	External factors (the state of the global financial system, changes in social standards, types of financial institutions, conditions for investor protection on the financial market, etc.))
	Internal factors (household investment potential, income growth performance, people's financial literacy, differentiation of citizens' incomes, savings to consumption ratio, the state of the national financial system, activities of financial intermediaries)
S.V. Merzlyakova	Exogenous determinants – form the environment external for the subject of financial activity, without the subject's direct impact (income level, standard of living, inflation rate, development of financial services infrastructure, socio-economic and political situation, unemployment rate, state of the legal environment, measures to improve financial literacy)
	Endogenous factors – can be regulated and changed by the subject (subjective assessment of income level, risk appetite, trust in financial institutions, level of financial literacy, preferences in saving activity, socio-economic characteristics and demographic affiliation, subjective assessment of external conditions of financial transactions)
D.O. Strebkov	Motivational factors (level of financial situation, structure of needs)
	Institutional factors – determined by the economic situation, social environment, characteristics of information flows (credibility of the state and financial institutions; knowledge of basic financial instruments; awareness of investment methods, etc.)
	Personal factors – include internal characteristics of an individual ("economic education"; experience of financial action, risk appetite, socio-demographic characteristics).
N. Loayza, K. Schmidt-Hebbel, L. Servén	Uncertainty factors (foreign economic and foreign policy situation, inflation, etc.), population's income level, restrictions of external and internal loans, interest rate, financial policy, monetization, distribution of income and wealth, pension system, demographic structure, features of settlement
T. Ciumara	Internal factors: gender, age, level of education, cognitive abilities, health status, family structure, financial management, psychological characteristics
	External factors: economic environment, level of financial system development, income, demography, geographical features, culture, religion, social stereotypes
Sources: compiled by the authors based on: [7; 8; 9; 10; 11; 12; 13].	

in particular due to unemployment risks, retirement or health condition, lead to the fact that households save part of current income to increase consumption in the future and reduce the risks associated with income.

The hypothesis of the life cycle of consumption and savings, which presents an original view on the combination of objective and subjective factors influencing financial (consumer and saving) behavior, has become widely spread. Its main idea is that people's needs and incomes are not equal at different stages of a life cycle; people make choices about how much they want to spend at each stage of their life, taking the resources available as a limitation [14, p.138]. Accordingly, the hypothesis states that financial actions are influenced by the size and composition of a household; age and number of children in a family, as well as the number of working members; changes in the marital status of household members such as death of one spouse, divorce, temporary separation, and other demographic factors [14, p. 139].

At the same time, it is noted that macroeconomic demographic factors (population growth and ageing) produce long-term changes, which necessarily lead to serious transformations both in financial systems and individual attitude to personal finance [13, p. 423].

Cultural characteristics are important in shaping people's financial behavior. The study by W. Breuer and A.J. Salzmann [15] argues that national culture is a strong indicator of the structure of household assets and thus very effectively predicts the use of certain classes of assets, but at the same time, it is less informative in case of general characteristics of people's financial decisions.

Macroeconomic factors of people's financial behavior					
Socio-economic factors	Political andlegal factors	Factors of strandard of living	Demographic factors	Financial factors	Socio-cultural factors
Characterize the efficiency of the economic system	Characterize the regulatory framework of financial system and political situation	Characterize people's financial status and opportunities	Characterize the impact of biological processes and demographic behavior of the population (i.e. reflect the demographic status and its change)	Characterize the development of the country's financial sector	Characterize the impacts of historical, cultural, and national characteristics of the country, as well as social relations
GRP per capita; investment in fixed capital per capita; registered unemployment rate; retail trade turnover; PPI, etc.	Political stability; legislative and other documents; state of the judicial system; social tension in teh society, etc.	Average per capita cash income; average monthly wage; consumer expernditure per capita; living space per inhabitant, etc.	Life expectancy at birth; total fertility rate; age structure; marriage and divirce rates; vital statistics, etc.	Object security (number of credit institutions per capita); interest rates; financial stability; financial depth (share of loans or deposits in GDP), etc.	Ethnic composition; religion; mentality, etc.

Source: compiled by the authors.

It is quite natural that the economic environment and the direct development of the financial system, along with the above factors, are also powerful sources of influence on people's financial decisions. The variety and availability of financial products outline the possibilities of the population's financial self-expression. It is important at what stage of the economic cycle the country currently is. Even if other elements related to financial decisions remain constant, financial behavior would be significantly different in periods of economic growth compared to the periods of crisis or shocks [13, p. 423].

In our view, macro- and microeconomic factors of financial behavior should be distinguished. Macroeconomic factors (*Figure*) affect the entire population of the country and are affected by direct and centralized management. Microeconomic factors are manifested and influence differentially depending on the groups under consideration (population of a region/city, household, etc.), cover objective and subjective aspects of life, are more socialized and psychologized, and, therefore, measures of indirect impact at the local level are more applicable for them.

It should be emphasized that the presented classification is not the only correct one and does not deny other approaches to identifying factors in financial behavior. Moreover, it is not excluded that the two selected groups of factors (for example, personal household income and per capita income) may overlap. In other words, the presented authors' classification covers the most important factors identified in previous studies and corresponds to the research objectives. In particular, the selected factors will be used in regression analysis taking into account panel data, the results of which are presented in the following sections of the article.

Materials and methods

The use of panel data when constructing regression models of financial behavior in this article is explained by the specific structure of the information framework of the study which includes both time series ("time-series data") and spatial data ("cross-section data"). The use of this type of information framework makes it possible to specify and evaluate more complex and more realistic models, as opposed to models based on only one time series or one spatial set. This is achieved through the ability, firstly, to track individual characteristics of objects over time; secondly, to use a larger number of observations, which increases the number of degrees of freedom and reduces factor multicollinearity; thirdly, to prevent aggregate shift, which inevitably occurs when analyzing only time series or only spatial samplings [16; 17].

M. Verbeek notes that an important advantage of panel data compared to univariate time series or spatial sampling is the fact that the former identify certain parameters or questions without having to make constraint assumptions [18, p. 496]. Thus, the structure of panel data helps model or explain the situation not only when the sample units behave differently, but also when the sampled situation behaves differently in different periods of time.

Regarding the individual effects of economic units, two main types of panel regression models are used: the fixed effects model and the random effects model. At the content level the difference between them can be interpreted as follows. Fixed effect models imply that each economic unit is unique and cannot be considered as a result of a random selection from a certain general population. This is true when it comes to multiple samples consisting of countries, regions, large

enterprises or industries, that is, individual differences are permanent, rather than random [19]. The regression equation of the fixed effects model is as follows:

$$y_{it} = \beta_1 X_{it} + a_i + e_{it}, \qquad (1)$$

where X_{it} — regressor which does not contain constant term ;

a_i — time-independent term expressing individual effect of i unit;

e_{it} — standard error.

In a random effects model, on the other hand, units fall into the panel as a result of selection from a large sampling and differ in the size of random effect. A distinctive feature of the random effects panel data model compared to the fixed effects model is that the differences revealed during the construction of the model are random due to the fact that units randomly fall into the sample from the general population. For example, this is true for surveys of households, small companies, etc. [19]. The random effects model has the following form:

$$y_{it} = \beta_0 + \beta_1 X_{it} + u_i + e_{it}, \qquad (2)$$

where β_0 – constant term;

u_i – random error time-invariant for each unit.

In addition to content selection of the most appropriate type of models, there is a number of standard tests to solve the problem of selection. For this purpose, a pairwise comparison of the estimated models is carried out[15]:

1. Wald test (testing the hypothesis that all individual effects equal zero) — used to compare a fixed effects model with a combined regression model that does not take into account individual characteristics of a unit.

2. Breusch–Pagan test (BP test) (based on the maximum likelihood method) — compares a combined regression model and a random effects models.

3. The Hausman test — compares random effects regression and fixed effects regression. The random effects model assumes that individual effects are not correlated with regressors. It is important to check that we fulfilled an assumption of such a correlation which invalidate most estimates of the random effects model.

Econometric models of saving and credit behavior

Regression analysis of the impact of factors in financial behavior will be performed based on the models of saving and credit behavior. The choice of these types of financial behavior is due to several circumstances. First, our studies have made it possible to establish that the higher the population's saving and credit activity is, the better are the characteristics of the quality of life, and the higher is its integral assessment[16]

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[15] Ratnikova T.A. *Panel data analysis using Stata package.* Methodology guidelines for computer workshop in the framework of "Econometric analysis of panel data" course. Moscow: VShE, 2004. 40 p.

[16] The previously conducted correlation and regression analysis of the relations between financial behavior and quality of life revealed that "indicators of financial behavior almost do not explain changes in the integral index of the population's quality of life and its private indices". In general, "there is a moderate unidirectional relation between financial behavior and the quality of life. The direct and fairly close relation between per capita debt and savings rates and one of the components of the quality of life — the standard of living — is predictable. Through this component, financial behavior affects other components of the quality of life, but to a much lesser extent. The dependence of the quality of life on credit debt is explained by the fact that the component that forms the quality of life — the standard of living — is based on assessment of consumer opportunities of the population, which are financed by borrowed funds".

[20, p. 51]. Second, these types of financial behavior finance consumer demand, which helps judge the population's standard of living and at the same time is the basis of the country's economy[17].

We chose the deposits of physical persons and loan debt provided to physical persons as dependent variables characterizing saving and credit behavior. Information on these indicators is accumulated by the Central Bank of the Russian Federation and the Federal State Statistics Service (Rosstat) for a fairly long period of time and is publicly available. The choice of the indicator "loan debt provided to physical persons" is due to the fact that it is calculated on a cumulative basis and includes both newly granted loans and payments on previously granted loans, i.e. it more accurately reflects the population's loan liabilities compared to the indicator "loans granted".

In this study, econometric models are constructed taking into account the structure of panel data separately for saving and credit behavior. Thus, we evaluated regression equations where the dependent variable in the first case is saving behavior, and in the second – credit behavior; we take socio-economic, demographic, political, legal, financial and socio-cultural factors and the factors in the standard of living as explanatory variables (see Figure). The information framework consists data from the Federal State Statistics Service and the Bank of Russia for 2010–2016 for 80 constituent entities of Russia. The exceptions were: the Republic of Crimea, the city of Sevastopol, Khanty-Mansiysk, Yamal-Nenets,

and Nenets Autonomous okrugs due to lack of information on a number of indicators. StataMP statistics package was applied for calculations.

The list of variables analyzed in the paper for the two models is as follows. The model of saving behavior includes statistical indicators such as average per capita income (RUB); total fertility rate, number of children per 1 woman; number of credit institutions and branches (units per 100 thousand people); unemployment rate (according to the ILO methodology); consumer price index (CPI). The model of credit behavior includes: average monthly wages; life expectancy (years); demographic load factor; consumer expenditure per capita (RUB); total living space per capita (m^2). It is noteworthy that other indicators previously identified as macroeconomic factors of financial behavior, no matter how they were included in the model of both saving and credit behavior, did not have a statistically significant impact on the dependent variable. Thus, these variables were not included in further analysis. At the same time, the list of indicators used as explanatory variables represents in detail the groups of factors of people's financial behavior.

Specification of models of saving and credit behavior was carried out using three standard tests described above (Wald, Breusch−Pagan, and Hausman). To confirm the need to use the structure of panel data, we built multiple regression models that do not take into account individual characteristics − the so-called "pooled regression" models. Based on the calculations, it is the fixed effects regression model taking into account the structure of panel data that helped obtain a significant and reasonable version of simulation related

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[17] According to Rosstat, in Russia the share of household expenditures on final consumption in GDP amounted to0 50.6% in 2012, 52% in 2015, 52.8% in 2016, and 52.2% in 2017%.

Table 2. Fixed effects regression for saving behavior and socio-economic factors

Logarithm of deposits of physical persons per capita (RUB)	Estimated coefficient	Standard deviation of estimated coefficient	Student's t-test	Significance level P>ltl	95% confidence interval	
Logarithm of population's revenues per capita, RUB	1.18978	0.0426885	27.87	0.000	1.105899	1.273662
Total fertility rate, children per 1 woman	0.2046596	0.0464145	4.41	0.000	0.1134564	0.2958627
Number of credit institutions and branches, units per 100 hundred people	-0.0430529	0.0065526	-6.57	0.000	-0.0559285	-0.0301773
Unemployment rate (ILO methodology), %	-0.0082325	0.0025476	-3.23	0.001	-0.0132384	-0.0032265
Total living space per capita, m²	0.0362576	0.0059912	6.05	0.000	0.024485	0.0480303
Constant term	-1.902618	0.3343472	-5.69	0.000	-2.5596	-1.245635
sigma_u	0.4310251					
sigma_e	0.08354147					
rho	0.096379378					
F test that all u_i=0: F(79. 475) = 85.94Prob> F = 0.0000						
(F(5.475) = 1440.22; Prob> F = 0.0000; R-sq: within = 0.9381; between = 0.6307; overall = 0.6671 Corr(u_i, Xb) = 0.2856) Source: authors calculations.						

Table 3. Fixed effects regression for credit behavior and socio-economic factors

Logarithm of loan debt of physical persons per capita, RUB	Estimated coefficient	Standard deviation of estimated coefficient	Student's t-test	Significance level P>ltl	95% confidence interval	
Logarithm of average monthly wages, RUB	1.046459	0.1299483	8.05	0.000	0.7911144	1.301804
Life expectancy at birth, years	-0.030646	0.014924	-2.05	0.041	-0.0599712	-0.0013208
Total fertility rate, children per 1 woman	0.4237696	0.0695252	6.10	0.000	0.2871546	0.5603846
Logarithm of consumer expenditure per capita, RUB	0.9253422	0.01074652	8.61	0.000	0.7141762	1.136508
CPI	-0.0039992	0.0021303	-1.88	0.061	-0.0081853	0.0001868
Constant term	-6.807972	0.5121005	-13.29	0.000	-7.814234	-5.801709
sigma_u	0.4451528					
sigma_e	0.13502436					
rho	0.91574769					
F test that all u_i=0: F(79. 475) = 48.50Prob> F = 0.0000						
(F(5.475) = 905.12; Prob> F = 0.0000; R-sq: within = 0.9050; between = 0.45205; overall = 0.5692 Corr(u_i, Xb) = -0.5565) Source: authors calculations.						

to people's saving and credit behavior. This is evidenced by the results of pairwise comparisons of the estimated models:

1. *Wald test*. Since p-level < 0.01, the main hypothesis is rejected. This means that a fixed effects regression model better suits to describe data than a simple regression model.

2. *Breusch−Pagan test*. In this case, the value of criterion $x^2 = 853.04$, the significance level $p = 0.0000$. Since p-level < 0.01, the main hypothesis is rejected. This means that a random effects model better describes data than a combined regression model.

3. *Hausman test*. Since p-level < 0.01, the main hypothesis is rejected. Thus, a fixed effects model describes data better than a random effects model.

In general, such a result is expected since the study selected Russian constituent entities whose composition has not changed during the research period.

Results and discussion

Below are the results of constructing econometric models taking into account the structure of panel data separately for saving (*Tab. 2*) and credit behavior (*Tab. 3*).

Factors in standard of living. A quite natural result is the identification of a significant positive correlation between financial behavior and factors in standard of living, namely between the population's deposits and per capita cash income, between loan debt and wages, and consumer expenditure. Population's income is treated as a budget constraint within which consumption, savings and investment is carried out. The higher the income level is, the more, with all other things being equal, opportunities there are for making savings (e.g. bank deposits). The observed correlation between loan debt and per capita consumer

expenditure illustrates the important role of borrowed funds (consumer and mortgage loans, car loans) in expanding income-constrained consumption frameworks[18].

Presence of credit institutions. Numerous empirical studies demonstrate that effective functioning of the financial sector has a positive impact on economic growth [21; 22; 23; 24]. At the same time, "the contribution of the financial sector to the country's GDP primarily depends on the actions of its key actors — commercial banks"[19]. Initially, it is banks that produce the supply of standard financial products (deposits, loans), through which loan requests of various enterprises are financed. Banking institutions contribute to economic development as they often redirect funds from low- to high-income investments [25; 26], and the prevalence of banking institutions strengthens monetary control thus providing greater economic stability [26].

The established inverse correlation between the number of credit institutions and deposits of individuals is largely due to the growth of the latter while the financial system is being "cleaned up" by the Bank of Russia.

Inflation (consumer price index). The impact of this factor often has conflicting explanations. Some experts argue that expectations of high inflation stimulate consumption,

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[18] According to Rosstat, the reduction in cash incomes comprised 0.7% in 2014, 3.2% in 2015 and 5.8% in 2016. However, already in 2016 the following phenomena were recorded: increased expenditure on purchase of goods and services (73% of total income against 71% in 2015); reduced share of savings (11% of total income against 14% in 2015); slowdown in the decline of retail trade; increased volume of loans (by 11% or 1 trillion rubles).

[19] Mamonov M., Pestova A., Pankova V., Akhmetov R., Solntsev O. Long-term forecasting of the size and structure of the Russian financial sector. Central Bank of Russian, 2017. Available at: https://www.cbr.ru/Content/Document/File/16719/wp_20.pdf

which consequently reduces savings[20]. Other researchers draw attention to the fact that the level of inflation is largely determined by financial and economic decisions of the federal government, and, consequently, high inflation may indicate macroeconomic uncertainty of the country's development[21], thereby encouraging the population to be guided by caution and save money. The calculations reveal a weak feedback between inflation and loan debt. This suggests a fairly "balanced" behavior of Russians who try not to undermine their financial situation amid rising consumer prices and therefore — not to increase the debt.

The correlation between financial behavior and *demographic factors* is interesting. An inverse correlation between life expectancy at birth and loan debt can be interpreted in two ways. On the one hand, in regions with low life expectancy the population is more likely to live "here and now, without postponing" willingly spending money, including those borrowed. On the other hand, in regions with high loan debt, the population is forced to work more, overloading themselves physically and psychologically, which can affect the state of health and life expectancy.

The regression model reveals a positive correlation between deposits of individuals and total fertility rate. This situation can partly be explained by the fact that child births in 2010−2016 encouraged by the

demographic policy (maternity fund) has led to the growth in consumption, which was provided both at the expense of previously accumulated savings and through loans. Thus, analysis demonstrates the need to identify factors affecting people's financial behavior in order to regulate it, focusing on improving both people's financial literacy and the standard of living.

The constructed models of saving and credit behavior in the country's regions suggest that the citizens' financial actions are not absolutely unpredictable, but depend on rather objective factors. By influencing all of these factors, executive bodies can promote the development sound financial behavior.

Conclusion

The study identifies macroeconomic factors that have a significant impact on people's financial behavior. For this purpose, the authors developed and justified a system of indicators and a classification of macroeconomic factors in financial behavior. In contrast to the analyzed works of related topics, which characterize financial behavior through savings, the presented study takes into account saving and credit practices of the population, which is especially important amid current economic conditions since, along with the traditionally widespread savings, the Russians have been actively using borrowed funds to finance their consumer demand for several years. Moreover, saving and credit behavior was modeled using regression analysis through panel data, which took into account temporal and spatial data and helped construct more realistic models as opposed to models based solely on time series or spatial population.

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[20] Bachmann R., Berg T.O., Sims E.R. Inflation Expectations and Readiness to Spend: Cross-Sectional Evidence. *NBER Working Paper Series*. 2012, no. 17958. Available at: http://www.nber.org/papers/w17958.pdf

[21] Kukk M., Staehr K. Macroeconomic Factors in Corporate and Household Saving. *Evidence from Central and Eastern Europe*, 2015. Available at: http://www.eestipank.ee/en/publications/series/working-papers

The results show that the impact on financial behavior should be "close" to its carrier, i.e. a person, since the determining factors are demographic processes and financial status. We can identify the following targets for regulating people's financial behavior:

− improving the legal and regulatory framework of the financial system taking into account international standards; strengthening the legal framework for the functioning of the financial sector;

− creating mechanisms to increase people's saving motivation, which would increase the volume of organized savings and diversify financial products and services;

− implementing measures to improve financial literacy and overcome people's distrust of financial institutions;

− implementing the demographic policy measures to support young families, multi-child families, as well as further developing the system of material incentives and support fertility.

Regulation of financial behavior should be ensured by a set of dynamic complementary interacting mechanisms, including social policy (income policy, pension reform), educational policy (financial education), demographic policy, and youth policy. The functioning of all mechanisms involved should be ensured by management entities through coordinated execution of planning, forecasting, regulatory support, monitoring and control functions.

The research results can be used by state authorities at the federal and regional level in order to elaborate regional development programs, develop measures within the framework of the social policy aimed at addressing social and economic problems of households, and determine measures to stimulate financial behavior aimed at increasing people's involvement in saving and investment. The applied tools can be used as a methodological framework both by authorities for developing the described programs and activities and by private financial institutions in their own market research.

In conclusion it should be emphasized that the current political course aimed at addressing demographic problems, improving and developing financial system, and educating the Russian population financially, in light of the identified correlations is timely and correct. However, the concern for the most acute problems, i.e. providing sustainable growth of people's incomes, overcoming excessive income inequality, and creating conditions for improving the financial status of the country's population, remains the most relevant aspect.

References

1. Ilyin V.A., Povarova A.I. Problems of regional development as the reflection of the effectiveness of public administration. *Ekonomika regiona=Economy of Region*, 2014, no. 3 (39), pp. 48-63. (In Russian).

2. Ilyin V.A. Shabunova A.A. Sociological assessment of public administration efficiency. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 2014, no. 2(32), pp. 18-35. (In Russian).

3. Kuzina O.E., Ibragimova D.Kh. *Confidence in Financial Institutions: Experience of Empirical Study. Monitoring obshchestvennogo mneniya: ekonomicheskie i sotsial'nye peremeny= The Monitoring of Public Opinion: Economic and Social Changes Journal*, 2010, no. 4(98), pp. 26-39. (In Russian).

4. Katona G. *Psychological Analysis of Economic Behaviour*. New York, McGrow-Hill, 1963. 347 p.

5. Heckman S.J., Hanna S.D. Individual and Institutional Factors Related to Low-Income Household Saving Behavior. *Journal of Financial Counseling and Planning*, 2015, vol. 26, is. 2, pp.187-199.

6. Beverly S., Sherraden M., Cramer R., Shanks T., Nam Y., Zhan M. Determinants of asset holdings. In: *Asset building and low-income families*. Eds. S.-M. McKernan & M. Sherraden. Washington, D.C., The Urban Institute Press, 2008. Rp. 89-151.

7. Kostomarova A.V. *Makroekonomicheskaya rol' sberezhenii domashnikh khozyaistv: avtoref. dis. ... kand. ekon. nauk: 08.00.01* [The macroeconomic role of household savings: Ph.D. in Economics dissertation abstract: 08.00.01]. Moscow, 2013. 28 p.

8. Abbas N.Yu. *Statisticheskoe issledovanie investitsionnogo potentsiala naseleniya RF: avtoref. dis. ... kand. ekon. nauk: 08.00.12* [Statistical research of investment potential of the Russian population: Ph.D. in Economics dissertation abstract: 08.00.12]. Moscow, 2011. 27 p.

9. Agrba D. V. *Lichnye sberezheniya kak istochnik razvitiya finansovogo rynka: avtoref. dis. ... kand. ekon. nauk: 08.00.10* [Private savings as a source for financial market development: Ph.D. in Economics dissertation abstract: 08.00.10]. Moscow, 2013. 26 p.

10. Merzlyakova S.V. *Regional'nye osobennosti finansovoi aktivnosti naseleniya Rossii: avtoref. dis. ... kand. ekon. nauk: 08.00.05* [Regional peculiarities of financial activity of the Russian population: Ph.D. in Economics dissertation abstract: 08.00.05]. Moscow, 2012. 24 p.

11. Strebkov D.O. *Faktory i tipy sberegatel'nykh strategii naseleniya Rossii vo vtoroi polovine 1990-kh godov: avtoref. dis. ... kand. ekon. nauk: 22.00.03* [Factors and types of saving strategies of the Russian population in the 2nd half of the 1990s: Ph.D. in Economics dissertation abstract: 22.00.03]. Moscow, 2002. 27 p.

12. Loayza N., Schmidt-Hebbel K., Serven L. *What Drives Private Saving around the World?* World Bank. Policy Research Working Paper No. 2309. Washington, D.C. 2000. Available at: https://openknowledge.worldbank.org/handle/10986/18854.

13. Ciumara T. Factors Influencing Individual Financial Decisions: a Literature Review. *Conference: Globalization, Intercultural Dialogue and National Identity - GIDNI, At Targu Mures,* 2014, vol. 1, pp. 421-428.

14. Belekhova G.V., Gordievskaya A.N. Population's financial behavior: demographic features. *Problemy razvitiya territorii=Problems of Territory's Development*, 2018, no. 1, pp. 133-150. (In Russian).

15. Breuer W., Salzmann A. National Culture and Household Finance. *Global Economy and Finance Journal*, 2012, vol. 5, no. 1, pp. 37-52.

16. Ratnikova T.A. Introduction to econometric analysis of panel data. *Ekonomicheskii zhurnal VShE=The Higher School of Economics Economic Journal*, 2006, no. 2, pp. 267-316. (In Russian).

17. Wooldridge J.M. *Econometric analysis of cross section and panel data*. Cambrige. MIT Press. 2007, 776 p.

18. Verbeek M. *Putevoditel' po sovremennoi ekonometrike* [A Guide to Modern Econometrics]. Translated from English. Moscow: Nauchnaya kniga, 2008. 616 p.

19. Molchanova E.V. *Zdorov'e naseleniya kak bazovoe uslovie sotsial'no-ekonomicheskogo razvitiya obshchestva: dis. ... dokt. ekon. nauk: 08.00.05* [Population's health as a basic condition for the socio-economic development of the society: Doctor of Economics dissertation abstract: 08.00.05]. Moscow, 2014. 338 p.

20. Belekhova G.V. *Population's financial behavior and its role in shaping the quality of life*. Material from the 8th Urals Demographic Forum "Demographic potential of EAEC countries". Vol. 2. Ekaterinburg: Institut ekonomiki UrO RAN, 2017. Pp. 48-53. (In Russian).

21. King R.G., Levine R. Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics*, 1993, no. 108(3), pp. 717-737.

22. McKinnon R. *Money and Capital in Economic Development*. Washington, D.C.: Brookings Institution Press, 2010. 184 p.

23. Beck T., Levine R., Loayza N. Finance and the sources of growth. *Journal of Financial Economics*, 2000, no. 58, pp. 261-300.

24. Bangake C., Eggoh J. Further Evidence on Finance-Growth Causality: A Panel Data Analysis. *Economic Systems*, 2011, no. 35(2), pp. 176-188.

25. Galbis V. Financial Intermediation and Economic Growth in Less-Developed Countries: A Theoretical Approach. *Journal of Development Studies*, 1977, vol. 13, pp. 58-72.

26. Porter R.C. The Promotion of the «Banking Habit» and Economic Development. *Journal of Development Studies*, 1966, vol. 2, pp. 346-366.

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Barriers to Social Integration of the Older Generation in the Context of Intergenerational Communication Issues*

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Abstract. Over the past few centuries, humanity has made the transition from a "society without the elderly" to an "aging society". The consequences of global population ageing entail changes not only in the economic and demographic space, but also in the social space. At the same time, this category of consequences caused by the increase in the share and number of representatives of the older generation is the least amenable to empirical measurements and forecasting. One of the most important tasks of the "ageing" states is to solve the problem of social integration and secondary socialization of the elderly, but in the conditions of increasing technological progress there emerges a powerful structural barrier, which is expressed in the growing communication distance between generations. The "generation gap" issue originates in ancient times, but at the moment in the context of global demographic aging it is becoming increasingly important. The aim of our research is to study barriers to social integration of the older generation in the context of intergenerational communication. To achieve this goal, we carry out a conceptual review of the existing theory of generations and fundamental works in the field of research on intergenerational communication, we analyze and interpret the data obtained through a series of in-depth interviews with representatives of the older generation, and formulate main conclusions of the study. The above goals and objectives aim to test the main hypothesis of the study, according to which the gap in

intergenerational communication is one of the main barriers to social integration of the older generation. The first part of the paper presents a theoretical overview of existing approaches to the concept of "generation", laws of their change and factors leading to the break of intergenerational communications. It identifies theoretical and empirical limitations in the allocation of universal characteristics of the change of generations. It concludes that the process of breaking intergenerational communication is linked to the formation of barriers to social integration of the elderly. The second part of the paper presents data on the results of a series of in-depth interviews with representatives of retirement age population living in Vologda. The study confirms the hypothesis that the break of intergenerational communications is one of the fundamental aspects that prevent the inclusion of the older generation. This process is determined by many factors, the main ones of which include the loss of relevance of skills and experience of the older generation, as well as the loss of the demand for these qualities on the part of the younger population (and also within the family).

Key words: population ageing, older generation, intergenerational communication, generation gap, barriers to inclusion.

Introduction. The society's attitude to old age and older people has been changing throughout the history of mankind. The scientists, such as M. Blackner, W. Henry, E. Cumming, A. Rose, studied the evolution of society's attitude to representatives of older generation. The main conclusion, summarizing ideas of most research in this area, is that the place and role of older people is determined by many factors, which can include historical, geographical, social, economic, etc. At the same time, the mental features of perception of the place and role of older generation both by a society as a whole and by the elderly themselves are an important aspect to form a socio-cultural paradigm of old age. The fundamental issue of contradictions arising in the process of intergenerational communications is one of the main barriers to social integration of the older generation. The problem of "fathers and children" is a universal form of the whole spectrum of manifestations of a complex system of interaction between generations [2; 3; 4;]; it is based on the discrepancy in perception of social reality due to the inconsistency of the set of socio-cultural characteristics inherent in a certain age [5; 6].

Problem statement. Given the complexity and ambiguity of the problem, it is necessary to make a methodological digression in order to clarify a concept "generation". In demography this term has quite a clear description and is interpreted as a "set of people born at the same time" [7]. It is common to distinguish "real" and "conditional" (hypothetical) generations that have the following differences: in the first case, a generation is considered as a "set of people born in one time period (peers)", and in the second – as a "set of people of different ages, but living at the same time (contemporaries)". In family demography a generation also differs in the line of kinship (grandfather, father, son, etc.). In sociology this term is considered not only in the context of a particular age group, but also in the historical localization [8]. Based on the ambiguity of the term definition, we can assume that the category under study can not have strictly universal characteristics in different areas. Moreover, generation boundaries and features

are often set in accordance with research objectives and historical analysis parameters [9].

The determination of balance in the combination of biological and social components is the key issue in understanding a nature of generations and their interaction. Obviously, age and demographic rhythms of births and deaths are key factors in the formation of a structure of generations and social changes. We should mention one of the most significant scientific works devoted to the theory of generations, such as Karl Mannheim's article "The Problem of Generations" (1928), which includes a fundamental justification of the importance of a social component in the study of this problem [10]. Mannheim consistently criticizes positivist (O. Comte, J. Dromel, F. Mentré) and romantic-historical approaches (W. Dilthey, W. Pinder) to the definition of an essence and factors of the change of generations. Despite obvious differences in the conceptual approaches (the first can be called "quantitative", and the second — "qualitative"), Mannheim speaks about a unifying idea: an attempt to find a biological basis that allows to understand variability in intellectual and social life and, thus, identify a progress direction [10]. The German scientist reasonably comes to the conclusion about the insufficiency of the search for universal laws of the change of generations through the prism of only biological justification. Without determination of the social relevance of biological factors there is no sense in making generation boundaries; this statement is confirmed by transformations of an old age paradigm in the 21st century.

In the positivist approach the older generation plays a role of the conservative force that hinders development. In particular,

O. Comte argues that the increase in life expectancy reduces a progress pace due to a rise in the time interval "hindering" the influence of older people [11]. H. Ortega y Gasset in his theory gives older people a place on the "roadside" of history, considering that population aged 30–60 make the main contribution to its creation. In many ways the researcher's argument is built around the following statement: *"It is vivid that there are very few people over 60 compared to those of other ages, and in this sense their very existence is something exceptional"* [12]. And it is this thesis that has become the Achilles' heel of Ortega y Gasset's generations method. Indeed, at the beginning of the 20th century the phenomenon of population ageing in European countries was rather an exception to the rule, and the "oldest" countries (France and Ireland, where a share of the population over 60 barely exceeded 10%) would be considered the "youngest" in the 21st century. However, the process of intensive demographic ageing in developed and developing countries has led not only to a permanent increase in the proportion of older persons, but also to a rise in their contribution to social development [13; 14].

The attempt to find strict limits on generation boundaries is the second aspect, hindering many generation theories to pass the test of time. Different periodizations and cycles of generation change are used (most often 15-year-old and 30-year-old), however, the age of 60 years is defined as a period of "refusal of activity" [12]. The main postulate of Sanderson and Scherbov's theory of "prospective" aging [15] states that around the world the objective boundaries of old age are constantly shifting, provoking a revision of attitudes to certain age categories of population, which until recently were

considered as the elderly (relatively speaking, the current 80-year-olds are 65-year-olds a few decades ago). Thus, the ongoing process of increasing life expectancy provokes changes in the former boundaries of "old age".

Special attention should be paid to one of the most popular generation theories, formulated by N. Howe and W. Strauss. In 1991 they published a book "Generations: the History of America's Future, 1584 to 2069" [16], which largely determined the modern understanding of the problem under analysis. The authors studied behavior of different generations of American society since the beginning of the 16th century and identified many common features. They singled out 4 main types: "prophets/idealists", "nomads/ activists", "heroes/conciliators" and "artists/ adaptors", changing every 20 years [16]. Certainly, N. Howe and W. Strauss' theory is an achievement of modern sociology, but it is often subjected to reasonable criticism. Primarily, this refers to strictly identified periods of generation change that seem highly unreasonable. Second, the possibility of adapting the theory based on data on social transformations of American society to other countries raises certain questions. Is it possible, in particular, to consider a so-called Z generation or "digital" generation (individuals born in 2000−2005) the same in the United States, Mexico, and the Central African Republic? The same question arises concerning a baby boomers generation (born in the 1940−1960s), for example, in Russia and Sweden. So, this theory has an important component of "historical localization", neglected in many other theories.

Let us consider the work of Karl Mannheim. The German scientist is skeptical about the possibility to identify strict laws in the change of generations, as well as their cyclicity. The 15−30 year periods are extremely small time intervals in terms of history, and we can only talk about a temporary and conditional trend (or tendency), which can subsequently be only part of a long-term cycle [17].

However, it is difficult to deny the fact that even conditional generations are involved in intergenerational communication. J. Habermas emphasizes the importance of this process for social development in his concept "life world", where interaction between generations is one of the most important factors of cultural reproduction and social integration [18]. It is obvious that this phenomenon has the opposite effect − the gap in intergenerational distance leads to social disintegration.

The process of social communication has undergone changes throughout the history of mankind. Summarizing the available data, the sociologist G. McLuhan singles out three types of communicativeness: traditional, functional-role and mass [19]. The latter type is typical for the modern stage, when the development of technologies helps an unlimited number of individuals to communicate with each other, easily overcoming space-time barriers. However, the transition from a functional-role type has led to the situation where insufficient skills of using modern communication means create barriers to social integration of older generation and result in difficulties in performing the most important function of older people − transmission of experience. The old means of transmission are becoming obsolete, thus creating a gap between generations. The sociologist and anthropologist M. Mead has a similar theory [20], though paying much more attention to a cultural component. The types of cultures, she identifies, are rather controversial,

although the factors of changing a process of social communication between the older and younger generations are described quite clearly and tested. Let us consider them in more detail.

1. Post-figurative culture: younger generations adopt experience of older people; older people act as intermediaries in its transmission from generation to generation. Such cultures are conservative and are poorly subject to change. This type is characterized by isolation and prevalence of labile (short-term) cultural and historical memory transmitted from generation to generation. Older people are highly valued, as they maintain historical heritage and realize the function of transmitting values.

2. Co-figurative culture: younger generations adopt experience both of older people and peers. The transition to this type is most often caused by some revolutionary events (transition to a new political system, technological changes, adoption of a new faith, etc.), followed by a change in the structure of social values. In addition to the function of transferring values, older generations set certain limits that will prevent a complete change of norms. So, intergenerational conflicts naturally arise due to confrontation between the system of "old" and "new" values. In the concept of M. Mead, gradual transition to a nuclear family model is one of the main characteristics of the co-figurative culture. Thus, two generations (parents and children) are involved in the process of direct interaction and values transfer, intergenerational communication is reduced to a minimum. The gap in cultural distance leads to age discrimination based on a conflict of values.

3. Pre-figurative culture: not only younger generation adopts experience of the older, but vice versa. In the modern society science and technologies develop so quickly that humanity does not have time to get used to them. We can speak about an effect of "future shock", described by A. Toffler in the book of the same name [21]. Thus, older people with a certain value system are forced to regularly adapt to innovations of both technological and social type. Increased life expectancy of population also plays an important role. A few centuries ago the life expectancy of European people amounted to about 30 years and the intensity of scientific and technological progress was significantly lower. It contributed to the formation of post- and co-figurative cultures, where older people have much more opportunities for adaptation and finding their place.

The importance of intergenerational communications in modernization processes should also be noted. According to R. Inglehart's theory, successful cultural modernization of a society, expressed in the transition from materialistic to post-materialistic values, is only possible in the absence of disintegration processes, such as intergenerational conflicts [22]. The manifestations of age discrimination and stereotyping are social rudiments and barriers to cultural modernization.

The given review suggests that the problem of intergenerational communication is a factor in the formation of barriers to social integration of older generation. This phenomenon called "conflict of generations" is reflected in many sectors of public life. The evolution of generation theories makes it possible to draw an important conclusion: it is difficult to define and empirically evaluate strict laws of change of generations and their interaction. The hypothetical cyclicity of generation change is, probably, a temporary trend in the

linear process of transition to the pre-figurative culture. Its many indicators are typical for most developed and developing countries (including Russia). At the same time, the generation concept seems to be extremely complex and ambiguous. Undoubtedly, the research in this area should include territorial specifics and the so-called "historical localization". Thus, in this work we understand older generation as representatives of statutory retirement age in the Russian Federation (both working and non-working), since in modern realities the factor of "retirement" discourages intergenerational communications and hinders social integration of older people [23].

Research method. The positivist ideology, a cornerstone of sociology at the present time, as well as the desire for objectification and digitalization of sociological data, has somewhat overshadowed the use of qualitative methods. However, in our opinion, the application of the biographical method in the study of intergenerational communications and barriers to social integration of older generation can potentially give results that are difficult to obtain with the help of quantitative methods.

In 2017 the VolRS RAS conducted a series of interviews with representatives of older generation. The research program and its internal logic were based on results of the sociological survey devoted to the study of barriers to inclusion of socially vulnerable categories of population[1]. The selection of

respondents did not imply strict compliance with the proportions of a gender and age population structure. The achievement of statutory retirement age and the status of employment (working or non-working) were key formal criteria. Their selection was based on the sociological surveys results:

a) a "retirement" factor hinders inter-generational communication and forms barriers to social integration of older people;

b) representatives of retirement age who continue working are less likely to experience social exclusion due to the maintenance of many social ties and self-identification with the productive part of population.

Twenty people aged 59—82 (4 men and 16 women) were surveyed; the proportions of 40% of the employed and 60% of the unemployed were observed (the shares were determined according to official statistics). The interviews were carried out at the cultural-leisure centre "Care" (Vologda) and the VolRS RAS.

The interview guide was based on the biographical method. A respondent presented a brief story about his/her life path, paying greater attention to certain aspects (marriage and family relations, education, work). Thus, the first part of the interview allowed us to determine respondents' life trajectories, as well as their impact on social integration in old age. The second part included several blocks of questions aimed at studying health state, factors, features and motives for continuing employment in retirement, and problems associated with retirement. Social relations, elements of intergenerational communication and interaction with young people were evaluated.

Results and their discussion. The first part of the interview included a short biography and

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[1] The survey "Socio-cultural modernization of regions" was conducted in two waves, in 2016 and 2017. People were interviewed in certain regions of the Northwestern Federal District: the Vologda, Murmansk, Kaliningrad and Novgorod oblasts, and the Republic of Karelia. The method of the survey is a questionnaire poll by place of residence of respondents. The sample was purposeful and quoted. The volume of sample population was 3,101 people in 2016 and 3,108 in 2017; the sampling error did not exceed 5%.

description of the current marital status of respondents. It is worth mentioning that the interviewed older people who currently live in Vologda were born in different places: Murmansk, Ulyanovsk, Belgorod, Moscow, Tver, Novosibirsk, Arkhangelsk, and Vologda oblasts, as well as the Komi Republic. The postgraduate work assignment, actively used in the USSR, left an imprint on the trajectory of their life strategies, as the change of residence was quite frequent. Sometimes people were born, educated and employed in different regions of the country:

N.N., aged 72, woman, "I was born in 1946 in Melekess, the Ulyanovsk Oblast... In 1969 I finished the Ivanovo Medical School. By assignment I went to the Kemerovo Oblast … My husband and I decided not to go so far and chose the most unpopular place − the Vologda Oblast".

This phenomenon, probably, plays a positive role in terms of possibilities to overcome barriers of social integration. The interview repeatedly noted a greater ability of "that" generation (born in the 1940−50s) to adapt to changing conditions.

As for a marital status of the respondents, the vast majority of them live alone or with a spouse. As a rule, the process of territorial division of a family coincides with the birth and maturation of grandchildren:

G.P., aged 82, woman, "In the one-room flat, so... So we had to separate: they moved in the one-room flat, four of them also lived in the one-room flat, raised children. And I had a three-room flat, my husband, I and our daughter lived there, then my husband died, and then my daughter died. My daughter died, I said, "Let us, Misha, change flats". At first my son and I changed flats, and now my granddaughter and I did. Now, I think, forever".

Due to a number of circumstances older people participate in upbringing of grandchildren and communicate with them actively before their achievement of school age:

N.N., aged 72, woman, "No, we see each other not often. I had spent a lot of time with my grandson till he achieved school age, then not much".

Health of older persons is the main limiting factor; older people often find it difficult to perform these duties. However, this is not the only reason. Intergenerational contradictions, expressed in the divergence of values and attitudes to education, are also an important element:

V.F., aged 77, woman, "I as an elementary school teacher want to teach grandchildren something. But my children find it too early. Why not? In this respect I have disagreements with my daughter. Not scandals, of course, but I do not really like it".

At the family level the intergenerational distance increases, when grandchildren are growing. As earlier mentioned, the modern Russian society is characterized by a pre-figurative type of culture: older people find it difficult to adapt to a tremendous pace of technological and social progress. So, there appears a gap in intergenerational communication, as, according to young people, the elderly's knowledge and skills are losing their relevance:

N.N., aged 72, woman, "In any way my grandchildren do not feel the need to make use of my knowledge, my experience. Even when you give advice, they defend. And I talk not only about my grandchildren, but also my son and daughter-in-law. You start to tell them something, and they say, "You do not understand anything, nowadays life is completely different". Life is different, but the rules of life are the same".

Both the content part of communication and its form are changing. A changed style of language communication often becomes another barrier to intergenerational communication. There is a cognitive dissonance in the perception of the essence and content of everyday things:

I.N., aged 70, woman, "Surely, the language has changed. I know English, but I do not understand what they talk about. I see signs written in Latin letters, but it turns out that it is Russian words that are written, i.e. it is difficult for me, oddly enough. I experience this in the media, as well as in communication with young people. Language has changed".

Surely, this aspect can be considered as a barrier to older people's integration into public life. As a result, young people rarely enter the circle of their social relations. It is formed mainly from close relatives and people of retirement age (more often of the same age):

V.V., aged 72, woman, "With relatives in the first place, invite them somewhere. My son invites me. I communicate with peers. My friend and I meet quite often".

I.N., aged 70, woman, "These are people of my age. I communicate with them almost every day and travel with them".

G.P., aged 82, woman, "Today — with pensioners. We communicate every day. We meet less often nowadays, but speak on the phone a lot".

Thus, the communication circle becomes the key factor to form an "old age" subculture, where interiorization of this group's value system occurs. It is a serious barrier for some elderly people, it forces them to change their priorities in the communication sphere:

S.V., aged 66, woman, "To be honest, I like to communicate with young people more than with people of my age who are whining, talking about sores, bad things".

N.N., aged 72, woman, "It is more and more difficult to talk with people of my age, as old age affects psyche. Older people somehow shut themselves in. The older people, the more they limit themselves".

K.K., aged 75, woman, "Sometimes you stop at the entrance to talk with grandmothers. But I do not like to sit at the entrance. I do not like, "This one went here, that one went there". What do I care who went where?".

In fact, the values characteristic of this socio-demographic group are rejected. At the same time, the current communication circle is enough for all the respondents. However, the interview analysis suggests that direct communication is fragmented in most cases: for example, several times a week visiting relatives or talking to them on the phone, meeting with peers at joint activities, etc. As a result, life of an older person is often associated with loneliness:

N.N., aged 72, woman, "Though you can give birth to ten people, still old age is loneliness. Everyone will leave home and have their own problems".

Most older people feel the same. However, the attitude to the very fact of loneliness and ways to overcome it can be different:

G.P., aged 82, woman, "Sometimes I feel it, but very rarely. Well, it happens, I feel sad, but someone calls, I talk to someone and again everything...".

N.N., aged 72, woman, "No, I do not suffer from loneliness, I love loneliness. Communication with my son is enough for me. To be alone is good, I like it".

K.K., aged 75, woman, "I do not like to be alone at home... Usually I have to turn on TV, but I do not really like what is shown there".

V.V., aged 72, woman, "If I feel lonely, I do a crossword puzzle. I can go for a walk around the city. But I am always surrounded by people. People from work invite me sometimes. Now it is better to live separately from relatives".

Living alone and having a lot of free time require the search for compensatory mechanisms. This is mainly achieved due to increased intensity of communication, new hobbies, participation in social activities. It is worth pointing out that the problem of loneliness is less relevant for working pensioners of younger ages:

T.D., aged 59, woman, "Sometimes I even want to be alone. At work a few dozens of people pass by, everyone asks me about something. Sometimes I go to the country to have some rest. But there one or another neighbor goes by. There is a social circle again. Nobody lets me be alone".

One of the most significant observations should be noted: older people associate a "retirement" concept not with a statutory retirement age, but with a termination date of their employment. During this period the circle of social ties is narrowing, feelings of loneliness are emerging and social significance is declining. At this time people try to find ways to keep busy:

V.V., aged 72, woman, "It is hard to get used to sitting at home. I want to go somewhere not to be bored".

A number of interrelated factors (internal and external) influence the decision to continue or stop working in retirement. Internal factors include a health state, professional skills, motivation and values. The analysis of the conducted interviews confirms the fact that certain regularities are observed in the distribution of their significance:

N.N., aged 72, woman, "First, the state of health allowed me to work. Second, I liked my profession, I liked to communicate with students. Third, material interest. It gave me an opportunity to realize my dream — to travel".

Thus, although the need for additional income is a key motivation to continue working, it is the state of health ("can I do it

physically?") and professional skills ("do I have necessary skills for it?") that are the primary factors.

Poor health is one of the aspects that determine the emergence of internal barriers to the inclusion and realization of resource potential of older generation. During the interview, the respondents were asked to give a subjective assessment of their own health, abstracting from existing diagnoses. The study suggests that the overall picture of older population's health, based on their own estimates, looks much more optimistic than real:

*V.V., aged 72, woman, "I had examination last year, so people thought I was 56, but not 70. If anything hurts, I apply immediately... You should believe first, and it helps. Probably, it is a three" (*in addition to comments, the respondents were asked to assess their health by a five-point scale. Author's note*).*

V.F., aged 77, woman, "I am an optimist myself, I keep on, go everywhere: swimming, hobby clubs. I would rate my health as a four minus".

E.G., aged 80, man, "I was in hospital once and only because of medical examination of pensioners. The state of health was not a reason for it. Now health is beginning to deteriorate. I will rate it as a four minus. But, in general, I feel good".

K.K., aged 75, woman, "I would rate my health as a four. At least I do believe that everything is fine".

S.V., aged 66, woman, "I am a disabled person of Group 1. But I feel like very good. Why should I lie down? But I do not tell anyone about my problems".

When analyzing the respondents' answers we pay attention to a few points. In most cases it is an optimistic attitude to existing and progressive diseases that is the most important

element of maintaining physical health. In addition to the complacency effect it can help overcome stereotypes about older persons and their physical disabilities. This assumption is confirmed by the fact that the respondents do not consider it necessary to tell people about health problems.

The second aspect concerns relationship between termination of employment and changes in health status. The dichotomous component of the problem makes it impossible to identify a primary aspect with full confidence. Of course, the deterioration of health leads to a decrease in labor activity. However, according to the interview results, in some cases it was the labor activity that served as a factor in maintaining a satisfactory physical condition, and retirement triggered health deterioration.

V.V., aged 72, woman, "I used to work, I did not catch up with the disease, and now I support myself... When I worked, I did not go to hospitals. I went only in case of emergency...".

*K.K., aged 75, woman, "I think, on the contrary, it supported. Now it is worse" (*the answer to the question, if the state of health hindered employment. Author's note*).*

Surely, it is impossible to state unequivocally that the continuation of labor activity is an absolute guarantee of good health and active longevity. But this once again shows that the older generation should not be seen as a homogeneous group with a well-defined relationship between various factors of their life quality.

In retirement, as a rule, more attention (in particular attention, not time) is paid to disease prevention. Most often it is a regular exercise, long walking, swimming, and attendance of various physical education classes. It is worth saying that some cases reveal the importance of cognitive and educational functions in slowing down aging.

N.N., aged 72, woman, "To avoid aging, slow down a process of aging, be sure to head to work. Aging begins in the brain. We should learn something new constantly. Then a person will slow down his/her senile processes".

At the same time, all the respondents recognize that age-related changes are irreversible regardless of the intensity of preventive measures.

N.N., aged 72, woman, "Whatever a healthy lifestyle a person can lead, still his/her genetic program is going down. There are no absolutely healthy 71-year old people".

This is largely determined by the increased frequency of visits to doctors and hospitals. In general, the respondents evaluated the health care system measures as quite high, although we identified one alarming feature:

V.F., aged 77, woman, "I will tell you about medicine. So, I visit doctors. I ask them about diagnoses, what to do. They say, "It is because of our age! Machines also deteriorate!".

*V.V., aged 72, woman, "I passed medical examination, but there was no sense. Injections were not prescribed, only painkillers. They say, "It is senile already, your body is wearing out". That is told to everybody. So you go somewhere, when you get an invitation, you buy something" (*she talks about alternative medicine. Author's note*).*

It is not clear that this is a widespread practice. However, the very existence of such cases raises the question of extending gerontological specialization in the healthcare system. Of course, the aging process is irreversible, but "old age" is not a medical diagnosis. Physiological aging provokes diseases; however, their development can be slowed. Medical workers should change their perception of "old age" − not as a single incurable disease, but as a complex phenomenon with its own factors and features.

Actual skills and a professional qualification level are another aspect that affects continuation of employment in retirement. During the interview the respondents were asked to assess their professional skills and abilities in terms of meeting modern requirements. The analysis allows us to identify two main groups of the respondents who assess their skills as high and low, respectively.

Group 1:

I.N., aged 70, woman, *"Considering how they teach now, how they teach my grandson ... I would still be useful".*

S.V., aged 66, woman, *"Naturally, it corresponds. I qualified for the highest category during my last year of employment. I am aware of all programs and the Unified State Exam. I monitor everything. I am interested, in principle".*

G.P., aged 82, woman, *"What to answer. My granddaughter also works as an economist... I will tell you that when she was studying, we worked it all out, as they say, it all came in handy. She said, "Grandmother, I would not have been able to study and maybe even work without you".*

Group 2:

N.N., aged 72, woman, *"No, they do not correspond. As I has gone to the medical college, the level of knowledge is getting worse and worse in terms of practical medical knowledge. Due to the change of the system, there have appeared so many imported drugs that I still do not understand them".*

K.K., aged 75, woman, *"Not now. Now there are computers everywhere, I do not understand them".*

V.V., aged 72, woman, *"Economists are becoming obsolete, something new should always be studied. In construction, too: I take some material and I already do not know it. I need to read about everything again".*

There are several reasons for this discrepancy. First, people with higher education gave a higher assessment of the relevance of their skills and abilities. Second, on average, the respondents of Group 1 were more intent on continued employment. Third, the respondents who highly assessed their qualification level were significantly more likely to take advanced training courses (including self-study), including in the pre-retirement age. Since continued employment in retirement allows for a wider range of communication, education and a high qualification level become important elements in overcoming mental barriers to integration into public life, at least in the labor sphere.

However, a satisfactory state of health, a high level of qualification and a desire to work can not be enough. An employer's position is an important limiting factor. According to the study, employers take into consideration an employee's age.

V.V., aged 72, woman, *"I worked in retirement a little bit, but then I was asked to leave for someone who had been on maternity leave to come back".*

K.K., aged 75, woman, *"After retirement I changed my job. At that time it was very difficult. I was offered to retire because of old age. I wanted to work a little more, but I was relieved of my duties at my own request".*

I.N., aged 70, woman, *"I wanted to work, I loved to work. A new person came. My labor contract came to end, a new young specialist came. Unless these circumstances I would have continued to work until now".*

G.P., aged 82, woman, *"You can be fired because of old age. I can say that we had eight children in my family, there was no such a situation. But in conversations ... People worked, but since an entrepreneur needs young people..."*

The problem of age discrimination remains relevant in many organizations. However, the interview analysis shows that it is caused, first of all, not by a negative attitude to a personified subject (an older person), but by limited

resources of an enterprise. Under other equal conditions a young specialist has an advantage over a more mature staff member due to the existence of a non-confirmed stereotype (especially in the sphere of intellectual labor) about a low level of productivity in old age. At the same time, in some cases an older staff member can be transferred to a less qualified position within the same organization.

V.V., aged 72, woman, "They usually offer something, give another job. A lower paid one. My sister was transferred like that".

The second option is to search for a job in a different place. The respondents confirm that it is extremely difficult to find a suitable job after retirement. Most often you have to agree to a less well-paid and popular work.

V.V., aged 72, woman, "I worked for 10 years in retirement. First in the house-museum, then as a street cleaner, a watchman".

K.K., aged 75, woman, "I went to work as a watchman in the boarding school".

This approach to the employment of older generation leads to a stereotype that older people offer low-skilled work that is not in demand in the economy. However, there is a lot of work occupations (primarily in the service sector), where skills, abilities and experience of older generation could play a positive role in socio-economic development of the state. The problem is not in the quality of supply, but in the lack of demand for older persons to work in some professional areas where age and poor health are not paramount.

The respondents were also asked to answer the question, when, in their opinion, an employer could dismiss a person who had already retired.

V.V., aged 72, woman, "If the person does not drink and make scandals, he/she will be never offered to resign. Now people continue education, there are plenty of courses".

N.N., aged 72, woman, "If he/she fulfils his/ her duties, he/she probably should not be dismissed. It is a very difficult question. If I were an employer and a person worked well, I would not dismiss him/her".

T.D., aged 59, woman, "If a person works well, I can not fire him/her. I think so. If a person has taken up the job, he/she should meet his/her responsibilities. If you can not cope — you are fired, can cope — not fired".

S.V., aged 66, woman, "If I were a leader, I would fire. From a distance I watch such a situation: two men are standing, their hands are shaking because of old age. Would a student like to watch it? And not everyone tries to learn something new: he/she teaches students what was many years ago, but in fact we have something new. I do believe that we should work until retirement age. If you are to rest — do it".

According to the respondents, people can be dismissed because of old age if they do not meet work requirements. In our opinion, this parameter should be decisive. However, the question remains: to what extent employers are guided by this principle? The study suggests that the age factor often outweighs the need for skills and experience of older people.

In general, it should be noted that most respondents are quite loyal to the existing practice of "dismissal because of old age", noting the importance of providing opportunities to work for young generations.

S.V., aged 66, woman, "I am deeply convinced that young, healthy and energetic people should work".

At the same time, taking into account the heterogeneity of the studied socio-demographic group, we should consider the fact that in some cases the change in a lifestyle after the end of employment can become a serious psychological barrier.

I.N., aged 70, woman, "Everything changed greatly, as, besides various courses, my cognitive needs were not satisfied anywhere. Until I found my hobby, I had sensory impoverishment... Many of us are ready to help our state without payment. But in general: if we are not required, let it be so. We are trying to be useful ourselves".

Thus, adaptation to a changed lifestyle in retirement can occur in different projections. According to the study results, the perception of older people as a homogeneous group with a well-established set of social roles and functions is one of the most significant barriers to inclusion of older generation. Some representatives do not associate themselves with the elderly in the stereotypical perception, but are forced to change their lifestyle due to the influence of external factors (termination of employment and stereotyping). Life strategies of this category are built on different trajectories, so the existing socio-cultural paradigm of "old age" needs to be changed.

The problem of "fathers and children", described in detail in the eponymous work of Turgenev, remains relevant today. Older generation rejects younger generation's values, and vice versa; it provokes the break of intergenerational ties. The respondents were asked to characterize the modern youth and compare it with the generation of their youth. In general, the respondents did not give unambiguous estimates, noting the hete-rogeneity of the youth.

G.P., aged 82, woman, "I will not say that all young people are bad. There are young people who give place and ask for something. But their number is small, and I can say that years ago more than half of them did it. Before that there were impudent people too... But now there are more of them".

K.K., aged 72, woman, "I think it is different. There are also good young people. But sometimes in the street you look at them and they are so bold. Even pupils. All are different".

T.D., aged 59, woman, "I consider my family. My son is 36 and his friends are of the same age. Young people are great. Maybe there are some exceptions to the rules, but I look at them and feel happy".

S.V., aged 66, woman, "No worse. Ordinary guys, healthy, energetic, cheerful".

In fact, such statements disprove the stereotype about older people's negative attitude to younger generation. However, there are also unambiguous estimates.

G.P., aged 82, woman, "It depends on education, depends on how the school teaches. Then, earlier if you correct anyone, you are listened to, even by those who are impudent... But now you can be offended and even threaten with fist".

N.N., aged 72, woman, "In Soviet times when the students finished medical school, there were so many tears at the prom. Now there would be no tears. Years ago people were more soulful. Now people are different. A knowledge level of school leavers is much lower. They can not speak at all, they can not connect two words".

In this case the difference between "that" youth and the modern one is determined by their upbringing and education. At the same time, according to many respondents, today's young people make a much greater emphasis on financial well-being and their own interests due to the changes in social and educational systems.

V.V., aged 72, woman, "The youth is now.., by the way... It needs big money. So it should start as a master, but nobody wants to work with a shovel".

I.N., aged 70, woman, "We in our youth were not so focused on a financial component, and they look for occupation not to get some satisfaction, but money".

G.P., aged 82, woman, "They began to perceive life differently, unlike we did. We thought about the Motherland first, and only then about ourselves. Now it is vice versa. It is characteristic of almost everyone; it is a rare phenomenon, if not… A lot depends on parents, they taught us to be more united, help each other. And they themselves helped. Their example means a lot. My father said that we should help people first, and we were brought up like that".

This situation is caused by external factors that form differences in generations' values. However, deeper reasons were also identified.

*I.N., aged 70, woman, "Today's young people have many attempts in different directions, but do not get involved. All my life, including in my youth, I was engaged in one activity. The rest was additional. And they (*today's youth. Author's note*) try and give up, try and give up".*

S.V., aged 66, woman, "The modern youth is a seeker. They try themselves in different areas, they search for their style. They try themselves in different spheres of activity".

Thus, the differences in values and attitudes between older and younger generation are formed as a result of the changed approach to determining their place in the social structure. If earlier, according to the respondents, young people tried to focus on a narrow spectrum of actions and realize themselves in a particular area, then today's young people, taking into account a rapid pace of technological and social progress, have to change spheres of activities. Probably, it is a determining factor to form mental barriers to inclusion of older people, less ready for innovation and transformation, not only because of age, but also because of the attitudes and views formed in their youth.

It is important to note that most respondents admit a better attitude towards them on the part of the state and society.

G.P., aged 82, woman, "I would say it is better".

N.N., aged 72, woman, "Previously, the state did not have such opportunities. But now, I believe, more attention is drawn to older people. For example, veterans; immediately after the war there was not so much attention to them".

K.K., aged 75, woman, "I think it is better. More respectful, I think".

T.D., aged 59, woman, "Good attitude, if a person has a good reputation. A person should behave".

According to the study, the positive assessment is mainly determined by the increased number of leisure options (a rise in the number of public organizations, leisure centers, clubs, etc.), which allows older people to feel society's attention and involvement in public life. Against this background the state's policy towards older persons is positively assessed, although the financial component remains a matter of concern and discontent:

I.N., aged 70, woman, "Unfortunately, we begin to pay for everything. We have to save on something, but the state also saves on us, of course. Thank God, they do not limit us as in the old days. Restrictions are only monetary".

G.P., aged 82, woman, "See … people live with a pension of 8,9,10 thousand rubles. Is it possible to live on such a pension? I would say, it is impossible. You only make ends meet and no money is left even on decent clothes. Only what remains from the past…".

T.D., aged 59, woman, "Policy is good. A pension, of course, might be larger".

V.V., aged 72, woman, "The fact that we get a pension and get it in time is good. Although it is not very big. We have benefits too, though they are small. I do not like the fact that, of course, there are a lot of homeless older people".

S.V., aged 66, woman, "In principle, we get pensions, everything is fine. If a person worked hard all his/her life, he/she already has a flat. I am concerned about the need to reduce pension, though how it is possible to reduce it. It is only enough for food".

Consequently, we can state that a low level of pensions is the main economic barrier to inclusion of older generation. It turns out that in Russia older people have a large range of opportunities to realize their needs and interests, which, however, has monetary restrictions. When asked what the state should do to change the situation of older persons, the vast majority of respondents mentioned a rise in pensions.

The interview results show that older people do not shift the responsibility for their situation to the state, noting only its role as a guarantor of pensions.

I.N., aged 70, woman, "Of course, on themselves. I have been saving up for my retirement, to be honest. I am ready to work part-time, but it is kind of weird to be a watchman. It is necessary to rely on your own abilities, disabled people is another question".

N.N., aged 72, woman, "People have to take care of themselves. By the way, many have dependent mood. Everyone blames the state. But what have you done yourself?".

E.G., aged 80, woman, "Why count on the state? The state has a lot of people. Our generation achieved everything itself. We worked, had part-time jobs sometimes. We studied for free".

K.K., aged 75, woman, "If the state has the opportunity to help, it would be nice. And if not, you need yourself. I think if a person has a long working experience, the pension should be good, he/she can live on it. And if for some reason he/she did not work, children should help. Children should support, not necessarily materially".

T.D., aged 59, woman, "A person should not rely on anyone, I rely only on myself".

S.V., aged 66, woman, "If the state does not give a pension, what are our opportunities? Diseases already appear, abilities are not the same. But every day, of course, you rely on yourself. You can not completely shift your maintenance to the state. If you are given a pension, live".

Thus, according to the study results, the modern older generation in Russia is not characterized by dependent mood. The state is not obliged to ensure a decent old age in terms of non-economic aspects of life quality. But, as in the case of forced reduction of consumption in old age, such a life position presupposes that the state guarantees only material security. Older people have a lot of free time and opportunities at their disposal, but due to a number of objective circumstances, including mental ones, they can not fully realize them.

Conclusion. The study suggests that the image of a pensioner as a representative of the unproductive part of population formed in public consciousness significantly limits the possibilities to realize older generation's potential. At the same time, the maintenance of this image is largely determined by intra-group processes. Life strategies of working and non-working pensioners are built on fundamentally different trajectories: in the first case — people consider themselves as the able-bodied (productive) part of population (the value structure demonstrates it clearly), and in the second — attitudes characteristic of the "old age" subculture are interiorized (the state of health is a key factor).

The revealed social barriers to the inclusion of older generation are largely determined by the specifics of older people's perception of their position in the social structure. As the

results of the in-depth interviews show, the "inertia" factor in continued employment allows people to maintain previous social ties, which structure includes representatives of different ages (including young people). The withdrawal from working life (due to personal or external reasons) leads to a gradually increased social distance between older people, a narrowed circle of communication, and a lost sense of "need" for society. According to the study results, the end of employment, rather than obtaining the status of a "pensioner", determines the emergence of social distance between older generation and society. It is difficult to find employment in retirement age, including due to society's perception of older people as a low-productive part of population.

The break of intergenerational communications is one of the fundamental aspects that prevent inclusion of older generation. According to the study, this process is determined by many factors: a loss of relevance of skills and experience of older generation and their demand among younger population (including within the family). The problem was relevant in other epochs, but was determined mainly by conservative thinking and declined ability to adapt to innovations. Today the situation is complicated by a tremendous pace of technological progress. The solution to the problem of breaking intergenerational communications should be bilateral. It is necessary to change a socio-cultural paradigm of old age; young and older people should understand the importance of intergenerational interaction. The age factor should not determine a place, role and functions of a person in the social structure. It is important to form positive attitudes towards old age among young population on the basis of the fact that sooner or later each society member falls into the socio-demographic group of older people. Let us finish with a slightly paraphrased statement of one of the respondents: *society is aging, generations and technologies are changing, but the rules of life remain unchanged.*

References

1. Barsukov V.N., Kalachikova O.N. Study of the quality of life of the older generation: regional experience. *Economic and Social Changes: Facts, Trends, Forecast*, 2016, no. 4, pp. 88-170.

2. Bengtson V., Achenbaum W. *The Changing Contract Across Generations*. New York: Aldine de Gruyter, 1993. 311 p.

3. Barr N. *The Welfare State as Piggy Bank*. OUP Oxford, 2001. 316 p.

4. Carstensen L.L. Motivation of social contact across the life-span. *Nebraska Symposium on Motivation: Developmental Perspectives on Motivation*, 1992, vol. 40, pp. 209-254.

5. Dukhovnov D., Zagheni E. Who takes care of whom in the United States? Time transfers by age and sex. *Population and Development Review*, 2015, vol. 41, pp. 183-206.

6. Feuer L.S. *The Conflict of Generation. The Character and Significance of Student Movement*. New York, 1969. 543 p.

7. Volgin N.A., Rybakovskii L.L. (Eds.). *Demografiya: Uchebnik dlya VUZov* [Demography: Textbook for Universities]. Moscow: Logos, 2005. 280 p.

8. Semenova V.V. Differentiation and consolidation of generations. In: Yadov V.A. (Ed.). *Rossiya: transformiruyushcheesya obshchestvo* [Russia: Transforming Society]. Moscow: KANON-press-TS, 2001. Pp. 256-271. (In Russian).

9. Belyaeva L.A. Social portrait of age cohorts in post-Soviet Russia. *Sotsiologicheskie issledovaniya=Sociological Studies*, 2004, no. 10., pp . 31-41.

10. Mannheim K. Das Problem der Generationen. *Kölner Vierteljahreshefte für Soziologie*, 1928, vol. 7, pp. 157-185.

11. Mentré F. *Les Générations Sociales*. Paris, 1920. 451 p.

12. Ortega y Gasset H. *Vokrug Galileya (schema krizisov)* [About Galilee (Outline of Crises)]. Translated from Spanish. Moscow: Ves' mir, 1997. 704 p.

13. Shabunova A.A., Barsukov V.N. Trends in demographic ageing of population of the Russian Federation and ways of overcoming them. *Problemy razvitiya territorii=Problems of Territory's Development*, 2015, no. 1, pp. 76-87. (In Russian).

14. Shabunova A.A. Social development and modern demographic challenges *Problemy razvitiya territorii=Problems of Territory's Development*, 2014, no. 2, pp. 7-17.

15. Sanderson W., Scherbov S. Faster increases in human life expectancy could lead to slower population aging. *PLoS ONE*, 2015, vol. 10. Available at: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0121922

16. Howe N., Strauss W. *Generations: The History of America's Future*, *1584 to 2069*. New York, 1991. 544 p.

17. Sorokin P.A. Cyclic concepts of socio historical process. *Social Forces*, 1927, September, pp. 28-40.

18. Habermas Yu. *Ot kartin mira k zhiznennomu miru* [From World Pictures to the Life World]. Moscow: Ideya-Press, 2011. 128 p.

19. Erasov B.S. *Sotsial'naya kul'turologiya* [Social Cultural Studies]. Moscow: Aspekt Press, 2000. 591 p.

20. Mead M. *Culture and Commitment: A Study of the Generation Gap*. Bodley's Head, 1970. 99 p.

21. Toffler A. *Shok budushchego* [Future Shock]. Moscow: AST, 2002. 557 p.

22. Inglehart R., Welzel C. *Modernizatsiya, kul'turnye izmeneniya i demokratiya: posledovatel'nost' chelovecheskogo razvitiya* [Modernization, Cultural Change, and Democracy: the Human Development Sequence]. Moscow: Novoe izdatel'stvo, 2011. 464 p.

23. Barsukov V.N. Intergenerational conflicts as a social issue of "ageing" countries. *Sotsial'noe prostranstvo=Social Area*, 2016, no. 5 (7). Available at: http://sa.vscc.ac.ru/article/2069 (In Russian).

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Students and Income-Earning Youths: a Transformational Transition from Competition-Based Approach to Competitiveness*

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Abstract: Competitiveness as a personal characteristic is strategically important in daily and work activities. The article presents analysis of the process of formation of students' competitiveness (case study of high school students and students from secondary vocational and higher educational institutions) with further implementation of competitive strategies in the work of young workers. The youth socio-demographic group is considered as a battery of creative and competitive potential characterized by the desire to develop their own personality and transform the surrounding society. The article presents the assessment of personal characteristics of students and income-earning youths, analyzes the respondents' self-assessment of the level of competitiveness, value attitudes and desirable

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life characteristics in the long term. The empirical framework includes data of a representative mass questionnaire survey of the youth of the Tyumen Oblast. The sociological research indicates that high school students have a minimum level of competitiveness among all categories of youth and have the potential to improve it among students. The maximum level of competitive strategies is demonstrated by the income-earning youth with higher education. All respondents focused on competitive relations (among students and income-earning youth) count on their own efforts in labor activity and demonstrate the internal locus of control. Competitive income-earning youth value their own safety less, realizing that the implementation of competitive strategies involves a high degree of uncertainty and risk in labor and daily practices; they realize their willingness to resist the competitors. There is a correlation between the young people to participate in competitive interactions and the scale of planning horizons. The research results expand knowledge about young people's competitiveness, the processes of its transition to competitiveness and can be used by educational institutions in training and educational work, as well as all organizations when making personnel decisions.

Key words: high school student, income-earning youth, competition, competitive relations, competitiveness, competitive factors, competitive sustainability.

Introduction

Youth as a socio-demographic group is of strategic importance for any country. The age limits for determining young age vary widely from country to country. Thus, according to the UN Security Council Resolution, a young person is a person aged 18−29. In Russia, young people are citizens aged 14−30. During this period, a person will have to overcome the transformational transition from an inexperienced teenager with inherent social infantilism to maturity and social responsibility. In this age period serious social statuses such as a schoolchild, a student, a graduate student, a young specialist, a trainee and others are concentrated.

With total world population of 7.3 billion people, the world's youth population (aged 10−24) is 1.8 billion (25% of the world population)[1]. In Russia, the same age group comprises 21.9 million people or 14.9% (aged 10−24) of the total country's population (as of the beginning of 2017). Based on the Russian age limits for young people (14−30), 26.4 million people (18%) belong to this age group[2]. The share of young people in Russia has never decreased so much before. For example, there is information from previous historical periods: in 1926 − 29%, in 1939 − 26.5%, in 1959 − 26.5%, in 1979 − 27%, in 1989 − 22%, in 2002 − 24%, in 2009 − 24%, and in 2013 − 21.3%[3]. We are not speaking only about the share of this age group in the population, which is declining due to changes in the age structure of the population due to increasing life expectancy, but also due to nominal quality of young people in the society. There are obvious socio-economic risks of this trend − the growing load on the working population and other consequences. However, traditionally, it is young people who accumulate creative potential, desire to compete, and development of their own

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[1] *Global population in 2015.* Available at: https://www.unfpa.org/sites/default/files/pub-pdf/RU-SWOP14-Report%20Rev-Web-update%2024%20Nov.pdf

[2] Population distribution by age group. Official website of the Federal State Statistics Service. Available at: http://www.gks.ru/free_doc/new_site/population/demo/demo14.xls

[3] *Ibidem.*

personality and society. In this regard, the reducing share of young people in the country is perceived as a serious threat not only to economic development, but primarily to social and cultural stability.

Research problem

The research purpose is to analyze competitive orientation of young people and the comparison of some elements of the sociological image of students and income-earning youth depending on competitive orientation in personal life, educational and professional activities.

Thus, the research **objectives** are: to consider the key factors in the formation of the competition-based approach; determine the criteria for its successful transition to competitiveness and maintaining long-term stability; establish a correlation between competitiveness and the list of individual's personal qualities, life values, and priorities.

In adolescence, which is the period when a schoolchild studies at high school, the process of social adaptation is intensified – even yesterday's child thinks about their place in the society, makes a decision about their future profession, independently or with the help of their parents. During this period, the initial attempts of personal self-determination and plans for the future are associated with preparing for the upcoming competitive interaction (in the framework of "adult life") in the daily and work activity. Building up competitive potential continues during the whole life, being especially relevant in the information (post-industrial) society. This process occurs to a greater extent during the period of vocational training and is implemented in a workplace in the form of the accumulated competitiveness. After graduating from secondary vocational or higher educational institutions, young specialists enter, perhaps, the most intense competition in the

labor market, the most intense in their lifetime. It is the "entry" into a profession, employment in a company (or starting one's own business) that creates maximum competition between peers who also compete for the desired starting positions; as well as between employees who are already in starting positions (for example, previous years graduates), which creates a kind of career "jam". Great ambition, efficiency, and companies' openness to young employees (mentoring programs, etc.) help competitive youth overcome this "jam".

Competition of the younger generation for social and professional position in the society is complicated by at least two factors: first, the desire of young people to be in demand due to increasing working life of a significant part of people (part-time retirement, retirees' active social position); second, automation and robotization of production processes.

Literature review

Let us turn to the theoretical analysis of key concepts associated with the competitive potential of the social group of young people conducted as a young person grows up and moves from the status of a "schoolchild" and "student" to an "employee". Most interpretations of the concept of "*competition*" and other synonymous terms ae presented from the point of view of economic position. The author's position is the importance of the social aspect of competitive interactions. In economic science (after A. Smith and M. Porter) competition is interpreted through the ratio of price of a good and its quality. R.A. Fatkhutdinov defines **competition** as *"a process of a subject's managing of their own competitive advantages to win or achieve other goals when competing against others for satisfying objective and subjective needs under the legislation or under natural conditions"* [1, p. 15]. From the **sociological** point of view,

priority is given to social relations arising during interaction of the representatives of different social groups and communities competing for rare benefits and limited resources (*the object of competition*), which can be, for example, vacancies, state-funded places, prizes at academic competitions in various subjects and other competitions. The main resource of employees' competitive potential is **social capital** and a set of competencies (as a result of training in an educational institution and/ or self-education) [2]. A similar conclusion is reached by V. Menshikov (Latvia) who explored ways to optimize youth mobility to improve **competitiveness** in labor markets [3]. He marks that in modern conditions of emerging knowledge economy and services, an employee's competitiveness and economic success is defined by both human capital (professional and educational) and cultural capital (broad-mindedness, high level of intelligence, foreign languages). E.A. Seregina names education, work experience, social capital, abilities, and behavioral competence (*employability and marketability*) as key determinants of graduates' competitiveness in the labor market [4].

Competition, along with contest is one of the varieties of *rivalry* for rare and limited available benefits in relation to the need for them. M. Weber, a classic of sociology, interprets competition as *"... peaceful attempts to establish control over the opportunities and benefits that are also desired by others"* [5]. Contest (a form of competition) implies lack of constraints to the development of those who lose. When **contesting**, the participants struggle for *a source of prestige*, when competing — for a *condition to develop* (the defeated party is deprived of a possibility to further successfully develop — competition imposes restrictions on the rivals' ability to achieve the same goals).

Competition is a result of a long-term process of competition drilling, which, if successful, is characterized by competitiveness. It is the competitiveness that characterizes a perfect individual of the 21st century. **Competitiveness** is referred to as an ability to survive competition compared to similar objects in the market[4]; as well as *"a complex property inherent in an individual and consisting of psycho-physical resources (health, age, appearance, level of intelligence) and moral aspects (values and their hierarchy, system of beliefs, personal prohibitions and restrictions). Property is based on high professionalism, psychological readiness to compete for existence, and individual's social characteristics"*[5]. It is also defined as an ability to use one's own advantages for achieving goals; an ability to survive competition and resist competitors [6, p. 264].

The sociological aspect of young people's **competitiveness** is expressed through the individual's interiorized need to fully manifest their abilities and competencies in the framework of activities based on creative, transformative activity and commitment, implying permanent self-development according to the socio-economic requirements and desire to defend (individually or in cooperation) their own position in competitive interactions.

V.I. Andreev interprets a **competitive personality** as "a creative person who, along with a highly developed creative potential possesses the following qualities: faith in their own strength, ability to make responsible, risky decisions, constantly striving for self-improvement and development; a person who does not despair in case of temporary failures

[4] Kuleshova A.B. *Competition in questions and answers: tutorial.* Moscow: Prospekt, 2005. 256 p.

[5] Parygin B.D. (Ed.). *Workshop on social and psychological training.* Saint Petersburg, 2000.

and difficulties, able to work hard, predict the course of events, focus on solving priority objectives and finish the job" [7, p. 97].

The development of a competitive personality is preceded by its competitive orientation, which is "*the result of complex influence of the external environment on the object of competition*" [8, p. 400]. Thus, when learning (at school, institution of secondary professional or higher education) an individual becomes "*an object of competitive orientation*" [9, p. 221]. An individual who aims to build their own competitive potential is determined through their willingness to learn the behavior, work methods, and development of personal qualities and properties characteristic of a competitive person. As a rule, it is the individual's motivation to achieve success in a particular sphere, the desire to understand the way of living, building a future career, focus on self-education and presence of adequate self-esteem combined with the ability to adapt to socio-economic, cultural, and political changes. A competitive personality is characterized by a set of socially-oriented properties and qualities that provide leadership advantages in selected spheres of life.

L.V. L'vova and O.V. Perevozova distinguish a significant criterion of a social subject such as "**competitive sustainability**" (presence of a stable competitive advantage, ability to remain competitive) − the willingness of a person to "*maintain their own professional competence, develop the level of competitiveness achieved, which helps resist potential and real rivals in the labor market, regardless of the performance and nature of changes under the influence of socio-economic, scientific, and technological factors*" [10, p. 52]. According to the results of the monitoring study of graduates' educational and labor patters, about three

quarters of them do not possess competitive sustainability, which is manifested in the fact that seeking employment by their profession after universities and demonstrating their initial focus on competition (that is, possessing competitiveness), they quit their jobs in the next 2−3 years leaving it to graduates of the following years [*Ibidem*].

The implementation of the process of young people's socio-professional development takes place with the participation of many social institutions (with **education** being the core). At each further stage of social interaction an individual falls under the influence of many competitive fields (*E.M. Cherkashov*) [11]. Layering and intersecting, they define a complex pattern of socio-cultural and economic interaction, where a subject either fits into, or moves into the zone of attraction of other competitive fields.

In social interaction, **competitive orientation** in turned into competitiveness if an individual becomes socially mature and lacks a destructive feature such as "*social infantilism*". Of course, social maturity does not correlate with age and the period of its formation is extremely individual. An integral element of personal competitiveness is professional (labor) competitiveness. **Labor competitiveness** is defined as an individual's ability to meet the requirements of their profession, improving their competencies and demonstrating higher professional qualities compared with colleagues on a certain scale.

The author's point of view on harmonization of terms is expressed in the following thesis: during the process of socialization and vocational education, an individual acquires a competitive orientation which can be implemented in practice in the form of competitiveness. With the favorable influence

of a set of factors (from personal motivation to social and professional environment) competitiveness can acquire stable characteristics (competitive sustainability).

There may be some debate related to the **range of competition**. Amid globalization, the belief in the existence of local competitiveness (city, region, country) is in most cases self-deception. Competition is becoming **global** as it is manifested in various social institutions. Economist V.L. Inozemtsev notes that "*nowadays, no industry can be competitive only within the country as foreign competitors have an opportunity to increasingly push it away from the market. <…> The challenge of improving competitiveness can only be addressed on a global rather than a national market scale*"[6]. Despite the fact that he considers competition only as an economic phenomenon, we see the prospects of extrapolating the statement on the social aspect of competition. The implementation of global competitive strategies takes place both in the educational process and at work. Each employer demonstrates maximum interest in employing competent employees who with professional skills at least at the national or global, rather than at the regional level. A good example of demonstrating professional skills is found in professional competency competitions (WorldSkills Russia and others). In everyday life, the worker's aspiration to maintaining professional competence at a high competitive level remains relevant. "*It is not states or companies that are competitive, but people whose activities determine the success or failure of both*"[7]. Elaborating on this idea we can talk about intra-professional and personal competitiveness.

Globalization and evolution of knowledge economy has caused dramatic changes in the nature and functions of education (especially higher education). In the search for global competitiveness, many developing economies are improving their own systems of higher education. International comparative studies demonstrate that an increasing number of students in higher education does not always increase their social mobility and may increase inequality in education. Thus, the study of the correlation of global competitiveness and system of higher education is covered in a work by Ka Ho Mok (China) [12; 13]. It is noted that the country's competitiveness is favorably influenced by the processes of massification and internationalization of higher education. Countries seek to develop their systems of higher education by providing more opportunities for learning and addressing educational demand through additional resources to internationalize student experience and improve the research quality, and transforming regional education centers into global universities. However, this trend provokes a serious problem of surplus of people with higher education and their difficulties with entering the labor market. The trend is particularly relevant in times of the economic stagnation of specific countries. The case of China confirms that the spread of higher education does not lead to an increase in professional prospects for young people or opportunities for upward social mobility. On the contrary, the strengthening of competitive positions among graduates reflects the growing social inequality.

Research methods and results

A field research "*Formation of competitiveness and competitive sustainability of young people in the Russian society amid modern socio-cultural dynamics*" was conducted in April—May 2017 by the staff of the sociological

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[6] Inozemtsev V.L. The ghost of competitiveness. *Nezavisimaya Gazeta*. available at: www.ng.ru/ideas/2007-04-11/10_economic.html

[7] *Ibidem.*

laboratory of Tyumen State University among high school children[8], students[9] and income-earning youth[10]. The research method is a questionnaire survey. Statistical methods of a licensed version of IBM SPSS Statistics 23 were used to analyze the obtained data.

The questionnaires compiled for each social group contain, in addition to specific indicators, universal questions about competitiveness and competitive sustainability. The present research is focused on comparing the responses of students and income-earning youth. To visually assess various personal characteristics we analyze the variables: *self-assessment of competitiveness; value attitudes, relevant personal qualities and desired life characteristics in the long term*.

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[8] The survey of 10 and 11 grade students was conducted among 852 high school students (10 and 11 grades) at general education institutions in the Tyumen Oblast — Tyumen (607 people), Tobolsk (158 people), and Ishim (87 people). The general population Number of high school students at secondary schools in the south of the Tyumen Oblast is: 11,496 people (5,945 people —10 grade; 5,551 —11 grade). Sampling error is 3.3%, which provides high data reliability.

[9] The survey was conducted among 1,360 students of higher and secondary vocational education institutions in the southern cities of the Tyumen Oblast — Tyumen (963 people), Tobolsk (135 people), Ishim (98 people). Moreover, the sample includes students, participants of the all-Russian meeting of best groups (164 people) held in Tyumen in May 2017. The survey was attended by respondents enrolled in full-time education in institutions of higher education (1,146 people, 84%) and secondary vocational education (214 people, 16%). Research method: questionnaire survey at the place of training. Sample type: multi-stage, zoned, quota proportional. The sampling error is 3.1%, which provides high data reliability. The general population of the number of students of educational institutions of secondary vocational education in training programs for mid-level managers (full-time training) is 13,900 people, of higher education (full-time training) — 26,309 people (in Tyumen, Tobolsk, Ishim) as of the beginning of 2017.

[10] The survey was conducted among 956 representatives of the income-earning youth in Tyumen, Tobolsk, and Ishim and rural areas of the Tyumen Oblast. The survey was conducted at the respondents' place of work — in 20 organizations of main economic sectors. Sample type: quota, zoned, cluster. Representativeness was determined based on: sex, age, form of enterprise's (organization's) ownership, average monthly wage. The sampling error is 3.2%, which ensures high data reliability.

The questionnaires of students and income-earning youth contain question of self-assessment of competitiveness with a similar wording: "**Do you consider yourself competitive?**" (*Tab. 1*). By combining polar assessments into a dichotomy — "I consider myself competitive" (*answers "yes", "rather yes than no"*) and "I do not consider myself competitive" ("*rather no than yes" and "no"*) we see that the minimum level of competitiveness is marked among schoolchildren (80%, slightly higher among high schoolchildren of the premium gymnasium of Tyumen State University — 87%) and tends to increase in the social group of students (84%). The income-earning youth at the initial stages of their career demonstrate their own competitive strategies to the maximum extent (90%, among those with higher education — 93%).

Research conducted by Tomsk sociologists indirectly confirms that only a small share of students feel competitive and in demand in the labor market: only 16% believe that it will be easy enough to find the right job after graduation. When assessing the opportunities of future employment, students often believe that they have to work hard to find a suitable place (43%). They perceive employment as a rather complicated matter (which means that they are not sure of their own professional demand in the labor market) — 16% [14, p. 11].

Along with subjective assessment of the respondents' own competitiveness, the indicators of objective assessment of students' competitiveness by parents, university professors, and employers are of particular interest. Let us turn to the study conducted by S.D. Reznik and E.S. Konovalova: "*56% of teachers, 88% of employers, and 48% of parents describe university students as insufficiently competitive and, as a consequence, uncompetitive in the labor market*" [15, p. 20].

Table 1. Distribution of answers of students and the income-eraning youth to the question
"Do you consider yourself competitive?" (% of respondents, % per line)

Social group		Do you consider yourself competitive?			
		yes	rather yes than no	rather no than yes	no
High school children from	regular schools (city) (N=272)	29.5	47.8	18.7	4.1
	regular schools (rural arears) (N=235)	23.4	53.7	19.9	3.0
	gymnasiums or specialized school (premium schools) (N=320)	32.5	46.7	17.0	3.8
	the gymnasium at Tyumen State University (N=260)	31.1	56.0	12.1	0.8
	Average for high school children (N=1087)	29.5	50.7	16.9	3.0
Students	at institutions of secondary vocational education (N=214)	32.7	54.3	10.6	2.4
	at institutions of higher education (N=979)	22.5	61.4	13.1	2.9
	at Russia's institutions of higher education (participants of the all-Russian meeting of best groups) (N=167)	35.2	47.9	15.8	1.2
	Average for students (N=1360)	25.7	58.6	13.1	2.6
Income-earning youth	who graduated from institutions of secondary vocational education (N=219)	52.8	26.6	12.4	8.3
	who graduated from institutions of higher education (N=656)	58.8	34.5	5.1	1.7
	Average for income-earning youth (N=956)	57.3	32.5	6.9	3.3

Let us return to the results of the sociological research. The distribution of responses by sex demonstrates that women are more likely to doubt their own competitiveness (75% chose the answer options "rather yes than no" and "rather no than yes") than men — two-thirds of them (64%). In turn, it is men who more often (definitely and with confidence) consider themselves competitive ("yes") — 33%, which is 1.4 times higher than women (23%). Among students of junior courses (first and second) 18% consider themselves non-competitive, of senior courses — 8%, mainly due to acquiring competence required for further employment. In the sample of the income-earning youth, 57% of respondents are competitive ("yes, I am competitive") (see Table 1). The research results demonstrate that the maximum level of competitiveness is shown by single childless men with higher and post-graduate education with an average monthly income of about 36,000 RUB (average income in the sample — 32,000 RUB). The data confirm the validity of the statement: "the sphere of higher education determines the level of pro-activity and competitiveness of the society in the long-term future"[11].

We can assess the competitiveness of the income-earning youth by the dichotomy of statements aimed at determining the effectiveness of competitive strategies: "*as a rule, I always successfully defeat my competitors*" and "*I rarely manage to win a competition*". Almost a half (48%) supported the first statement, the second — only each 10th (10%), 42% remained undecided. Using this question as an example, let us check if there is correlation with the respondents' answers about self-assessment of their level of competitiveness. Thus, respondents who consider themselves competitive ("*yes*") in 78% of cases have successful competitive strategies. Among income-earning youth doubting their own competitiveness ("*rather yes than no*" and "*rather not*") and non-competitive respondents the share of successfully competing is only

52%. Correlation analysis indicates strong dependence of these variables (correlation index = 0.811**, correlation is significant at the 0.01 level). The obtained data indicate, first, the methodological viability of the applied method of assessing competitiveness through self-identification; second, competitive respondents confirm their own status by objective assessments of success in competitive interaction.

The higher the income level of the income-earning youth, the more often they prefer the statement "*as a rule, I always successfully defeat my competitors*". This statement was supported by 41% of respondents from a low-income category (less than 29,000 RUB of monthly income), 50% of respondents — earning from 30 to 69 thousand RUB a month, and 52% — from a high-income category (more than 70,000 RUB).

Maree K., Ebersohn L. and Vermaak B., analyzing the correlation between unemployment rate and the type of career preferred by young people, come to a conclusion that they are determined by a set of characteristics of self-confidence, competitiveness, interpersonal cooperation, and initiative. An important role in competitive relations belongs to **academic performance** as a double indicator of respondents' quality of knowledge and ambitions. Income-earning youth, who mostly had excellent marks in professional educational institutions (if there were several of them, then in the last one) most effectively applies competitive strategies which help them successfully withdraw from most competitive interactions (80%). For comparison, we present data for those with good (64%) and satisfactory (57%) marks. Respondents regularly engaged in self-education are also more successful in competition. Among them, 81% say that "as a rule, they defeat all competitors"; among

income-earning youth only "occasionally" devoting time and effort to self-education — 65%, and of those who "never" practice self-education — 51%, which is record low.

The most effective **means of ensuring victory** in professional competition also differ significantly depending on the respondents' self-assessment of competitiveness. Competitive respondents give priority to "belief in the right cause" (92% chose the answer options "very important" and "important" against 76% of similar answers from non-competitive respondents) and "intellectual advantage over competitors" (92% and 81%), "help of influential friends and acquaintances" (84% and 75%), "life-long training" (91% and 84%), and "personal high moral qualities" (81% and 74%).

The respondent's personal competitiveness is a determinant that identifies the vector of perception of competition as such. Thus, representatives of the income-earning youth who consider themselves competitive generally perceive the phenomenon of competition more positively, characterizing it as "*useful*" (91%, against 80% according to the estimates of non-competitive youths), "*necessary*" (88% and 76%), "*effective*" (86% and 70%), "*explicit*" (62% and 48%), "*fair*" (48% and 32%) and "*honest*" (51% and 41%). The negative connotation of the process of competitive interaction is mainly expressed by respondents who think they lack competitiveness. The higher the respondent's competitiveness, the more successful experience in applying competitive strategies, the more positive is the perception of competition and the less unjustified are stereotypes and terrifying are the illusions about it. This conclusion is reasonable to extrapolate to young students. Thus, high school students who consider themselves competitive (*"yes" and "rather yes than no"*) in 68% of cases agree

with the statement: "*Competitiveness (success) is an important quality of an individual in modern Russian society*" (*answer options — "yes"*). Non-competitive high school students agree with this statement 1.5 times less (43%). Only 5% of competitive and 15% of non-competitive high school students express strong disagreement with the statement. 60% of competitive high school students find it important to be successful and seek recognition, against only 39% of non-competitive – only one third.

Value orientations of students and income-earning youth

The transformational transition from a competition-based approach to actual competitiveness is also determined by young people's value orientations. Values are interpreted as "cognized" needs directly depending on the culture, environment, and mentality of a particular society. In order to assess value priorities, the respondents were offered the Sh. Schwartz questionnaire [17] developed in 1992 and repeatedly tested in international studies. The questionnaire is based

on the theory dividing all values into *social* and *individual*. Opposite statements are presented at the poles of the scale. Depending on the importance of a statement for the respondent, the statements on the left and on the right were assessed on a ten-point scale (1−5 points − on the left and 6−10 points − on the right). For convenience of further data analysis we only pay attention to one of the scale poles. When comparing the estimates of students and income-earning youth we will prioritize the difference in estimates within these groups among the respondents depending on self-assessment of the level of competitiveness.

Table 2 presents data on the share of respondents who agree with the above statement, depending on their competitiveness. We trace the performance of value orientation transformations within these categories of students and income-earning youth.

The attitude to competition as such is more positive among competitive income-earning youth − 87% of them agree with the statement that "*competition is good, it encourages people to*

Table 2. Distribution of respondents' answers to the question:
"Which of the statements is a priority for you?" (% of respondents, % on line)

Option	Do you consider yourself competitive?			
	Students		Income-earning youth	
	"yes" and "rather yes than no"	"rather no than yes" and "no"	"yes" and "rather yes than no"	"rather no than yes" and "no"
Competition is good, it encourages people to work hard and be creative	81	76	87	71
Ultimately, hard work is rewarded and leads to success	82	73	77	59
People can only become rich at the expense of others	32	36	23	33
Freedom is something without which life loses its meaning	77	73	83	66
Most moral standards of the past are now obsolete	48	52	43	64
In a just society, citizens' incomes depend on their abilities and performance	77	75	67	57
The family should have a hierarchy between husband and wife, parents and children	51	48	48	38
Each person should be treated with respect, attention, and understanding	86	87	91	75
Living in a constantly changing society is interesting, though difficult	79	68	86	80
A person's life, first of all, depends on the circumstances, rather than on their own efforts	31	41	20	36

work hard and be creative, develop new ideas"; non-competitive youth agreed only in 71% of cases (a 16% gap). The trend in such difference is only emerging among students — the statement is supported by 81% of competitive and 76% of non-competitive students. It is noteworthy that the absolute majority of respondents from the best students groups in Russia were much more likely to agree with this statement (92%) than students at Tyumen universities (80%) and students at secondary vocational institutions (62%).

Can **hard work** help a person improve their financial situation, social status and lead to success? Competition-oriented respondents (among students and income-earning youth) in the vast majority trust their own efforts in labor activity, agreeing with the proposed statement. However, competitive income-earning youth are able to practically assess the impact of hard work on their quality of live and standard of living — 77% agree with the statement, 59% — among non-competitive.

Dependency turned out to be alien to income-earning youth — only 23% agreed with the statement that "people can only become rich at the expense of others", which is 10% less than among non-competitive income-earning youth. This gap is statistically insignificant among students. Also, competitive income-earning youth know the price of **freedom**, 83% support the statement "freedom is something without which life loses its meaning"; only 66% of non-competitive income-earning youth agreed with it (a 17% gap). The differences in students' assessments are also statistically insignificant.

Non-competitive respondents are more likely to demonstrate an external locus of control, agreeing with a number of statements, the first of which is: "a person's life, first of all, depends on the circumstances, rather than on their own efforts" (41% of students and 36% of income-earning youth). Competitive respondents supported this statement by 10% and 16% respectively less — showing confidence that responsibility for their own lives and events taking place in it lies solely on themselves (*internal locus of control*). Once again the students of best Russian universities more often agreed with the statement (48%) than students from secondary vocational institutions (34%) and universities (29%). Let us consider another statement reflecting the correlation between competitiveness and internal locus of control — "*in a just society, citizens' incomes depend on their abilities and performance*". 67% of competitive income-earning youth and 77% of students supported this statement. This share among students of best groups of Russian universities is 83%, among students of Tyumen universities — 77%, technical schools/colleges — 70%.

However, competitive income-earning young people are far from **nihilism** and **rejection of classic values** — only 43% of them and 64% of non-competitive young people agree that "most moral standards of the past are now obsolete" (a 21% gap). It is expected that this gap is maintained when income-earning youth assess the statement: "the family should have a hierarchy between husband and wife, parents and children" (48% of competitive and 38% of non-competitive young people). The differences in estimates of are statistically insignificant as they are not married (in most cases).

Relevant personal qualities

Analysis of whether a respondent possesses certain personal characteristics is possible through their identification with an abstract individual endowed with these qualities. When assessing the extent to which the proposed descriptions of people match the respondents, **some** characteristics increase

the gap in estimates of competitive and non-competitive respondents, **others** – decrease in the assessment distance, the **third –** lack statistically significant dynamics. Consider the first two groups of descriptions applied to students (high school children and students).

The first category includes the following statements: "it is important to live in a safe environment; avoid anything that might threaten their **safety**". This statement was mostly supported by non-competitive respondents; the assessment gap among schoolchildren was 6% (43% – competitive; 48% – non-competitive), while the gap among students reached the maximum – 13% (45% and 58%, respectively) (*Tab. 3*).

Modesty and **conformism** (the statement "it is important to be humble and modest; not to attract attention") is more relevant for respondents who position themselves as non-competitive (50% of high school students and 56% of students). Competitive respondents are less likely to be humble and modest (37% – schoolchildren, 42% – students).

It is expected that competitive respondents identify themselves with the following two descriptions illustrating the willingness to take **risks**: "they are looking for adventure and like to take risks; they want to live a life full of events" (52% – high school students, 42% – students) and "they like surprises, it is important for the to try many different things in life; they always try to find new hobbies" (59% – schoolchildren, 54% – students). However, with respect to both statements, the maximum gap between the assessments of young people focused on competition and avoiding it is observed in the older (student) age.

In **the second category** of statements there is a **reducing** gap in assessments of competitive and non-competitive respondents. For example, students focused on competition more often than their non-competitive peers note the priority of **traditions**, identifying themselves with the description: "they appreciate traditions, try to follow religious and family customs" (34% against 19%). The share of respondent students who chose this option is increasing, but the gap is reducing depending on self-assessment of competitiveness.

The importance of third-party assessment (**respect**, **social recognition**) is also higher in the school environment – every second competitive student notes that "it is important for them to be respected; they want people to do what they say" (49%), this indicator is reduced more than twice (23%) among non-competitive students. This indicator is consistently high among university students regardless of their competitive position. Competitive students demonstrate a great importance of **public opinion** and assessment of a reference group (the statement "it is important for then to be very successful; they hope that people recognize their achievements") – 64% against 43% of non-competitive colleagues. Among students, the gap is 53% and 41%, respectively.

The following statement reflects the personal characteristic of "**independence**" ("it is important for them to make decisions about what to do and how; they like to be free and independent from others"). The vast majority of high school students focused on competitive strategies identify themselves with this description (78%), while this share among their uncompetitive peers is only 63% (a 15% gap). Among students, the share is 65% and 58% respectively (a 7% gap).

Life prospects in the estimates of young people

What image of the desired future are the respondents focused on? The third question which was included in two questionnaires (for school children and students) concerned the

priority life characteristics of respondents in the long term. Respondents were asked to imagine their life in ten years and describe it. The positive characteristics offered to respondents as criteria for future life were more often mentioned by respondents focused on competitive strategies. Competitive young people plan to achieve **financial independence** in ten years (70% of schoolchildren and 64% of students, which is twice higher than the same indicator among their non-competitive peers); have **opportunities for recreation** and entertainment (58% and 57% respectively), lead **a healthy lifestyle** (61% and 62%); have an **interesting, creative job** (53% and 54%) and take up **leadership positions** (38%).

Of course, the desired characteristics will not be achieved without the respondent's proper action. Specific plans for a certain period of time are necessary. Therefore, we further look at the following quality of a competitive personality — "*the distance of goal-setting expressed through medium- and long-term planning of career prospects and life in general*" [18, p. 107]. Analysis of results of sociological research helps identify trends in planning horizon expansion depending on the respondent's age and competitiveness. In the short-term planning range *(for the next year)* the most active are **high school students**, which is largely due to lack of life goals and value priorities. It is schoolchildren who more

often than other categories of respondents note complete lack of plans for the future. In older age groups, medium-and long-term planning ranges prevail.

The obtained data on unformed life plans of the majority of young people correlate with the results of studies conducted by S.D. Reznik and E.S. Konovalova — modern students "do not have sustainable life guidelines, they often think in terms of short-term need pass tests, exams, and get a diploma of higher education, rather than in terms of further effective vocational employment" [15, p. 18]. However, a small range of planning prevents the respondent from building effective strategies for formation, improvement, and preservation of their competitiveness, especially in a changing labor market [20]. Among the categories of respondents under review, there is a pattern — competitive youth have broader planning horizons: 29% of schoolchildren, 33% of students, and 36% of income-earning youth have plans for two or three years ahead; 29% of high school students, 26% of students, and 30% of income-earning youth plan their life for five years or more (*Tab. 3*).

Note that the working lifetime (from the first job to retirement) in Russia is 33.8 years for men and 32.1 years for women. The researchers note that the life expectancy of Russian men is the shortest in Europe and North America and is 11.4 years less than in

Table 3. Distribution of respondents' answers to the question: "How would you describe your life planning horizons?" depending on self-assessment of the level of competitiveness (% of respondents)

Plans	High school students		Students		Income-earning youth	
	Competitive	Non-competitive	Competitive	Non-competitive	Competitive	Non-competitive
no plans	9.9	19	9.1	15.6	4.2	5.5
for 1 year ahead	32.2	39.8	25.4	24.6	25.8	33
for 2–3 years ahead	29.3	22.7	33.2	28.1	36.4	28.6
for 5> years ahead	28.6	18.5	25.9	19.6	29.9	21.9
undecided	-	-	6.4	12.1	3.7	11
Total	100.0	100.0	100.0	100.0	100.0	100.0

Japan, the leading country in this indicator [19, p. 607]. When starting work, young people, as a rule, do not think about the forecast of socially significant statistical indicators such as "life expectancy", "working lifetime", etc. Nevertheless, the readiness of young people to invest in long-term life strategies, focus on self-education, and plan their own social and professional development largely depends on subjective assessment of expected working lifetime and life expectancy in general. Absence of state guarantees related to life expectancy and high quality of life in different age periods is fixed in the culture and makes people (more often unconsciously) avoid investing in their development and "live one day at a time".

Summary

Considering the multi-dimensional structure of the socio-economic phenomenon of **competitiveness** and determining its level in a single socio-age group is an effective tool for social modeling and forecasting. There is intensified effectiveness of the process of formation of competitive orientation among high school students with subsequent development during their transition to a social status of a university student. The accumulated competitive advantages (and, what is important − the ability to maintain their own personal and professional competitive potential at a high level) are **implemented** in the daily social and labor interactions of an individual (income-earning youth).

An attempt to study the transformational transition from competitive orientation to competitiveness justifies the novelty of the theoretical and applied research and concludes the following: in most cases, income-earning youth aware of their own competitive potential demonstrate a greater gap in value priorities compared to non-competitive peers than students (students and high school children).

This is evidenced by the division of people in the student environment, who feel their own competitiveness, consciously work to improve competitive advantages, compared to peers who do not prioritize strategic development of their own potential. As a result, the "route" of personal and professional development planned as a student is implemented in the short term after graduation from a secondary vocational or higher educational institution. Accordingly, competitive income-earning young people in their assessments contrasts with their peers who are not focused on competitive interaction and are satisfied with the existing position and social status.

Competitive orientation of the youth is determined by high academic performance, self-education, and regular qualification, which is an evidence of their readiness to accumulate professional potential with its subsequent implementation, including in terms of competitive strategies.

It is noteworthy that young people successfully involved in competitive interaction and practicing competitive strategies, more positively assess the phenomenon of competition, without negative stereotypes. This category of young people also appreciates hard work, independence, activity, and freedom and is characterized by an internal locus of control; they demonstrate conservatism (traditions and classical values) and do not avoid risk.

Attention is drawn to the scale of competitive imbalance between students and income-earning young people. Young students, depending on their own competitiveness, demonstrated only emerging differences in the number of values that are fully manifested in the responses of income-earning young people. Competitive respondents have a clear image of the desired future and broader planning horizons (*material wealth, interesting*

work, healthy lifestyle). High school students demonstrate an idealized image of their future. It is noteworthy that it is they who have the narrowest planning horizon, which indicates underdeveloped life orientation and competitiveness. Thus, when it comes to the social group of high school children we can only speak of the initial stages of competition, which increases during studentship and is implemented in the form of competitiveness when entering labor relations. The expected result of high level of competitiveness of income-earning young people is an increase in incomes. In the future (throughout the career path) the respondent's priority lies in maintaining competitiveness.

The research results can be used in pedagogical, educational, and career-oriented activities of educational institutions; in the educational process in institutions of secondary professional and higher education; to develop educational programs and on-the-job training for students, as well as in the process of labor adaptation of young professionals.

References

1. Fatkhutdinov R.A. *Konkurentosposobnost' organizatsii v usloviyakh krizisa: ekonomika, marketing, menedzhment* [Enterprise competitiveness amid crisis: Economics, Marketing, Management]. Moscow: Dashkov i So, 2002. 892 p.

2. Shafranov-Kutsev G.F., Efimova G.Z. Porfessional education and formation of personal competitiveness and social community. *Vestnik Tyumenskogo gosudarstvennogo universiteta. Sotsial'no-ekonomicheskie i pravovye issledovaniya=University of Tyumen Bulletin. Socio-Economic and Legal Research*, 2014, no. 8, pp. 28-39. (In Russian).

3. Menshikov V. Mobility in the lifestyle of today's youth. *Filosofija-Sociologija*. 2014, no. 25(4), pp. 247-253.

4. Seregina E.A. Theoretical basis of graduates' competitiveness. *Vestnik APK Stavropol'ya=Agricultural Bulletin of Stavropol Region*, 2016, no. 2 (22), pp. 174-180. (In Russian).

5. Weber M. *Economy and Society*. Vol. I. Berkeley: University of California Press, 1978. P. 38.

6. Antonov G.D., Ivanova O.P., Tumin V.M. *Upravlenie konkurentosposobnost'yu organizatsii* [Management of enterprise competitiveness]. Moscow: Infra-M, 2013. 300 p.

7. Andreev V.I. *Konkurentologiya* [The study of competition]. Kazan': Tsentr innovatsionnykh tekhnologii, 2013. 468 p.

8. Reznik S.D., Chernikovskaya M.V., Sochilova A.A. Competition orientation and competitiveness of university graduates: experience and prospect of the scholarly search. *Problemy sovremennoi ekonomiki=Problems of Modern Economics*, 2013, no. 3(47), pp. 399-402. (in Russian).

9. Zanaev S.S. Competitiveness and competition-based approach as pedagogical categories. *Vestnik Chechenskogo gosudarstvennogo universiteta=Bulletin of Chechen State University*, 2015, no. 4, pp. 221-225. (In Russian).

10. L'vov L.V., Perevozova O.V. The nature of the phenomenon of "competitive sustainability" in professional education. *Vestnik ChGAA=Bulletin of Chelyabinsk State Agro-Engineering Academy*, 2014, vol. 67/2, pp. 52-57. (In Russian).

11. Shafranov-Kutsev G.F., Cherkashov E.M. Competitiveness and competitive field in the sphere of higher education. *Al'ma-Mater=Alma Mater*, 2017, no. 9, pp. 49-56. (In Russian).

12. Mok Ka Ho. Massification of higher education, graduate employment and social mobility in the Greater China region. *British Journal of Sociology of Education*, 2015, no. 37 (1), pp. 51-71.

13. Mok Ka Ho. Massifying and internationalising higher education, changing labour markets and social mobility: challenges for education and urban governance. *Journal of Higher Education Policy and Management*, 2016, no. 38(3), pp. 233-241.

14. Abramova M.O., Rykun A.Yu., Sukhushina E.V., Yuzhaninov K.M. Contemporary regional students and their educational, employment and migration plans. *Vestnik Tomskogo gosudarstvennogo universiteta. Filosofiya. Sotsiologiya. Politologiya=Tomsk State University Journal of Philosophy, Sociology and Political Science*, 2014, no. 1(25), pp. 5-18. (In Russian).

15. Reznik S.D., Konovalova E.S. Revisiting the problem of the competition-based approach of Russian students from higher educational institutions. *Ekonomicheskoe vozrozhdenie Rossii=The Economic Revival of Russia*, 2012, no. 1, pp. 18-26. (In Russian).

16. Maree K., Ebersohn L., Vermaak B. Confronting the effects of unemployment on achievement motivation: the case for postmodern career facilitation. *Perspectives in Education*, 2008, no. 26(3), pp. 55-68.

17. Schwartz S.H. Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 1992, vol. 25, pp. 1-65.

18. Efimova G.Z. Competitiveness and competitive orientations: evaluation of students. *Obrazovanie i nauka= The Education and Science Journal*, 2017, vol. 19, no. 7, pp. 97-118. (In Russian).

19. Denisenko M.B., Varshavskaya E.Ya. Working life expectancy in Russia. *Ekonomicheskii zhurnal VShE=The HSE Economic Journal,* 2017, vol. 21, no. 4, pp. 592-622. (In Russian).

20. Tavokin E.P. Russian youth in the labor market in the expert assessments. *Monitoring obshchestvennogo mneniya: ekonomicheskie i sotsial'nye peremeny=The Monitoring of Public Opinion: Economic and Social Changes Journal*, 2017, no. 2(132), pp. 175-184. (In Russian).

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PUBLIC OPINION MONITORING

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 show the dynamics of several parameters indicating the social feeling and socio-political sentiment of the Vologda Oblast population in August – October 2018, and also on average for the latest six polls (December 2017 – October 2018).

The results of the research are compared with the data for 2007 (the last year of Vladimir Putin's second presidential term, when the assessment of the President's work was the highest), for 2011 (the last year of Dmitry Medvedev's presidency), and for 2012 (the first year of V. Putin's third presidential term).

The yearly dynamics of the data are presented for the last two years (2016–2017).

In August – October 2018, the level of approval of the work of the President of the Russian Federation decreased by 2 p.p. (from 66 to 64%). The trend of decreasing support for the head of state has been registered since June 2018. For this period, the share of those who positively estimate the work of Vladimir Putin has declined by 6 p.p. (from 70 to 64%).

The share of positive assessments concerning the work of the Prime Minister over the past two months decreased by 2 p.p. (from 47 to 45%), and for the period from June to October – by 7 p.p. (from 52 to 45%).

For reference:

According to VTsIOM, in August – September 2018, the share of positive assessments of the President's work did not change significantly (64%). According to Levada-Center, the share of people who support the activities of the head of state decreased by 3 p.p. (from 70 to 67%).

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1 The polls 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 polls is available at http://www.vscc.ac.ru/.

How do you assess the current performance of..?
(percentage of respondents)

Answer	2007	2011	2012	2016	2017	Dec. 2017	Feb. 2018	Apr. 2018	June 2018	Aug. 2018	Oct. 2018	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to …		
													2017	2011	2007
RF President															
I approve	75.3	58.7	51.7	67.8	67.3	68.9	68.7	68.1	70.1	65.9	63.5	67.5	0	+9	-8
I don't approve	11.5	25.6	32.6	18.8	20.0	19.3	20.8	18.4	17.5	22.1	24.1	20.4	0	-5	+9
Chairman of the RF Government*															
I approve	-*	59.3	49.6	52.3	49.5	49.9	48.3	49.9	52.0	47.4	45.2	48.8	-1	-11	-
I don't approve	-	24.7	33.3	27.6	31.1	31.3	30.8	27.8	27.5	31.9	34.8	30.7	0	+6	-
Governor															
I approve	55.8	45.7	41.9	37.7	39.8	39.4	39.3	39.5	40.5	37.3	35.7	38.6	-1	-7	-17
I don't approve	22.2	30.5	33.3	39.3	39.3	40.1	37.9	36.1	35.3	36.9	39.1	37.6	-2	+7	+15
* Included in the survey since 2008.															

In August – October, the proportion of people who believe that the President successfully addresses most of the key issues in the country decreased slightly (by 2–3 p.p.):

✓ the share of those who believe that V. Putin is successfully coping with the issues of strengthening Russia's international positions decreased from 53 до 51%;

✓ with restoring order in the country – from 51 to 49%;

✓ with protecting democracy and strengthening citizens' freedoms – from 40 to 37%.

The share of Vologda Oblast residents who give positive assessments to the President's efforts to raise the economy and increase the welfare of citizens has not changed over the past two months, however, it remains extremely low (31%). For comparison, 57% hold the opposite point of view.

In your opinion, how successful is the RF President
in coping with challenging issues?* (percentage of respondents)

Answer	2007	2011	2012	2016	2017	Dec. 2017	Feb. 2018	Apr. 2018	June 2018	Aug. 2018	Oct. 2018	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to …		
													2017	2011	2007
Strengthening Russia's international standing															
Successful	58.4	46.2	43.1	51.2	55.7	56.5	55.2	56.1	55.6	53.3	51.3	54.7	-1	+8	-4
Unsuccessful	24.9	33.7	37.9	29.9	26.8	28.3	26.9	26.9	26.7	29.1	30.7	28.1	+1	-6	+3
Success index	*133.5*	*112.5*	*105.2*	*121.3*	*129.0*	*128.3*	*128.3*	*129.2*	*128.9*	*124.2*	*120.6*	*126.6*	*-2*	*+14*	*-7*
Imposing order in the country															
Successful	53.2	36.6	35.4	49.2	50.6	52.0	50.9	54.2	55.1	51.0	48.5	52.0	+1	+15	-1
Unsuccessful	34.0	50.0	50.7	36.7	36.1	34.6	32.7	30.8	32.9	36.2	37.9	34.2	-2	-16	0
Success index	*119.2*	*86.6*	*84.7*	*112.6*	*114.5*	*117.4*	*118.2*	*123.4*	*122.2*	*114.8*	*110.6*	*117.8*	*+3*	*+31*	*-1*
Protecting democracy and strengthening citizens' freedoms															
Successful	44.4	32.4	28.8	36.6	40.3	43.3	42.8	42.9	43.4	39.8	37.3	41.6	+1	+9	-3
Unsuccessful	37.0	48.3	52.3	44.3	40.2	39.3	38.7	37.1	38.1	41.4	42.7	39.6	-1	-9	+3
Success index	*107.4*	*84.1*	*76.5*	*92.3*	*100.2*	*103.9*	*104.1*	*105.8*	*105.3*	*98.4*	*94.6*	*102.0*	*+2*	*+18*	*-5*
Economic recovery and increase in citizens' welfare															
Successful	47.2	30.7	28.5	27.2	29.3	31.6	31.0	31.3	32.3	30.6	30.6	31.2	+2	+1	-16
Unsuccessful	39.1	56.1	57.9	59.4	56.9	56.3	53.7	55.3	55.2	58.3	57.2	56.0	-1	0	+17
Success index	*108.1*	*74.6*	*70.6*	*67.8*	*72.4*	*75.3*	*77.3*	*76.0*	*77.1*	*72.3*	*73.4*	*75.2*	*+3*	*+1*	*-33*
* Ranked according to the average value of the index of success for 2016.															

In August – October 2018, the structure of Vologda Oblast residents' preferences concerning political parties did not change significantly. Support for the United Russia party remains at 37–38%, support for LDPR and KPRF is 10–11%, and for the Just Russia party – 3%. The share of Vologda Oblast residents who believe that today none of the parliamentary parties express their interests is 29%, just like it was two months earlier.

Which party expresses your interests? (% of respondents)

Party	2007	Election to the RF State Duma 2007, fact	2011	Election to the RF State Duma 2011, fact	2012	2016	Election to the RF State Duma 2016, fact	2017	Dec. 2017	Feb. 2018	Apr. 2018	June 2018	Aug. 2018	Oct. 2018	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to … 2017	2011	2007
United Russia	30.2	60.5	31.1	33.4	29.1	35.4	38.0	34.7	37.9	38.4	39.7	38.9	38.1	36.5	38.3	+4	+7	+8
LDPR	7.5	11.0	7.8	15.4	7.8	10.4	21.9	11.0	11.6	10.1	9.6	9.7	9.7	9.7	10.1	-1	+2	+3
KPRF	7.0	9.3	10.3	16.8	10.6	8.3	14.2	7.6	8.1	7.1	8.1	8.7	10.3	11.1	8.9	+1	-1	+2
Just Russia	7.8	8.8	5.6	27.2	6.6	4.2	10.8	4.8	4.3	3.5	2.5	2.3	2.7	3.4	3.1	-2	-2	-5
Other	1.8	–	1.9	–	2.1	0.3	–	0.5	1.1	0.9	1.2	0.5	0.6	0.4	0.8	0	-1	-1
None	17.8	–	29.4	–	31.3	29.4	–	29.2	28.5	28.8	26.2	26.7	28.5	29.0	28.0	-1	-1	+10
It's difficult to answer	21.2	–	13.2	–	11.7	12.0	–	12.2	8.6	11.1	12.7	13.3	10.0	9.9	10.9	-1	-2	-10

In October 2018, compared with August, the proportion of Vologda Oblast residents who positively characterize their emotional state decreased slightly (by 2 p.p., from 73 to 71%). The proportion of people who believe that "everything is not so bad and we can live; it is difficult to live, but it's possible to stand it" decreased from 78 to 76% during the same period.

There have been no significant changes in the characteristics of the current dynamics and prospects of the financial situation over the past two months, although it is difficult to assess positively the situation in general:

✓ the share of Vologda Oblast residents who consider themselves "poor and extremely poor" is 45% since June 2018 (for comparison, the share of people of "average income" is 43%);

✓ the consumer sentiment index fell after its positive dynamics observed in December 2017 – June 2018; it is currently 89 points (we should note that the value of the index below 100 points indicates the pessimistic forecasts of the population regarding the prospects of development of their own financial situation and the economy as a whole).

Estimation of social condition (% of respondents)

Answer	2007	2011	2012	2016	2017	Dec. 2017	Feb. 2018	Apr. 2018	June 2018	Aug. 2018	Oct. 2018	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to …		
													2017	2011	2007
Mood															
Usual condition, good mood	63.6	63.1	67.3	68.0	70.4	70.5	68.6	71.5	72.5	72.5	71.3	71.2	+1	+8	+8
I feel stress, anger, fear, depression	27.8	28.9	27.0	26.2	24.2	24.0	23.4	23.1	22.8	22.5	23.1	23.2	-1	-6	-5
Stock of patience															
Everything is not so bad; it's difficult to live, but it's possible to stand it	74.1	74.8	76.6	78.0	77.7	77.1	76.2	79.0	76.5	78.0	75.7	77.1	-1	+2	+3
It's impossible to bear such plight	13.6	15.3	15.8	15.6	15.8	16.2	16.3	14.8	16.6	15.5	17.1	16.1	0	+1	+2
Social self-identification*															
The share of people who consider themselves to have average income	48.2	43.1	44.7	42.1	43.1	41.7	41.2	41.8	43.1	43.3	42.8	42.3	-1	-1	-6
The share of people who consider themselves to be poor and extremely poor	42.4	44.3	44.5	49.0	46.6	47.1	46.2	46.5	45.3	44.1	45.4	45.8	-1	+1	+3
Consumer sentiment index															
Index value, points	105.9	89.6	91.5	77.7	84.6	87.3	89.2	90.3	92.2	89.2	89.2	89.6	+5	0	-16
* Question: "Which category do you belong to, in your opinion?"															

Positive changes in the dynamics of social mood for the period from August to October 2018 are observed in two socio-demographic categories of the population: among people under the age of 30 (by 7 p.p., from 78 to 85%) and among residents of the region who by self-assessment of their income belong to the group of 20% of the poorest residents (by 7 p. p., from 53 to 60%)

Besides, the estimates of social mood in two socio-demographic groups deteriorated: among men (by 3 p.p., from 74 to 71%) and among persons aged 30−55 (by 4 p.p., from 75 to 71%)

In other socio-demographic groups there have been no significant changes in the dynamics of everyday emotional well-being over the past two months.

Social mood in different social groups (answer: "Good mood, normal condition", % of respondents)

Population group	2007	2011	2012	2016	2017	Dec. 2017	Feb. 2018	Apr. 2018	June 2018	Aug. 2018	Oct. 2018	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to …		
													2017	2011	2007
Sex															
Men	65.9	64.5	69.1	68.8	70.6	70.8	71.0	73.4	74.5	73.9	70.8	72.4	+2	+8	+7
Women	61.7	62.0	65.8	67.4	70.2	70.3	66.6	70.0	70.9	71.3	71.8	70.2	0	+8	+8
Age															
Under 30	71.3	70.0	72.3	76.4	78.1	82.2	74.2	79.6	81.3	77.9	85.1	80.1	+2	+10	+9
30-55	64.8	62.5	67.9	67.4	71.5	73.1	68.8	74.0	75.1	74.9	70.9	72.8	+1	+10	+8
Over 55	54.8	58.3	62.1	64.0	64.9	61.4	65.6	64.2	64.7	66.5	65.4	64.6	0	+6	+10
Education															
Secondary and incomplete secondary	58.4	57.4	57.2	62.1	63.6	61.2	60.5	65.5	64.8	66.5	63.8	63.7	0	+6	+5
Secondary vocational	64.6	63.6	66.7	68.4	72.0	75.0	68.9	72.7	74.9	72.6	73.5	72.9	+1	+9	+8
Higher and incomplete higher	68.6	68.3	77.0	74.3	75.8	75.6	77.9	76.2	77.4	78.4	76.5	77.0	+1	+9	+8
Income groups															
Bottom 20%	51.6	45.3	51.5	52.5	52.9	50.7	47.7	61.8	60.0	53.1	59.6	55.5	+3	+10	+4
Middle 60%	62.9	65.3	68.7	69.4	72.0	72.0	70.3	71.7	72.3	74.5	73.1	72.3	0	+7	+9
Top 20%	74.9	75.3	81.1	80.9	83.7	86.2	82.2	81.5	85.5	83.4	81.3	83.4	0	+8	+8
Territories															
Vologda	63.1	67.1	73.6	69.9	72.6	72.2	71.0	73.5	75.4	70.4	68.8	71.9	-1	+5	+9
Cherepovets	68.1	71.2	76.2	71.7	75.7	75.2	71.5	75.0	76.7	79.1	77.7	75.9	0	+5	+8
Districts	61.6	57.1	59.8	64.8	66.1	66.9	65.6	68.3	68.6	69.8	69.2	68.1	+2	+11	+6
Oblast	63.6	63.1	67.3	68.0	70.4	70.5	68.6	71.5	72.5	72.5	71.3	71.2	+1	+8	+8

CONCLUSION

One of the most significant events (which, in our opinion, could have a major impact on the dynamics of public sentiment in August – October 2018) was Vladimir Putin's televised address to the Russians, during which he spoke about the pension reform, the most resonant and acute topic of recent months. It should be noted that people were waiting for the President's position on this issue; they hoped that the initial draft law prepared by the Government (which, according to the results of sociological surveys, was perceived very negatively in society[2] and even led to mass protests across the country) would be, if not canceled, then at least significantly adjusted.

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[2] According to the research conducted by the Public Opinion Foundation in June 2018, 80% of Russians perceived the pension reform negatively. According to regional studies of VolRC RAS in August and October 2018, 74% of Vologda Oblast residents shared this opinion.

The expectations of the population as a whole were met. The President once again acted as a "strategist and defender"[3], and his amendments to the draft pension reform were quite significant[4], and they were reflected in the final version of the relevant federal law in October 2018[5].

Perhaps the growth of positive mood among young people and among the least affluent population groups is associated with the President's amendments to the draft pension reform. However, in general, as the results of sociological measurements show, the speech of the head of state did not have a significant impact on the dynamics of key indicators of public opinion: people's assessments of the work of the authorities started to deteriorate in June 2018, and this trend is continuing; there are no positive changes in the dynamics of the emotional state, stock of patience, social self-identification, consumer sentiment…

The election of heads of regions, held on September 9, 2018 in 26 constituent entities of the Russian Federation, confirmed the fact that people are dissatisfied with the actions taken by the Government of the Russian Federation and by the party of power in the first months of the political season (especially against the background of the fact that Putin's March speech before the Federal Assembly found broad public support: experts note that after his speech "society was expecting a rapid socio-economic breakthrough, but it did not understand that it would be necessary to sacrifice something and to change everything in order to achieve it…"[6]). Turnout decreased in most regions; there were resonant scandals related to the election procedures; large-scale protests were held on the single day of voting.

However, in mid-October 2018, VTsIOM experts stated: "The negative forecasts regarding the decline in the legitimacy of the government after the final decision on the amendments to the pension legislation did not materialize. Most likely, this is due to the fact that the issue became a routine one"[7]. The results of national and regional sociological studies allow us to agree with this opinion: society takes "bitter medicine"[8] in the form of later retirement. However, given the quite unambiguous initial reaction to the draft pension reform, we can say that society does is with no enthusiasm and without conscious understanding of the need for this step to achieve breakthrough development in the standard of living and quality of life.

The materials were prepared by M.V. Morev, I.V. Paranicheva, I.M. Bakhvalova

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[3] VTsIOM General Director V. Fedorov in the special edition of the program "60 minutes" (TV channel "Russia 1"). Aired on August 29, 2018. Official website of the program. Available at: https://60-minut.su/60-minut-vyipusk-ot-29-08-2018-putin-smyagchil-pensionnyiy-zakonoproekt.html

[4] Reducing the retirement age for women to 60 years instead of 63; pension benefits for mothers with many children; maintaining federal and most regional pension benefits for people of current retirement age (55 years for women and 60 years for men), etc.

[5] Federal Law 350 dated October 3, 2018 "On amendments to certain legislative acts of the Russian Federation on the appointment and payment of pensions".

[6] Skorobogatyi P. Landmark − 2021. *Ekspert, no.* 41 (October 8 − 14), p. 53.

[7] Ratings of trust in politicians, approval of the work of state institutions, ratings of parties. *VTsIOM Press Release # 3788*, October 12, 2018. Available at: https://wciom.ru/index.php?id=236&uid=9363 (comment by M. Mamonov, head of the practice of political analysis and consulting at the research department).

[8] Koshelenko A. Medvedev compared the pension reform to the "bitter medicine". *Moskovsky komsomolets,* 2018, August 10. Available at: https://www.mk.ru/politics/2018/08/10/medvedev-sravnil-pensionnuyu-reformu-s-gorkim-lekarstvom.html?utm_referrer=https%3A%2F%2Fzen.yandex.com

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[1] Information about the modified Harvard standard is given in the book: Kirillova O.V. *Redaktsionnaya podgotovka nauchnykh zhurnalov po mezhdunarodnym standartam: rekomendatsii eksperta BD Scopus* [Editorial Preparation of Scientific Journals according to International Standards: Recommendations of a Scopus Expert]. Moscow, 2013. Part 1. 90 p.

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