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Federal State-Financed Scientific Institution the Institute of Socio-Economic Development of Territories of Russian Academy of Sciences (ISEDT 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 ISEDT 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, every year international scientific conferences take place, which result in cooperation agreements.

Every year ISEDT RAS signs 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 – Protocol of intentions 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.

NEW PUBLICATIONS OF ISEDT RAS

Ilyin V.A., Povarova A.I. – Problems of Government Efficiency. Trends in market transformation. The crisis of the budget system. The role of private capital. Strategy-2020: realization problems.

Uskova T.V., Selimenkov R.Y., Anischenko A.N., Chekavinskii A.N. – Food security in the region.

Leonidova G.V. – Problems of Governance. The education sector areas: state and development prospects.

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FROM THE CHIEF EDITOR

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Alarming trends

The results of public opinion polls carried out in the Vologda Oblast in February 2015 show significant changes in some indicators (parameters) of social well-being of the population, in comparison with December 2014:

– the proportion of individuals with good mood has decreased from 70.9 to 61.8% (by 9 p.p.);

– the proportion of those who believe that "everything is not so bad; it's difficult to live, but it's possible to stand it" has decreased from 80 to 74.3% (by 6 p.p.);

– consumer sentiment index has declined from 82.3 to 75.7 p. (by 6 p.).

An explanation for these disturbing facts can be probably found in the uncertainty of actions in 2014 on the part of political structures, the State Duma, and the Federation Council with regard to actual measures undertaken to curb negative trends in socio-economic development according to almost all the indicators[1].

The editorial, which opened the first issue of the Journal in 2014, expresses the viewpoint that the meeting of the RF President Vladimir Putin with the authors of the report "Russia on the way to a modern, dynamic and efficient economy" [2] prepared by the Russian Academy of Sciences, which took place February 19, 2014, has significant positive prospects. Speaking at the opening of the meeting, the President said: "That is precisely why we have agreed to meet today, to hear your opinions. I will ask my colleagues from the Cabinet and the Presidential Executive Office to express their ideas as well, to work together on seeking concrete measures to promote economic growth. We believe we can resolve the challenge of faster growth in the economic and social spheres

[1] Details are given in the section "Public opinion monitoring of the state of the Russian society", pp. 16-29.

[2] See: Ilyin V.A. Faktor vremeni [Time Factor]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2014, no. 1, pp. 9-12.

only by resolving this most important, capital, fundamental challenge.... **We will need to develop and present a coherent policy on mobilising all available resources for accelerated growth"** (*emphasis added*)[3].

Last year the Russian Federation had to cope with serous challenges. The reunion of the Crimea and Sevastopol with Russia became a historic event. Russia has proven that it can protect its fellow countrymen, and defend truth and justice. The Eurasian Economic Union launched a full-fledged work. Economic relations with China reached a new level. The large-scale national program for the comprehensive reconstruction of the transport system in the city of Sochi was implemented; a modern sports complex to host the winter Olympics was constructed, and the Winter Olympic Games were successfully held.

An important step in strengthening national security was undertaken in December 2014, when the military doctrine signed by the President on December 26, 2014 was adopted.

According to one of the leading experts, the military doctrine reflects the transitional condition of Russia as it is shifting from a state controlled by the West to an independent state, at least in its political sphere[4].

However, it should be noted that "for the entire year of 2014 no sound policy has been developed and declared, which would seek to mobilize all available resources for accelerated growth"[5]; as a result, there has been a significant slowdown the country's economic development.

Academician V.V. Ivanter, an author of the above research report "Russia on the way to a modern, dynamic and efficient economy", points out: "The unsatisfactory economic performance in 2014 can be explained by the continuing declining trend of 2012–2013 and the mismatch between individual elements of economic policy, the delay in the response of economic authorities to the growing risks and, most importantly, the inadequacy of the tools used by domestic economic policy in general and specific socio-economic conditions in Russia.

The use of inflation targeting and the floating exchange rate of the ruble to stimulate the economy, the desire to achieve a balanced budget by reducing expenditures on economy in order to establish macroeconomic stability and reduce investment, primarily in the real sector of the economy in 2012–2013 led to the results that turned out to be quite opposite to what had been expected"[6].

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[3] The meeting with economists of the Russian Academy of Sciences. *Official Website of the President of Russia*. Available at: http://www.kremlin.ru/news/2029/

[4] Colonel-General L. Ivashov in his article writes: "So far, Russia has not possessed a single public document, which would adequately reflect the complete range of problems associated with the change of the place and role of the country in the 21st century" (Ivashov L. Ugrozy nazvany [Threats Have Been Named]. *Zavtra* [Tomorrow], 2015, no. 2, January). He describes in detail the list of tasks which the doctrine addresses, analyzing the global political and military situation and revealing military dangers that threaten the Russian Federation.

[5] The meeting with economists of the Russian Academy of Sciences. *Official Website of the President of Russia*. Available at: http://www.kremlin.ru/news/2029/

[6] Ivanter V.V. *Konstruktivnyi prognoz razvitiya ekonomiki Rossii. Osnovnye stsenarii do kontsa 2015 g.* [Constructive Forecast of Development of Russia's Economy. Main Scenarios until the End of 2015]. Russian Academy of Sciences. Institute of Economic Forecasting, 2015.

At the end of 2014 the situation became even worse because of the downfall of the ruble; as a result, all the economic entities have lost confidence in the national currency. The negative impact of these internal economic factors was aggravated by adverse foreign economic conditions, first of all, the decline in oil prices and the introduction of sectoral sanctions by Western countries in the second half of 2014.

However, despite the increasing number of critical problems hindering Russia's economic growth, the Government has not undertaken any decisive and timely actions to resolve or mitigate the existing aggravating issues. Until recently, the Government has assessed the ongoing events as a financial crisis, which will last as long as oil prices remain low, and one should just wait till this crisis is over.

The Gaidar Forum, which opened the new 2015, has reflected this viewpoint very clearly in the speeches of the most famous Russian liberals, who participated in the event. But the viewpoint, which is supported by a number of scientists and which runs contrary to that of the Government, was not voiced at the Forum[7]. It is quite remarkable that the entire economic "top management", including Prime Minister D. A. Medvedev, delivered their speeches at the Forum. Chairman of the Government commended the liberal model of Russia's economy. He said: "I think it is right that the 2015 budget was formed on the basis of the same scheme of distribution of surplus revenues from oil export. In all likelihood, we should adhere to this rule in the future as well".

Minister of Economic Development A. Ulyukaev also expressed his attitude toward the growing public anxiety concerning the state of the Russian economy. He said: "The most important thing in a crisis situation is to maintain peace of mind, to have a caring family and support of your relatives, and, most of all, to think about your own health and the health of those you love"[8]. The Minister's words can be understood in the following way: it is not up to you to worry about the dynamics of economic development in the country, you had better think about yourselves. We think this is a clear manifestation of snobbery.

We agree with a shrewd remark of a well-known economic publicist and expert Aleksandr Privalov, who commented on the speeches delivered at the Forum: "We have been listening to similar universal resolutions on any matters of economic policy for a long time... **The same people have been talking about the bad investment climate in the same words heaven knows how many years. If they had been able to improve anything at all, they would have done that long before** *(emphasis added)*. The speeches on combating inflation are especially lovely when they are delivered by those who have just made a significant contribution to its increase"[9].

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[7] See publications by S.Yu. Glazyev, O.G. Dmitrieva, E.M. Primakov, A.A. Dynkin, S.S. Gubanov, A.D. Nekipelov, R.S. Grinberg.

[8] Cit. ex.: Gaidar Forum 2015 "Russia and the World: New Dimensions". Available at: http://www.gaidarforum.ru/news

[9] Privalov A. O polykhaevskom forume [About the Polykhaev Forum]. *Ekspert* [Expert], 2015, no. 6, February 3.

It is only at the end of January 2015 that the Government developed and published an anti-crisis program. It is called "the Plan of priority measures to ensure sustainable economic development and social stability in 2015".

The Plan has 60 items, but so far only 20 of them contain quantitative characteristics, i.e. the amount of state support is specified only for one third of the events. The amounts of support for a significant part of the activities will be established when regular changes are introduced to the federal budget in late February – early March. And then it is still unknown how much time will be required to bring budget funds to recipients.

At the same time, the measures to support the banking sector are being implemented very quickly. According to the Plan, a trillion rubles has already been allocated to the additional capitalization of credit institutions in 2014 (in the framework of budget execution). Additional inflows into banks will reach 550 billion rubles. If we add up the amount of support provided to the banking system, it will be 85% of the entire plan.

According to Doctor of Economics, RF State Duma Deputy O. Dmitrieva and her supporters in the "Just Russia" party, this measure will not produce the desired effect. In their opinion, it has nothing to do with the fact that the large-scale support of banks during the global crisis of 2008–2009 had little effect.

The point is that such "treatment" is logical to implement only in the countries, whose financial institutions are malfunctioning, and it is totally unsuitable for Russia, since the main reason for its current economic difficulties lies in the sharp decline in oil prices and in devaluation. When the government policy is sound, the "cheapening" of the ruble can be beneficial, because it provides an opportunity to boost economic growth and import substitution. It is this very factor that Prime Minister E. M. Primakov and Head of the Central Bank V.V. Gerashchenko used in 1998 as a powerful lever to overcome the crisis[10].

And what is D.V. Medvedev's government doing? It is trying to pursue a tough credit and fiscal policy, under which the reason for economic recession lies not in devaluation anymore, but in tightening financial screws in conditions of devaluation shock. The Bank of Russia is acting in the same spirit: it raises the key interest rate up to 17% and, in fact, impedes lending to the real sector of the economy. Neither the Central Bank nor the Government have named any deadlines for this "surgical" measure so far.

Academician V.V. Ivanter, Director of the Institute of Economic Forecasting of the Russian Academy of Sciences, gives the clear assessment of the government actions: "Such, I would say, unprofessional management has led to what we are having now. We were pursuing an economic policy that was inadequate. This policy was pursued by financial and monetary authorities as well...We have now proved by experiment that **this policy does not do our economy any good**" *(emphasis added)*[11].

[10] The extended viewpoint of O.G. Dmitrieva is presented on the website of the newspaper "Moskovsky Komsomolets" under the headline "A brief alternative crisis program – against the government program of "reconciliation" with the crisis". Available at: http://www.mk.ru/upload/userfiles.

[11] February 9, 2015 V. Ivanter gave an interview to V. Pozner on Channel One Russia. The interview is available at: http//pozneronline.ru/viktorviktorovichivanter/

According to V.V. Ivanter, the main thing is that now "the trust of the population, banks and even the government is lost. And in a monetary economy it is impossible to live without confidence in the national currency.

Consequently, now the prime task is to restore confidence in the national currency... Everything that the government is doing today must be absolutely clear to the business and population. **It must be clear to the business and to the government when and why they are doing it. And most importantly, it must be clear that what the government is doing will improve the situation; it also must be clear when the situation will improve** *(emphasis added)*. Academician Ivanter adds that another serious danger lies in the possibility of suspension of production due to the high level of loan interest rates; therefore, it is necessary "to provide the production with financing at affordable rates". At the same time, loans should not be "wasted", they should be directed to the areas that have internal demand for them.

We, on our part, note that doing away with a lingering systemic crisis of regional budgets is one of the measures to overcome the current negative trends in Russia's economy. The Budget Code of 1998 divided the consolidated budget between the center and the federal subjects fifty-fifty. In practice, this ratio is not complied with; an increasing proportion of budget revenues goes to the federal center[12].

What does the Government Plan propose to resolve this problem? The problem is formulated in the first paragraph of the Plan, which states that "the increase in the budget allocations to the provision of loans of the budget system of the Russian Federation if the subjects of the Russian Federation implement their regional plans for sustainable economic development and social stability in 2015". It is expected to allocate up to 160 billion rubles for these purposes. This amount does not even slightly reduce the severity of the current budget crisis in the regions, whose current debt reaches two trillion rubles[13].

[12] According to the research carried out at ISEDT RAS (see: Povarova A.I. Regional'nye byudzhety – 2014: problemy formirovaniya i realizatsii [Regional budgets of 2014: problems of formation and implementation]. *Problemy razvitiya territorii* [Problems of Territory's Development], 2015, no. 1), the share of federal budget revenues in 2000 amounted to 15.5% of GDP, the share of the budgets of the RF subjects was 14.5% of GDP. In 2014 the share of the federal budget accounted for 19.4% and the share of revenues of the RF subjects was only 12.1% of gross domestic product.

[13] A number of our articles in various journals propose detailed measures concerning the ways to replenish regional budgets. See, for example: **Ilyin V.A.** Chastnyi kapital i natsional'nye interesy. Na primere sobstvennikov metallurgicheskikh korporatsii [Private Capital and National Interests. A Case Study of Metallurgical Corporations' Owners]. *Vestnik Rossiiskoi akademii nauk* [Herald of the Russian Academy of Sciences], 2013, no. 7; **Ilyin V.A.** Effektivnost' gosudarstvennogo upravleniya i sostoyanie regional'nykh byudzhetov [Public Administration Efficiency and the State of Regional Budgets]. *Ekonomist* [The Economist], 2013, no. 12; **Ilyin V.A.** Chastnye interesy ogranichivayut dokhody byudzheta [Private Interests Constrain Budget Revenues]. *Ekonomicheskaya nauka sovremennoi Rossii* [Economics of Contemporary Russia], 2014, no. 2; **Ilyin V.A.** Byudzhetnyi krizis regionov kak otrazhenie neeffektivnosti gosudarstvennogo upravleniya [Budget Crisis in the Regions as a Reflection of Public Administration Inefficiency]. *Problemy teorii i praktiki upravleniya* [Issues of Management Theory and Practice], 2014, no. 11; **Ilyin V.A.** Byudzhetnyi krizis regionov kak otrazhenie neeffektivnosti otzhivshei modeli ekonomiki [Budget Crisis in the Regions as a Reflection of Inefficiency of the Obsolete Economic Model]. *Ekonomist* [The Economist], 2014, no. 12. In particular, we substantiate that one of the most important measures to replenish budgets is to refuse the refund of value added tax on exported goods; this would make it possible to improve the situation in regional budgets within a year.

Russia has over 22 thousand municipalities, from big cities to small rural settlements.

However, so far, a uniform approach to socio-economic functions is still applied to municipalities of different size. As a result, many municipal authorities, especially in rural settlements, turn out to be almost powerless. Nevertheless, the Anti-Crisis Plan does not address these problems, in fact.

But now, when the work to implement the Anti-Crisis Plan has already ben launched, the discipline and responsibility for its implementation are becoming crucially important.

Unfortunately, there is no reason to believe that the Russian Government headed by D. A. Medvedev is able to implement the Plan timely and efficiently and, most importantly, to change the negative vector of economic development to the positive one, which will help raise the standard of living of the main layers of population and prevent its reduction.

Over the last three years the President has repeatedly expressed sharp criticism concerning various aspects of the Government's performance[14].

The most recent example that shows the quality of work of D. A. Medvedev's Government can be found in the unforeseen consequences of the decisions about the compensation of commuter railroad transportation companies' revenues from the regional budget. It was well known that most of the regions have no money for these purposes. The Vologda Oblast, for example, owes Russian Railways 142 million rubles, and in recent months the commuter railroad transportation has been gradually cancelled there. The rate of 2 rubles 20 kopecks per kilometer that was in in effect in the Oblast in 2014 was raised in early February 2015 to 5 rubles 20 kopecks per kilometer, which is too expensive for

[14] September 19, 2012. The Decree of the RF President (following the results of the meeting on the draft budget for 2013–2015). Disciplinary measures in the form of a reprimand were taken against Education and Science Minister D. Livanov, Regional Development Minister O. Govorun, and Labor and Social Protection Minister M. Topilin for to the non-fulfillment of orders on the presidential decrees.

April 16, 2013. V.V. Putin's speech at the meeting in Elista (Kalmykia) on the issues of resettling residents of dilapidated housing. V.V. Putin: ***"How do we work? The quality of the work is pathetic, everything is done superficially. If we continue this way, we won't do a thing! But if we work persistently and competently, we will make it. Let's raise the quality of our work. It ought to be done! If we don't do it, it will have to be admitted that it is either me working inefficiently or it is you failing to do your job properly. Take notice that, judging by the current situation, I, personally, lean toward the latter. I think it's clear. No one should have any illusions".***

November 14, 2013. The Meeting of the Agency for Strategic Initiatives Supervisory Board. V.V. Putin: ***"…I will be obligated to remind them that there are certain practices in resolving such matters before going to the media. As we know, if somebody does not agree with something… As Mr Kudrin did – he crossed over into the expert community…"***

December 12, 2013. The annual Presidential Address to the Federal Assembly. ***"The May 2012 executive orders contain specific measures designed to ensure the country's dynamic development in all fields. In fact, the orders amounted to a unified action programme, reflecting the will of millions of people, the desire of all Russian people for a better life".***

"A year and a half has passed since the executive orders were issued. You know what I'm seeing? Either things are being done in a way that elicits a negative reaction among the public, or nothing is done at all. Clearly, we will fail to achieve our stated goals with this kind of work".

the local residents. Beginning in January 2015 and onward, Russian Railways cancelled 144 commuter trains in 26 regions; in February – March it proposed to cancel another 139 commuter trains. We can very well understand V.V. Putin's indignation, which he expressed at the meeting with members of the Government on February 4 concerning the speech of Deputy Prime Minister A. Dvorkovich about the cancellation of trains: "Don't we have a Transport Ministry? I thought you were responsible for supervising this sector. What is happening? We understand how serious this is. This isn't just some bus route that got cancelled. Commuter trains in the regions stopped operating. **Are you crazy, or what? Listen, this is not a serious approach to the matter.** After all, this affects thousands of people… Commuter rail service should be restored immediately"[15].

Unfortunately, it often happens that normal life and security of a big country are placed in jeopardy for the sake of someone's personal and corporate interests.

Probably, it is necessary to reconsider the role of railway transport as a system-forming factor in the spatial unity of the country. This has already been the subject of previous discussions, and now they have started again. Some very convincing reflections on the role of Russian Railways in preserving the integrity of the country were expressed by E. Kholmogorov in the newspaper "Izvestia"[16] and by T. Voevodina in the newspaper "Zavtra"[17].

In general, I would like to support the President's remarks "are you crazy" and "this is not a serious approach to the matter" addressed to the Government; but I don't think they are crazy, and I believe they treat the subject seriously; they just set targets differently, they see Russia's future differently. Not like the President of the Russian Federation V.V. Putin sees it.

The President set out his vision of Russia's future in the Decrees of May 7, 2012, and his voters still have trust in their President and believe he will fulfill the stated goals of improving the quality of life of all the segments of the population. However, for the first time last year there emerged certain alarming trends on several indicators of social well-being of the voters.

[15] V.V. Putin's Meeting with Government members, February 04, 2015.

[16] Kholmogorov E. Zheleznye reki [Rivers of Iron]. *Izvestiya* [The News], 2015, no. 20.

[17] Voevodina T. Rynochnyi stopkran [Emergency Brake of the Market]. *Zavtra* [Tomorrow], 2015, no. 6.

Public opinion monitoring of the state of the Russian society

As in the previous issues, we publish the results of the public opinion monitoring of the state of the Russian society conducted by ISEDT RAS in the Vologda Oblast1.

The following tables show the dynamics of a number of parameters indicating the social feeling and socio-political sentiment of the Vologda Oblast population in December 2014 – February 2015 and also on average for the last six surveys (April 2014 – February 2015). These data are compared with the data for 2013.

Estimation of performance of the authorities

In December 2014 – February 2015 the level of approval of the RF President's performance did not change significantly and amounted to 66%. The share of negative opinions was 21%. In general, people's estimates are better than they were in 2013, when the level of support of the head of state was 55%, and the share of negative characteristics was 29%.

The level of approval of performance of the Chairman of the RF Government in February 2015, compared with December 2014, did not change either. The share of positive assessments is 56%, negative assessments – 25%. For comparison: people's estimates in 2013 were worse: 49% supported the Chairman of the RF Government, the share of negative judgments was 33%.

For reference: according to VTSIOM, at the beginning of February 2015 the nationwide level of approval of the performance of the RF President did not change, compared to December 2014, and it is 86% (the proportion of negative estimates is 7%). The level of support of the Chairman of the RF Government in December 2014 – beginning of February 2015 was 69–70% (the proportion of negative estimates is 18%).

On average for the last six surveys the level of support to the federal authorities remains higher than in 2013.

[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 1500 people aged from 18 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 details on the results of ISEDT RAS polls are available at http://www.vscc.ac.ru/

How do you assess the current performance of..? (as a percentage of the number of respondents)

Answer option	2007	2011	2013	2014	Apr. 2014	June 2014	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
												2013	2011	2007
RF President														
I approve	75.3	58.7	55.3	64.1	62.8	66.6	66.4	66.8	66.0	66.3	65.8	+11	+7	-10
I do not approve	11.5	25.6	29.4	22.3	25.4	21.8	19.3	18.5	19.7	20.5	20.9	-9	-5	+9
Chairman of the RF Government *														
I approve	-*	59.3	48.9	54.2	52.5	55.8	55.2	56.2	56.3	56.1	55.4	+7	-4	-
I do not approve	-	24.7	32.8	27.6	30.9	26.4	26.8	23.9	24.7	24.7	26.2	-7	+2	-
Governor														
I approve	55.8	45.7	44.4	40.1	41.6	38.5	38.8	39.7	39.3	38.3	39.4	-5	-6	-16
I do not approve	22.2	30.5	33.2	38.9	39.0	40.9	40.1	39.6	37.0	37.4	39.0	+6	+9	+17

* Included into the survey since 2008.

The share of the Oblast residents, who believe that the President is successful in coping with the majority of Russia's key problems, has not changed significantly for the last two months. The proportion of those who support the President's efforts to strengthen Russia's international standing is 50–51%, 50–52% support his efforts to impose order in the country, 40–41% support his efforts to protect democracy and strengthen the citizens' freedoms.

At the same time, it is necessary to point out the decline in the share of the Oblast residents who believe that the actions of Russia's President promote economic recovery and help increase the welfare of citizens. In December 2014 – February 2015, the proportion of positive ratings decreased from 38 to 34%, which is lower than the average for the last six surveys. The index of success over the past two months has decreased from 87 to 83 points[2].

[2] The indices are calculated as follows: the share of negative answers is subtracted from the share of positive answers, then 100 is added to the obtained value, so as not to have negative values. Thus, completely negative answers would give the total index of 0, and completely positive answers would give the total index of 200; the balance between the former and the latter expresses the value of the index 100, which is, essentially, a neutral mark.

In your opinion, how successful is the RF President in coping with challenging issues?
(as a percentage of the number of respondents)*

Answer option	2007	2011	2013	2014	Apr. 2014	June 2014	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
												2013	2011	2007
Strengthening Russia's international standing														
Successful	58.4	46.2	45.7	50.4	48.6	53.7	50.9	52.3	50.8	50.4	51.1	+5	+5	-7
Unsuccessful	24.9	33.7	36.2	32.4	35.5	31.7	30.0	31.0	30.3	29.5	31.3	-5	-2	+6
Index of success	*133.5*	*112.5*	*109.5*	*118.0*	113.1	122.0	120.9	121.3	120.5	120.9	*119.8*	*+10*	*+7*	*-14*
Imposing order in the country														
Successful	53.2	36.6	39.4	48.0	46.7	49.5	47.5	49.4	52.1	50.3	49.3	+10	+13	-4
Unsuccessful	34.0	50.0	47.5	39.1	40.9	39.5	37.8	37.8	35.1	37.3	38.1	-9	-12	+4
Index of success	*119.2*	*86.6*	*91.9*	*108.9*	*105.8*	*110.0*	*109.7*	*111.6*	117.0	113.0	*111.2*	*+19*	*+25*	*-8*
Protecting democracy and strengthening the citizens' freedoms														
Successful	44.4	32.4	31.8	37.5	36.3	40.1	37.6	38.2	40.7	39.5	38.7	+7	+6	-6
Unsuccessful	37.0	48.3	51.0	45.4	48.7	43.9	43.7	44.3	41.9	40.9	43.9	-7	-4	+7
Index of success	*107.4*	*84.1*	*80.8*	*92.1*	*87.6*	*96.2*	*93.9*	*93.9*	*98.8*	*98.6*	*94.8*	*+14*	*+11*	*-13*
Economic recovery and increase in the citizens' welfare														
Successful	47.2	30.7	31.3	34.8	34.9	35.8	35.1	33.9	37.6	34.4	35.3	+4	+5	-12
Unsuccessful	39.1	56.1	56.8	53.4	54.3	53.5	50.2	54.4	50.8	51.5	52.5	-4	-4	+13
Index of success	*108.1*	*74.6*	*74.5*	*81.4*	*80.6*	*82.3*	*84.9*	*79.5*	*86.8*	*82.9*	*82.8*	*+8*	*+8*	*-25*

** Ranked according to the average value of the index of success for the last 6 surveys.*

The structure of the Russians' preferences concerning political parties has not changed significantly over the past two months. The proportion of the Oblast residents who believe that the "United Russia" expresses their interests is 37–39%. Support for the KPRF is 8%, for the LDPR – 7–8%, for the "Just Russia» – 3–4%.

It is noteworthy that in February 2015, compared to December 2014, there has been a decrease in the share of the Oblast residents, who think that no party expresses their interests (from 33 to 30%). It is less than in 2013 (35%) and less than the average value for the last six surveys (34%); this fact indicates the increased interest of the Vologda Oblast residents in economic and political situation in the country.

Which party expresses your interests? (as a percentage of the number of respondents)

Party	2007	Election to the RF State Duma 2007, fact	2011	Election to the RF State Duma 2011, fact	2013	2014	Apr. 2014	June 2014	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
														2013	2011	2007
United Russia	30.2	60.5	31.1	33.4	29.4	32.8	29.5	32.7	34.3	35.5	36.7	38.8	34.6	+5	+4	+4
KPRF	7.0	9.3	10.3	16.8	11.3	9.7	10.7	9.8	9.1	9.3	8.3	7.7	9.2	-2	-1	+2
LDPR	7.5	11.0	7.8	15.4	7.2	7.6	8.3	6.2	6.9	7.3	7.8	6.7	7.2	0	-1	0
Just Russia	7.8	8.8	5.6	27.2	4.6	3.5	3.3	3.3	3.7	3.9	3.2	4.1	3.6	-1	-2	-4
Other	1.8	–	1.9	–	0.6	0.3	0.2	0.1	0.1	0.7	0.1	0.3	0.3	0	-2	-2
No party	17.8	–	29.4	–	34.9	34.4	34.8	36.0	35.0	32.6	32.7	30.3	33.6	-1	+4	+16
It is difficult to answer	21.2	–	13.2	–	10.2	11.7	13.1	11.8	10.9	10.7	11.1	12.0	11.6	+1	-2	-10

The characteristics of social mood and stock of patience for the last two months have deteriorated significantly.

The share of the Oblast residents, who assess their mood as “good and normal”, decreased in December 2014 – February 2015 from 71 to 62%. The share of those who “feel stress, anger, fear and depression” increased from 24 to 31%.

The proportion of those, who believe that «Everything is not so bad; it’s difficult to live, but it’s possible to stand it” decreased from 80 to 74%. The proportion of those who “cannot bear such plight” increased from 14% to 17%.

In general, the assessments of social sentiment and stock of patience in February 2015 are more negative than they were in December 2014, on average for the last six surveys and on average for 2007–2014. Obviously, it is connected with the deteriorating socio-economic situation in the country under the sanctions imposed by the West, and with the low and unstable exchange rate of the national currency.

More and more Russians feel the consequences of negative processes going on in the national economy. For instance, in February 2015 as compared to December 2014 the share of the Vologda Oblast residents who consider they have average income decreased from 42 до 38%, and the proportion of those who consider themselves to be poor and extremely poor increased from 51 до 53%. Such a negative situation is observed for the first time in the last six surveys.

There is a continuous declining trend in consumer sentiment index (CSI) – an integrated indicator that characterizes not only the economic condition of the Russians, but also their expectations concerning the development of their well-being and economic situation in the country in general. In December 2014 – February 2015 CSI decreased from 82 to 76 points, which is significantly lower than on average for the last six surveys and for 2007–2014.

Estimation of social condition (as a percentage of the number of respondents)

Answer option	2007	2011	2013	2014	Apr. 2014	J une 2014	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
												2013	2011	2007
Mood														
Usual condition, good mood	63.6	63.1	68.6	69.4	69.3	71.1	70.5	69.3	70.9	61.8	68.8	0	+6	+5
I feel stress, anger, fear, depression	27.8	28.9	26.2	24.9	24.9	23.7	25.1	24.6	24.1	31.3	25.6	-1	-3	-2
Stock of patience														
Everything is not so bad; it's difficult to live, but it's possible to stand it	74.1	74.8	79.3	80.8	81.3	81.0	82.5	80.3	80.0	74.3	79.9	+1	+5	+6
It's impossible to bear such plight	13.6	15.3	14.2	12.6	11.1	13.4	12.8	12.1	13.6	17.3	13.4	-1	-2	0
Social self-identification														
The share of people who consider themselves to have average income	48.2	43.1	43.9	43.2	43.1	42.0	44.1	43.5	42.3	38.3	42.2	-2	-1	-6
The share of people who consider themselves to be poor and extremely poor	42.4	44.3	46.9	49.1	49.1	48.4	49.6	49.3	51.0	53.3	50.1	+3	+6	+8
Consumer sentiment index														
Index value, points	105.9	89.6	90.3	87.6	90.3	90.5	87.1	84.0	82.3	75.7	85.0	-5	-5	-21

The reduction of CSI took place in June – December 1998 in the period of default.

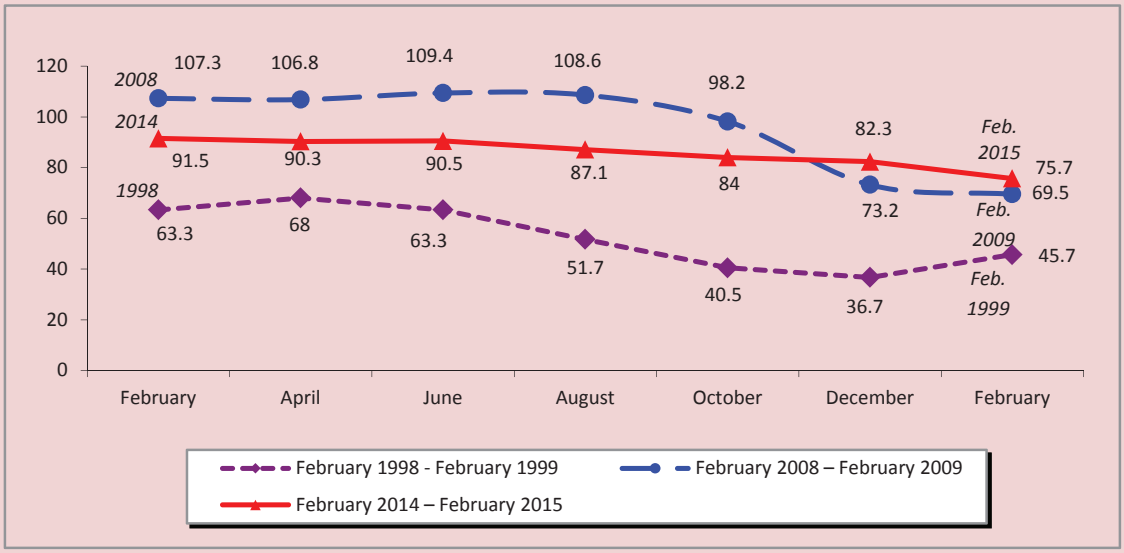
Similar changes in the Index were observed in June 2008 – February 2009, when the population was faced with the consequences of the global financial crisis.

The current negative dynamics of CSI has started in June 2014, and its rate is increasing. In December 2014 – February 2015 CSI decreased by six points (from 82 to 76 p.). For comparison, it has not declined by more than four points for the last six polls (this happened in June – August, 2014, the decline was from 91 to 87 p.).

Consumer sentiment index declined in all the socio-demographic categories of the population in the past two months, including all the income and age groups. Especially negative changes are observed among people with higher and incomplete higher education (CSI decreased from 91 to 81 p.), among 20% of the most prosperous (from 101 to 93 p.), and among the Vologda residents (from 84 to 75 p.).

It is alarming that the decrease in CSI has already become a steady trend in most socio-demographic groups. This trend has been observed since June 2014.

Dynamics of consumer sentiment index (CSI) in 1998, 2008 and 2014 (in points).



Consumer sentiment index in different socio-demographic groups (in points)

Category of population	2007	2011	2012	2013	2014	Apr. 2014	June 2014	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
													2013	2011	2007
Sex															
Men	107.8	90.3	92.2	91.0	87.6	91.3	90.1	86.6	82.9	82.6	76.8	85.1	-6	-5	-23
Women	104.4	89.1	91.0	89.8	87.6	89.6	90.8	87.5	84.9	81.9	74.8	84.9	-5	-4	-19
Age															
Under 30	115.2	95.0	97.0	94.5	93.0	97.4	93.4	94.7	89.3	87.8	82.7	90.9	-4	-4	-24
30–55	107.1	89.1	91.9	91.4	87.5	90.1	92.2	86.3	83.1	80.1	73.0	84.1	-7	-5	-23
Over 55	95.7	86.0	86.3	85.6	84.2	85.5	86.1	82.9	81.8	81.6	74.9	82.1	-3	-4	-14
Education															
Incomplete secondary, secondary	100.2	85.6	84.9	83.4	80.5	84.4	82.5	79.0	78.8	75.0	69.6	78.2	-5	-7	-22
Secondary vocational	105.9	87.9	90.2	88.7	86.9	89.5	89.5	86.5	82.2	82.0	76.9	84.4	-4	-3	-21
Incomplete higher, higher	113.1	95.5	98.8	99.2	96.3	98.4	100.2	96.9	92.1	91.0	80.7	93.2	-6	-2	-20
Income groups															
20% of the poorest people	88.2	74.8	77.6	71.2	69.8	72.3	73.2	66.5	67.8	64.2	58.6	67.1	-4	-8	-21
60% of the people with middle-sized income	105.5	89.0	90.3	90.8	87.0	88.9	88.5	87.0	83.6	81.9	76.5	84.4	-6	-5	-21
20% of the most prosperous people	124.7	105.3	107.5	108.9	107.5	112.4	111.3	105.7	103.7	101.2	92.5	104.5	-4	-1	-20
Territories															
Vologda	104.2	90.9	93.6	92.3	90.8	93.6	94.9	90.8	87.8	84.3	74.7	87.7	-5	-3	-17
Cherepovets	114.9	98.9	100.2	97.7	95.3	99.0	96.8	93.6	90.1	90.0	82.7	92.0	-6	-7	-23
Districts	102.3	84.4	86.2	85.3	81.7	83.8	84.6	81.5	78.7	76.9	72.4	79.7	-6	-5	-23
Oblast	105.9	89.6	91.5	90.3	87.6	90.3	90.5	87.1	84.0	82.3	75.7	85.0	-5	-5	-21

The powerful influence of people's financial situation on how they assess their own social condition is proved by the fact that for the last two months the proportion of the Oblast residents who describe their mood as "good, normal, fine" has also decreased in all the socio-demographic categories. At that the largest decrease in positive assessments of social mood is observed among the 20% of the poorest (by 17 percentage points, from 55 to 38%).

Social mood in different socio-demographic groups (answer option "Good mood, usual, good condition", as a percentage of the number of respondents)

Category of population	2007	2011	2012	2013	2014	Apr. 2014	June 2014	Aug. 2014	Oct. 2014	Dec. 2014	Feb. 2015	Average for the last six surveys	Dynamics (+/-), the last six surveys in comparison with…		
													2013	2011	2007
Sex															
Men	65.9	64.5	69.1	69.9	68.9	68.5	71.3	69.5	68.8	69.7	61.7	68.3	-2	+4	+2
Women	61.7	62.0	65.8	67.5	69.8	70.0	71.0	71.4	69.8	72.0	61.9	69.4	+2	+7	+8
Age															
Under 30	71.3	70.0	72.3	75.5	75.1	70.8	76.1	79.1	76.6	76.4	71.3	75.1	0	+5	+4
30–55	64.8	62.5	67.9	69.2	69.5	70.0	71.8	70.3	68.3	69.8	58.3	68.1	-1	+6	+3
Over 55	54.8	58.3	62.1	62.4	65.4	67.2	66.7	64.9	66.1	69.1	60.7	65.8	+3	+7	+11
Education															
Incomplete secondary, secondary	58.4	57.4	57.2	60.6	62.5	61.3	61.7	63.3	65.4	67.8	54.8	62.4	+2	+5	+4
Secondary vocational	64.6	63.6	66.7	68.1	70.4	70.7	72.2	71.3	70.2	71.8	65.2	70.2	+2	+7	+6
Incomplete higher, higher	68.6	68.3	77.0	77.4	76.2	78.1	80.4	77.7	73.3	73.5	65.8	74.8	-3	+7	+6
Income groups															
20% of the poorest people	51.6	45.3	51.5	46.2	50.8	47.4	54.9	54.1	50.2	55.1	38.3	50.0	+4	+5	-2
60% of the people with middle-sized income	62.9	65.3	68.7	71.9	72.3	72.6	72.7	71.5	73.5	75.0	65.2	71.8	0	+6	+9
20% of the most prosperous people	74.9	75.3	81.1	83.3	84.8	82.7	89.0	89.6	79.0	81.6	80.3	83.7	0	+8	+9
Territories															
Vologda	63.1	67.1	73.6	75.0	76.4	75.6	78.6	80.7	75.5	75.6	66.4	75.4	0	+8	+12
Cherepovets	68.1	71.2	76.2	75.3	76.3	79.0	79.9	76.5	72.8	73.2	63.1	74.1	-1	+3	+6
Districts	61.6	57.1	59.8	61.6	61.8	60.7	62.3	61.5	64.0	67.1	58.6	62.4	1	+5	+1
Oblast	63.6	63.1	67.3	68.6	69.4	69.3	71.1	70.5	69.3	70.9	61.8	68.8	0	+6	+5

Conclusion:

The crisis phenomena in the Russian economy started in 2011–2012. They are caused by internal reasons and now they have acquired a system-wide character. Economic sanctions and the unstable national currency have only aggravated their consequences. According to the surveys conducted in February 2015, the Vologda Oblast experiences the deterioration in the structure of social self-identification and the decline in consumer sentiment index.

In early 2015 negative processes in the economy for the first time affected the Oblast residents' social well-being: the indicators of social sentiment and stock of patience, which in recent years (2007 –2014) were characterized by sufficient stability and positive dynamics, declined by 6–9 p.p. for the first time.

So far, the deterioration of financial situation and social sentiment in not reflected in the level of support of federal and regional authorities; however, the experience of social research (in particular, the assessment of consumer sentiment index) suggests that if decisive steps to improve the socio-economic situation are not taken, there can be serious negative changes in the near future.

Below we have placed the results of the long-term monitoring carried out by ISEDT RAS; they present the assessment of the attitude of the Vologda Oblast population toward the current governmental, public and political institutions.

The graphic materials take into account the assessment results for the period from 2000 to 2014. The data show that the Vologda Oblast residents have greater trust in governmental institutions rather than in public institutions.

People's trust in the performance of the federal authorities remains high and fairly stable. Since 2000 the trust index has been higher than the neutral level (100 points), which means that the majority of the Oblast residents firmly support the federal government.

A declining trend in the level of trust in presidential power during the period of D.A. Medvedev's presidency (2009–2012) changed with the beginning of V.V. Putin's third presidential term. This had a positive impact on the population's attitude toward the Government of the Russian Federation, the Federation Council and the State Duma. The level of trust in the Vologda Oblast Government is somewhat lower; nevertheless, generally positive assessments prevail in this regard.

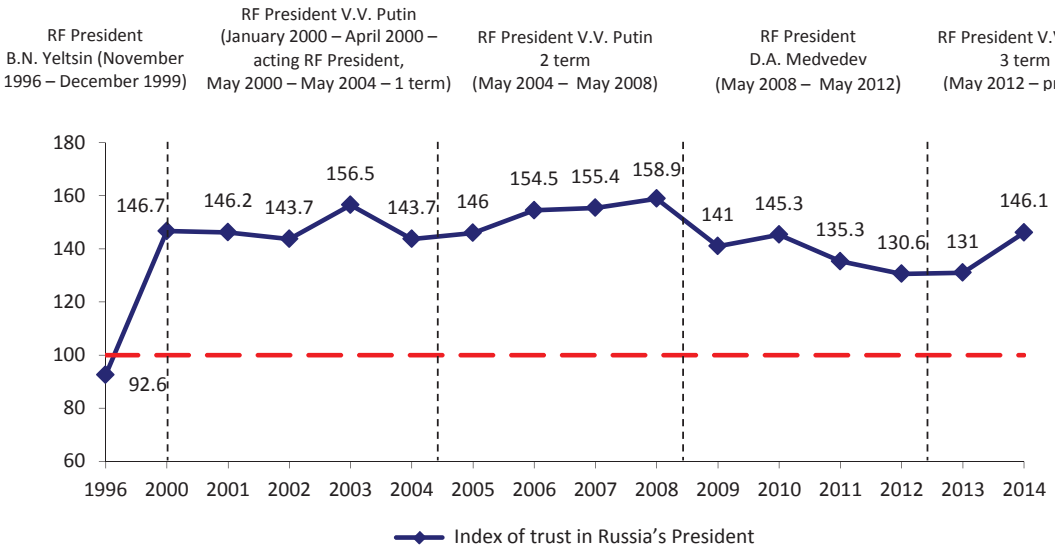
The Church enjoys the highest level of trust among non-state institutions. This attitude has remained stable since 2012.

The level of trust of the Oblast residents in security institutions (the Army, Police, Federal Security Service) and in the Court remains high. Moreover, it should be noted that the attitude toward law enforcement agencies has been improving since 2013.

The level of people's trust in public institutions, especially the media, CEOs, banks and business community, political parties and movements remains the lowest. The attitudes toward these institutions are mostly negative; moreover, in 2014 the level of trust has decreased significantly.

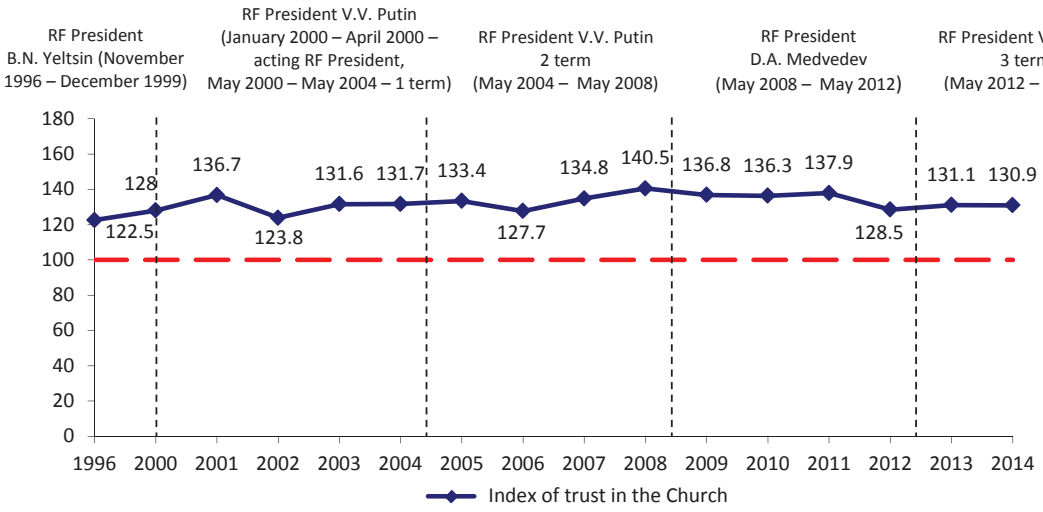
Thus, the dynamics of people's assessments indicates that public opinion is focused more and more on the federal level of government, which is not surprising in the current unstable geopolitical situation. The society is consolidating around the federal government, and the President of the Russian Federation plays the key role in this process.

Attitude toward the President of the Russian Federation



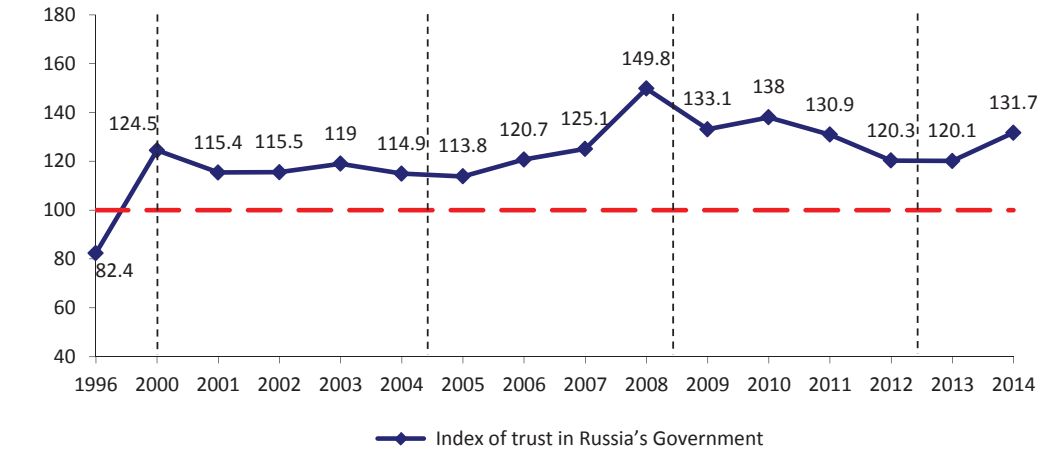
In 2013–2014 the index of trust in Russia's President increased significantly (by 15 p., from 131 to 146 p.)

Attitude toward the Church



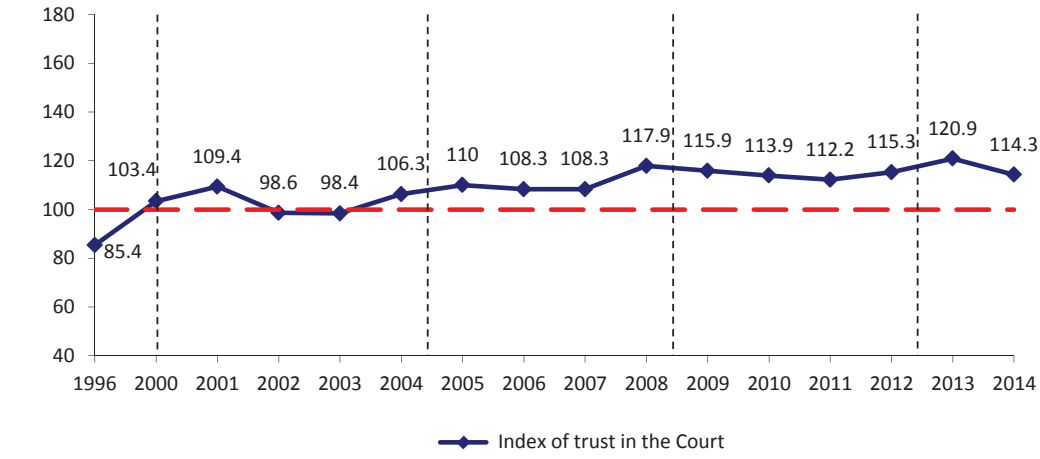
Index of trust in the Church in 2014 remained at the level of 2013 (131 p.).

Attitude toward the Government of the Russian Federation



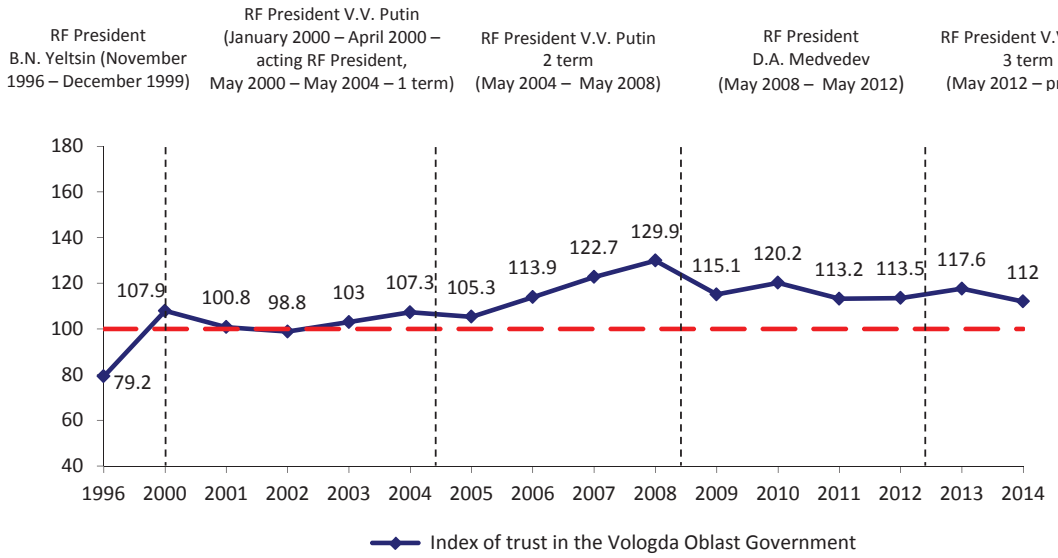
Index of trust in the RF Government in 2014 increased considerably (by 12 p., from 120 to 132 p.).

Attitude toward the Court



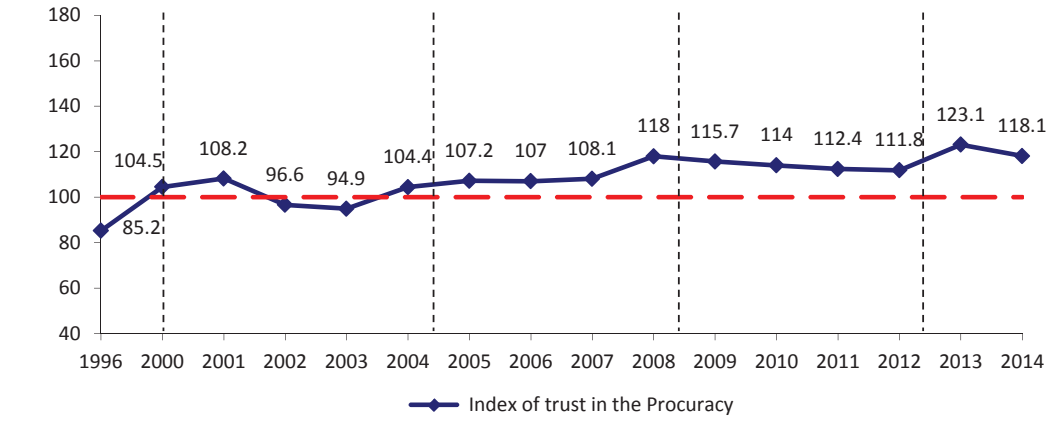
In 2014, compared to 2013, the index of the Oblast residents' trust in the Court decreased (by 7 p., from 121 to 114 p.).

Attitude toward the Government of the Vologda Oblast



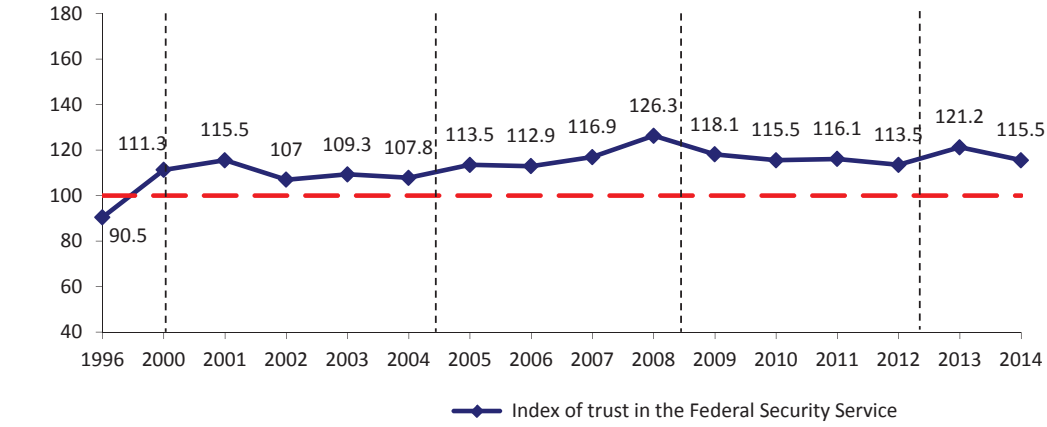
In 2014 the index of trust in the Vologda Oblast Government decreased by 6 p. (from 118 to 112 p.).

Attitude toward the Procuracy



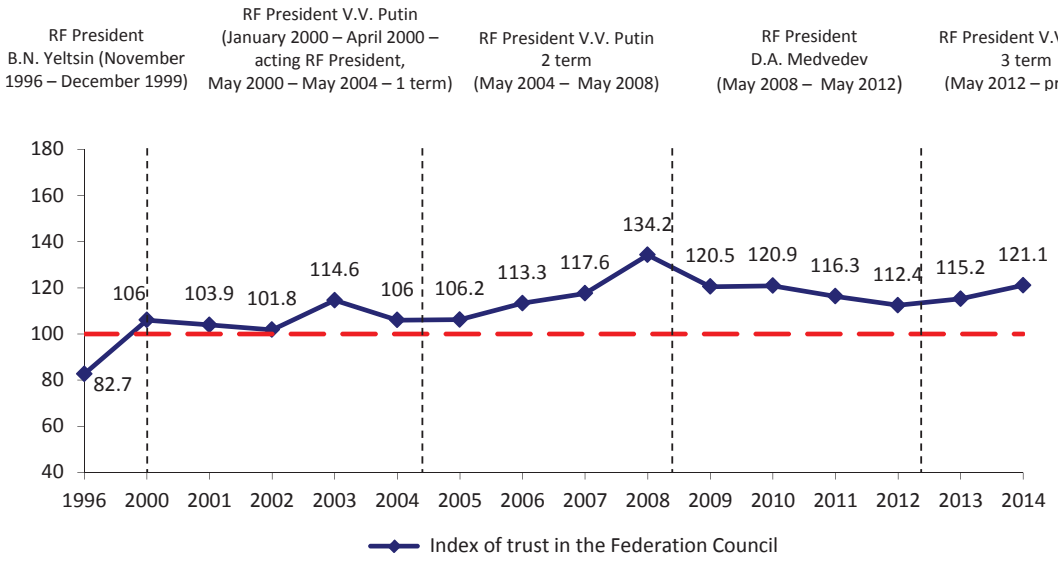
In 2014 the index of trust in the Procuracy decreased by 5 p. (from123 to 118 p.).

Attitude toward the Federal Security Service of the Russian Federation



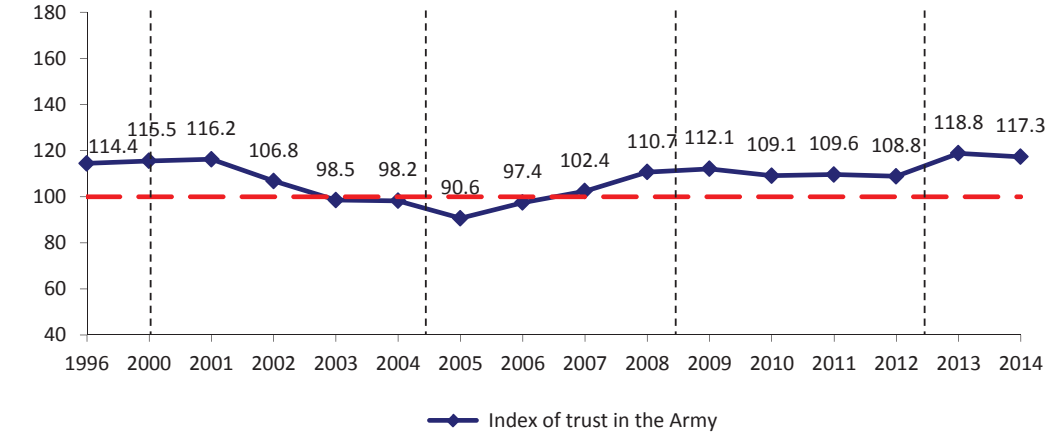
The level of the Oblast residents' trust in the Federal Security Service decreased in 2014 in comparison with 2013 (by 5 p., from 121 to 115 p.).

Attitude toward the Federation Council of Russia



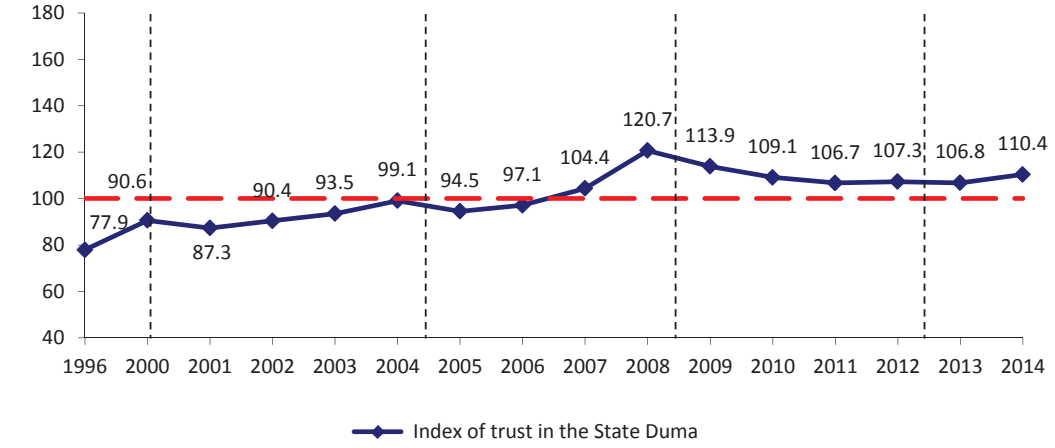
In 2014 the level of trust in the Federation Council continued to grow. The index increased by 6 p. in comparison with 2013, and by 9 p. in comparison with 2012 (from 112 – 115 to 121 p.).

Attitude toward the Army



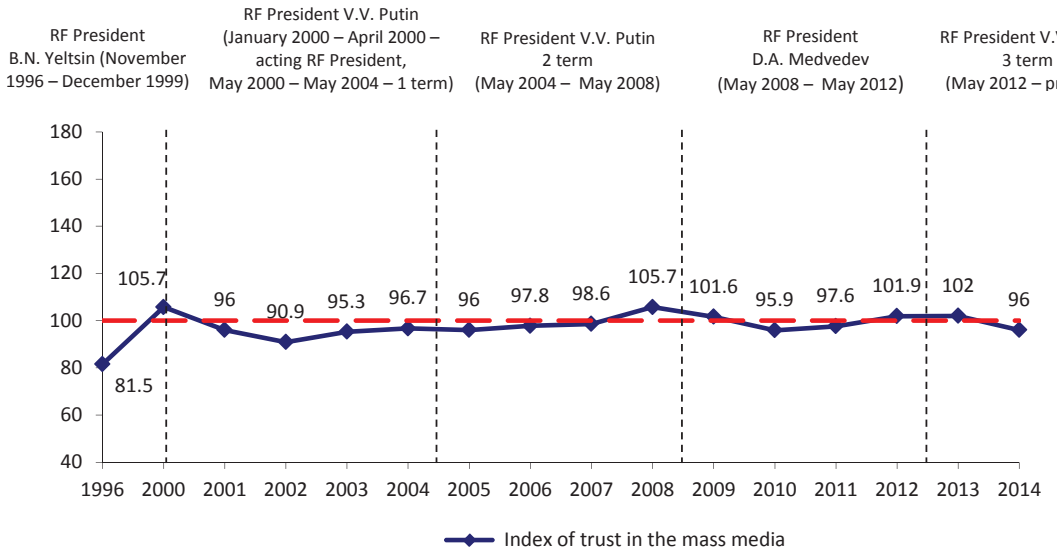
In 2014 the index of people's trust in the Army remained at the level of 117 – 119 p.

Attitude toward the State Duma



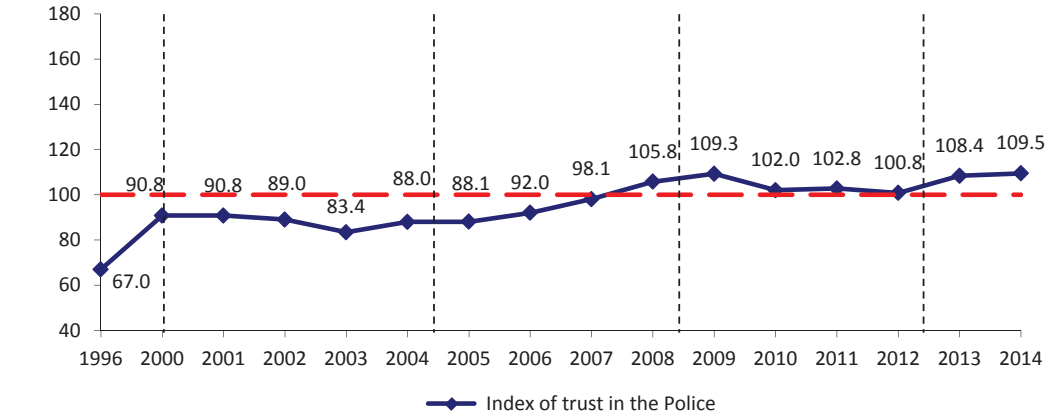
The index of trust in the State Duma in 2014 was by 3 p. higher than the level of 2011 – 2013 (110 p. vs. 107).

Attitude toward the mass media



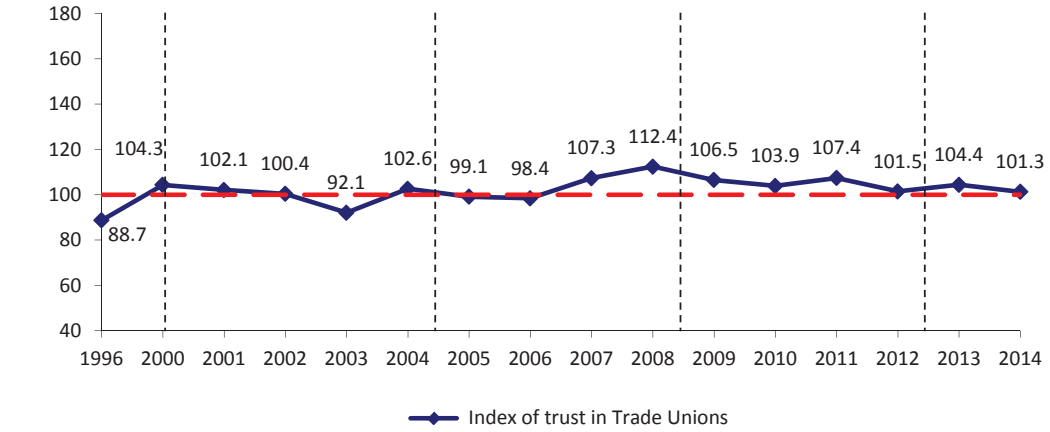
The index of trust in the mass media in 2014 decreased (by 6 p., from 102 to 96 p.).

Attitude toward the Police



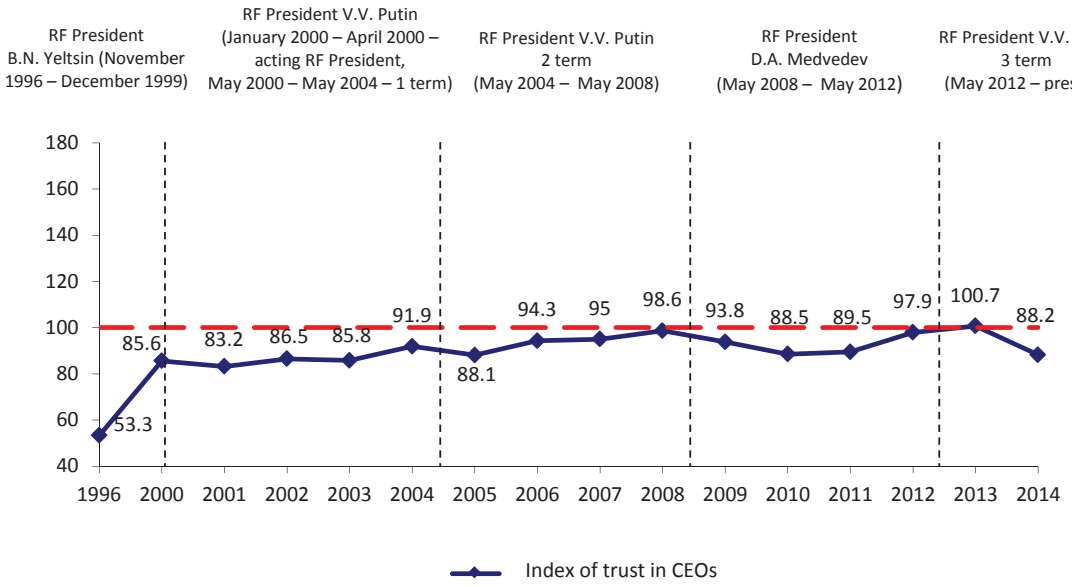
In 2014 the index of trust in the Police increased slightly (by 2 p., from 108 to 110 p.).

Attitude toward Trade Unions



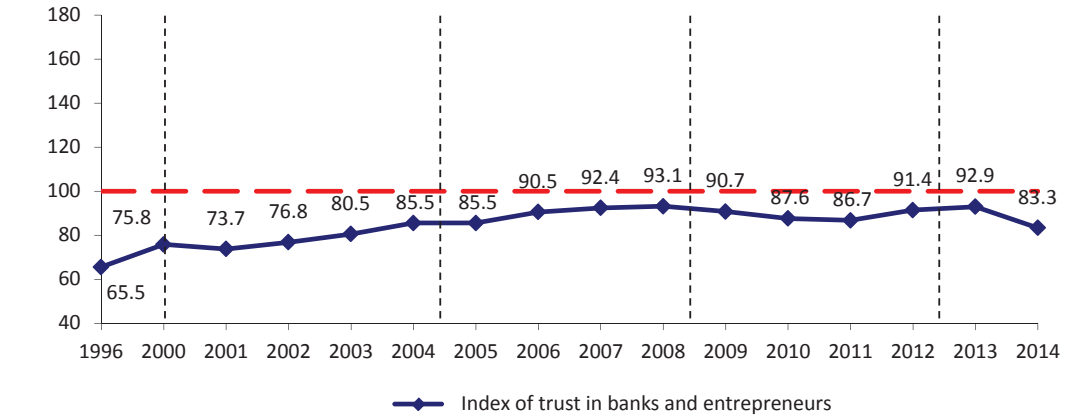
In 2013–2014 the index of trust in Trade Unions decreased slightly (by 3 p., from 104 to 101 p.).

Attitude toward CEOs



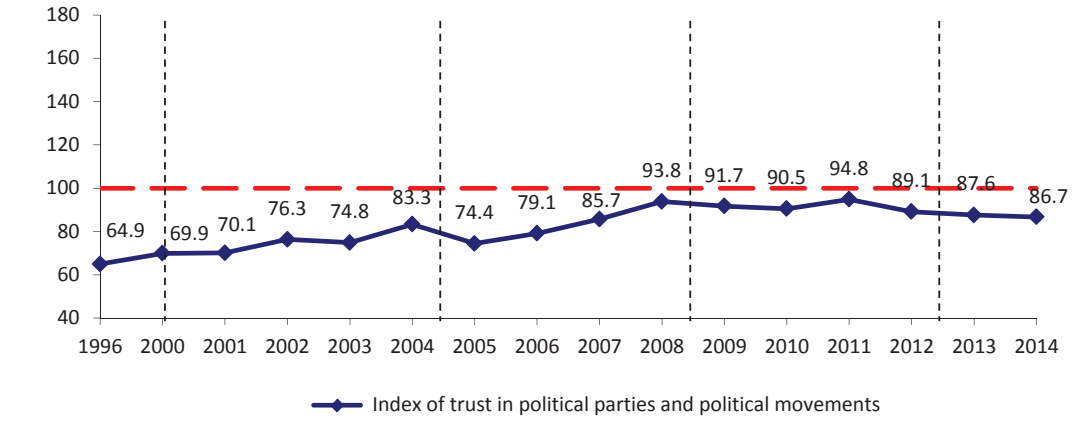
In 2014, in comparison with 2013, the index of trust in CEOs decreased significantly (by 13 p., from 101 to 88 p.).

Attitude toward banks and entrepreneurs



The index of trust in banks and entrepreneurs decreased in 2014 (by 10 p., from 93 to 83 p.).

Attitude toward political parties and political movements



In 2013–2014 the level of trust in political parties and political movements changed nsignificantly (87 – 88 p.).

SOCIO-ECONOMIC DEVELOPMENT STRATEGY

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Assessment of the regional development strategy implementation

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Abstract. The article considers the issue concerning the formation of an effective mechanism to implement the strategies for socio-economic development in the region. The authors focus on the imperfection of the regional strategic planning system. This problem has become critical in the time of

the global financial and economic crisis at the end of 2008. The article indicates the importance of monitoring as a tool to assess the implementation of the strategy on the basis of analyzed consequences of the global financial crisis for the regional economy. The authors present their own approach to estimating the strategy implementation according to the dynamic normal method. The method presupposes that it is possible to carry out the assessment on the basis of comparison of the achieved level with the reference model (matrix of domination) of the economic system functioning. Testing of the authors' method has helped assess the implementation of the strategy for the Vologda Oblast development at the tactical and strategic level and identify the main problems of socio-economic development.

Key words: region, dynamic normal, matrix of domination, strategy, socio-economic development

In the regional management system strategic planning becomes the necessary tool not only to respond to the increasing speed of current economic and social changes and grown competition in all spheres of life, but also to create competitive advantages. Traditional planning is not able to cope with these challenges. The strategy's priority over tactics is fully confirmed by the international practice. The sustainability of the regional socio-economic system and, as a consequence, the welfare of the populationб depends on set strategic objectives, used resources and consistent activities to achieve them. Therefore, in the conditions of unstable market environment, regional strategic planning is the key tool of public management and territorial development [14].

Nowadays in the Russian Federation the system of regional strategic planning is being formed within the new legislative framework: the Framework of strategic planning in the Russian Federation was approved in 2009 [13], the Federal Law "On strategic planning in the Russian Federation" – in 2014 [16].

The modern practice of regional strategic planning indicates positive trends in its use for solving socio-economic problems, especially in those regions that have taken the path of the forced crisis recovery and structural modernization of their regional economy.

At the same time, the analysis of the actual practice of regional strategic planning suggests that it is far from perfect. In the Russian regions, as the author stresses [9], the methodological schemes and methods are often outdated, do not take into account key differences between strategic and traditional long-term planning and specific features of regional systems as objects of strategic planning; strategic planning is not supported by real and effective strategic management; the effectiveness of strategies implementation is not monitored; the modern possibilities of information technologies are used inadequately, etc.

The lack of the effective monitoring system to assess the effectiveness of strategies implementation and take timely decisions ensuring qualitative changes in the situation and forecasting their consequences reduces the efficiency of the adopted strategies dramatically. This problem was particularly acute for the Russian economy during the 2008 global

financial and economic crisis. Most regions of the RF Northwestern Federal District could not adjust the strategies to crisis conditions quickly that ultimately worsened the economic situation, aggravated investment activity and led to the decline in industrial and agricultural production [15].

The Vologda Oblast was not an exception. In 2009 due to the crisis the region experienced a significant decrease in the growth rate of physical volume of GDP and even in 2012 the pre-crisis growth rate was not achieved (*fig. 1*).

This situation is partly caused by the monostructure of the industrial sector, which plays a significant role in the creation of gross regional product.

In the 2008 crisis in the region there was a significant decline in the volume of industrial production (95.3% of the previous year), in 2009 the situation deteriorated further (90.5%). The regional industrial production began to grow only in 2010, but in 2012 it had a downward trend again (*tab. 1*).

The similar situation was observed in the regional agriculture. At the same time, this crisis contributed to a general decline in the agricultural production of the region (*tab. 2*).

The crisis also affected the amount of investment in production. If in the pre-crisis period investment grew most rapidly in the Vologda Oblast compared to the Northwestern Federal District and the Russian Federation, in the crisis period its decline was also more significant in the region. The pre-crisis level of investment was recovered in 2011 (*fig. 2*).

Figure 1. Dynamics of growth rates of physical volume of GDP, in % to 2000 [5, 8]

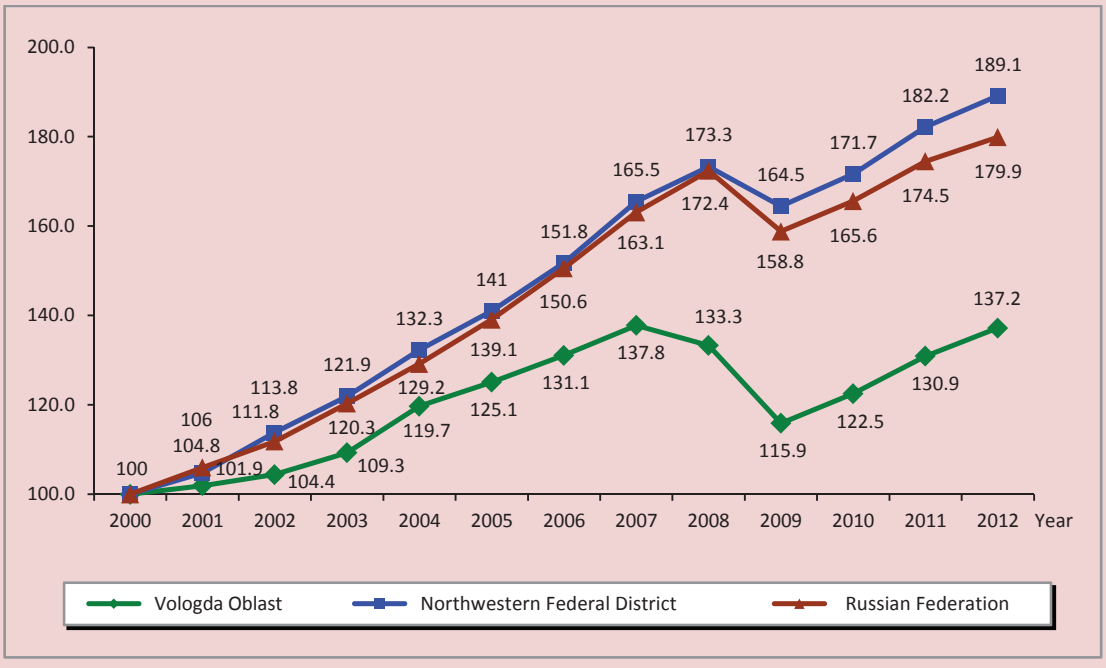

Table 1. Industrial production index in the NWFD regions in 2001–2012, in % to the previous year [5, 8]

Region	2001	2005	2008	2009	2010	2011	2012	2012 to 2000, %
Kaliningrad Oblast	110.1	127.4	101.8	95.3	117	118	101.9	570.5
Leningrad Oblast	104.78	108.1	101	96.9	113.8	106.2	105.7	335.8
Arkhangelsk Oblast	98.85	117.3	105.5	115.4	102.1	82.1	95.1	254.8
Saint-Petersburg	106.97	105.7	103.6	83.4	109.4	113.8	104.7	230.1
Novgorod oblast	104.8	108.3	102.3	87.7	113.9	110	104.4	193.6
Pskov Oblast	105.2	98.7	105.1	89.6	116.9	109.8	99.6	179.8
Komi Republic	108	104.1	102.9	98.3	100.4	104.3	102.1	150.7
Vologda Oblast	**96.9**	**106.5**	**95.3**	**90.5**	**111.1**	**104.6**	**101.3**	**148.0**
Republic of Karelia	98.8	118.7	97	78.5	110.2	99.4	102	146.6
Murmansk Oblast	101.1	100.2	94.6	96.5	105.2	98.7	102.7	108.1
NWFD	*103.7*	*108.5*	*100.6*	*92.6*	*108.4*	*105.5*	*102.6*	*210.4*

Table 2. Agricultural production index in the NWFD regions in 2001–2012, in % to the previous year [5, 8]

Region	2001	2005	2008	2009	2010	2011	2012	2012 to 2000, %
Novgorod Oblast	105.8	98.7	106.1	117.7	125.8	117.3	105	161.1
Leningrad Oblast	104.4	102	101.8	104.5	102.6	108.8	108.1	135.2
Kaliningrad Oblast	93.5	100.5	119.8	109.9	100.1	100.1	105.3	129.4
Komi Republic	100.3	97.6	107.9	97.2	103.3	108.9	101.4	94.5
Murmansk Oblast	95.5	105.5	103.5	100.7	97.7	101.8	99.9	88.3
Republic of Karelia	111	97.7	104.9	96.2	99.2	99.8	94.4	79.5
Vologda Oblast	**102.3**	**100.3**	**100.5**	**97.6**	**92.5**	**110.6**	**95**	**75.7**
Pskov Oblast	98.1	86.9	98.7	101.9	100.8	105.3	105.8	69.3
Arkhangelsk Oblast	94.9	93.6	96	105	97.8	107.9	100.9	65.2
NWFD	*101.4*	*98.7*	*103.8*	*104.2*	*101.9*	*108.3*	*103.9*	*106.2*

It should be noted that the reduction of budgetary provision testifies the existence of economic problems in the Vologda Oblast. The crisis influencing the financial situation of the industrial enterprises "undermined" one of the main sources of budget revenues – profit tax.

Their amount decreased by more than 20%, and the region ranked 9th by the rate of budgetary provision among the regions of the Northwestern Federal District (*tab. 3*). Since 2011 the region has been receiving subsidizes [10].

Obviously, in these circumstances the task of economy diversification, innovative development and creation of developed industrial and social infrastructure as a basis for economic growth and improved standard of life of the population become strategically important. Therefore, the implementation of the strategy for the region's socio-economic development should be focused on the concentration of investment resources according to the priority directions and identification of "growth points", which will bring the greatest effect.

Figure 2. Index of physical volume of investment in fixed capital
(in constant prices, in % to 2000) [5, 8]

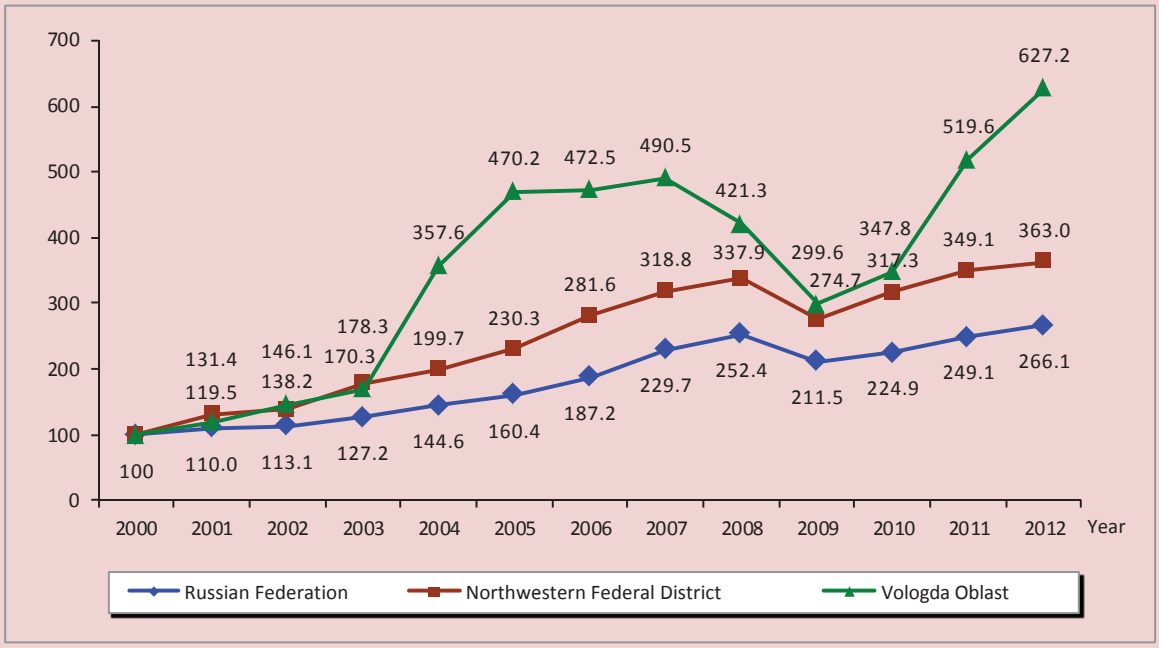

Table 3. Consolidated budget execution by revenue per capita (thousand rubles in current prices) [5, 10]

Region	2000	2005	2008	2009	2010	2011	2012	2012 to 2000, times
Saint Petersburg	8.1	31.3	74.9	69.8	72.4	83.1	76.1	9.4
Murmansk Oblast	9.9	24.9	45.8	47.7	55	64.4	75.8	7.7
Komi Republic	6.8	19.9	55.9	55.4	65.4	71.2	67.7	10.0
Republic of Karelia	4.8	17.4	42	40.5	51.4	53	56.5	11.8
Arkhangelsk Oblast	4.7	16.7	33.7	36.9	36.4	44.4	55.1	11.7
Kaliningrad Oblast	4.6	16.1	39.7	44.9	40.9	51.6	52.0	11.3
Leningrad Oblast	7.1	25.6	39.3	37.5	49.4	55.8	51.9	7.3
Novgorod Oblast	5.6	20.3	38.8	38.2	41.7	47.9	51.3	9.2
Vologda Oblast	**7.4**	**21.4**	**41.7**	**33.1**	**38.4**	**42.2**	**45.6**	6.2
Pskov Oblast	4.1	12.6	26	28.8	33.4	41.3	40.7	9.9
NWFD	*5.5*	*23.1*	*53*	*50.8*	*55.8*	*63.8*	63.5	11.5
RF	*7.3*	*21*	*43.7*	*41.8*	*45.7*	*53.5*	56.3	7.7

In this regard, the evaluation of strategy implementation is an important methodological task. In our opinion, the method of dynamic normals can be used for it.

The idea to build dynamic normals was first expressed in the works of Professor I.M. Syroezhin, particularly in the concept of measuring performance. I.M. Syroezhin used the idea to arrange indicators in order for the simulation of effective implementation and functioning of the system [12].

The mode of the economic system activity can be represented by a set of economic indicators. Ranking the indicators by growth rates, one can get such an order, which is able to express the requirements to the best activity mode and act as a reference. This order is called a dynamic normal.

The dynamic normal (DN) is a model reference mode of the economic system functioning. Obviously, the strategy for the system development can serve as a reference mode. Such a DN can be considered as strategic [12]. It is possible to compare any actual order of indicators with a standard, thereby assessing the level of the reference mode implementation (in particular, the level of system strategy implementation).

The integrated assessment of the strategy implementation level can be obtained on the basis of comparison of the normative order of indicators movement and the actual order by means of Spearman and Kendall' rank correlation coefficients:

Spearman's coefficient takes into account the differences in variance and is calculated by the *formula (1)*.

$$R_{dev} = 1 - \frac{6\sum D_S^2}{n \times (n^2 - 1)}, \qquad (1)$$

where

Ds is a difference between actual and optimal ranks;

n is a number of indicators.

Kendal's coefficient is calculated on the basis of inversion by the *formula (2)*.

$$R_{inv} = \frac{4\sum R_S}{n \times (n-1)} - 1, \qquad (2)$$

where

Rs is inversion of the S-th indicator.

The assessment of *R* varies in the range from 0 to 1. The coincidence of the actual and specified order of indices indicates the highest level of system strategy implementation, when all regulatory ratios of growth rates indicators are fulfilled and $R = 1$. The actual order of indicators, completely opposite to the reference one, gives the value of *R* equal to 0.

It should be noted that the quality of DN depends primarily on the composition of the indicators included. They should meet the following requirements:

– the list of indicators should reflect the comprehensive nature of the system's activity;

– the indicators should be available in the current reporting and have a single observation period;

– the DN should include not secondary, but primary indicators;

– the number of indicators should be reasonable.

Table 4. Matrix of domination of strategy implementation in the region

Indicator	1	2	3	4	5	6	7	8	9	10
1. GRP					1	1	1	1		
2. Personal income				1						
3. Budget revenues				1			1			
4. Retail turnover		-1	-1							
5. Industrial production	-1						1		1	
6. Agricultural products	-1									
7. Investment	-1		-1		-1			1		
8. Population size	-1						-1			1
9. Natural resources (FER)					-1					
10. Number of unemployed								-1		
Source: developed by the authors on the basis of [12].										

Having defined the list of indicators to include in the DN, we rank them on the basis of the indicators movement with the help of expert methods, or pairwise comparisons.

To present the DN we can use the preference graph or the corresponding matrix, with each element revealing the normative ratio of indicators. This matrix is called a matrix of preferences or matrix of domination:

In this case, the matrix elements define the normative dynamics of indicators pairs that reflect the level of implementation of the following regional development objectives. To identify the dynamics of the indicators we use basic chain growth rates (T):

$$T_b = (x_i / x_0) \times 100\%, \quad (3)$$

where T_b is a basic growth rate of;

x_i is a value of the indicator in the i-th period;

x_0 is a value of the indicator in the base period.

$$T_C = (x_i / x_{i-1}) \times 100\%, \quad (4)$$

T_C is a chain growth rate;

x_i is a value of the indicator in the i-th period;

x_{i-1} is a value of the indicator in the i-1-st period.

This is caused by the fact that the choice of the "reference point" to estimate the dynamic structure of indicators affects the analysis results. The application of basic growth rates characterizes the monotony of the change in the function implementation level, which reveals stable patterns and trends of the regional strategy implementation process. These estimates correspond to the strategic level of analysis and diagnosis of regional development *(tab. 5)*.

The strategy implementation at the tactical level should be studied by means of chain growth rates, which help estimate the change in the strategy implementation level between two adjacent periods. The chain growth rates characterize the

Table 5. Normative dynamics of indicators and objectives of the regional development

Normative order of indicators	Objectives of regional development
T (gross regional product)> T (volume of industrial production)	Increase in the effectiveness of industrial production
T (gross regional product) > T (amount of agricultural production)	Increase in the effectiveness of agricultural production
T (gross regional product) > T (investment in capital)	Rise in the effectiveness of investment
T (gross regional product) > T (population size)	Growth of aggregate labor productivity
T (population size) > T (number of the unemployed)	Reduction of unemployment
T (industrial production) > T (consumption of natural resources)	Decrease in technogenic burden on the environment
T (personal income) > T (amount of retail sales)	Improvement of consumption patterns of the population
T (investment in fixed capital) > T (population size)	Growth of investment
T (revenue part of the regional budget) > T (investment in fixed capital)	Increase in investment yield
T (volume of industrial production) > T (investment in fixed capital)	Increase in the effectiveness of capital investment
T (revenue part of the regional budget) > T (amount of retail sales)	Social orientation of the regional budget

variability of economic policy and identify the dynamics of the structure of realized and disordered normative ratios.

Let us consider the sequence and results of the analysis of the Vologda Oblast regional strategy implementation in the post-crisis period. *Table 6* shows the initial statistical information to be analyzed.

According to the obtained results, the effectiveness of the strategy implementation at the tactical level is determined by the average indicator of rank correlation coefficients. The fluctuations during the analyzed period are caused by the inversion of regional economy subsystems while solving tactical problems of socio-economic development *(tab. 7)*.

The effectiveness of the strategy implementation at the strategic level is characterized by a vivid upward trend *(tab. 8)*. Spearman's rank correlation coefficient was 0.59 in 2012, which was higher by 0.98 points than 2009. The positive dynamics of the effectiveness of the strategy implementation suggests that the solution of tactical problems is aimed at achieving strategic goals of socio-economic development.

The analysis of the strategy implementation level discloses the positive and negative trends that have led to this assessment. Let us construct the matrix of domination of the strategy implementation *(tab. 9)*.

Comparing the actual order of the matrix with the normative one, we have identified the problems to implement the strategy for socio-economic development of the region *(tab. 10)*.

Thus, taking into account the identified problems of socio-economic development of the region, we can single out strategic objectives of the Vologda Oblast development. In our opinion, economic

Table 6. Statistical values of the indicators included in the matrix of domination (on the materials of the Vologda Oblast) [5, 8, 10]

Indicator	2008	2009	2010	2011	2012	2012 to 2008, %
Total gross regional product, billion rubles	294.9	213.4	262.4	323.1	356.1	120.7
Index of physical volume of GRP, in % to previous year	96.7	87.1	105.7	106.9	104.8	103.1
Personal income, total, billion rubles	178.6	177.9	204.1	225.2	262.2	146.8
Revenue side of the budget, billion rubles	50.8	40.1	46.2	50.7	54.6	107.4
Population size, thousand people	1214.0	1208.0	1201.0	1198.0	1196.0	98.5
Number of the unemployed registered with the employment service, thousand people	12.6	24.6	16.0	11.6	9.5	75.4
Volume of industrial production in current prices, billion rubles	397.2	259.9	349.8	428.0	419.6	105.6
Indices of industrial production, in % to previous year	95.3	90.5	111.1	104.8	100.5	105.9
Agricultural production in households of all categories, billion rubles	20.0	19.3	20.0	23.3	21.6	108.3
Indices of agricultural production, in % to previous year	100.5	97.6	92.5	110.6	95.0	94.9
Investment in fixed capital in 2012 comparable prices, billion rubles	100.9	72.1	83.7	125.1	151.0	149.7
Retail turnover in current prices, billion rubles	70.8	69.6	85.5	100.0	125.7	177.4
Indices of retail trade turnover, in % to previous year	108.5	89.4	116.3	107.6	119.7	133.9
Spent fuel and energy resources, billion cubic meters	7736.7	7111.3	6252.9	6244.4	6217.2	80.4

Table 7. Dynamics of the indicators to evaluate the effectiveness of the regional strategy in the Vologda Oblast (tactical level)

Indicator	2009		2010		2011		2012	
	GR (chain)	Rank	GR (chain)	Rank	GR (chain)	Rank	GR (chain)	Rank
GRP	87.1	8	105.7	6	106.9	6	104.8	5
Personal income	99.6	2	114.7	4	110.3	3	116.5	3
Revenue part of the budget	79.0	9	115.1	3	109.8	4	107.7	4
Retail turnover	89.4	7	116.3	1	107.6	5	119.7	2
Volume of industrial production	90.5	6	111.1	5	104.8	7	100.5	6
Production agriculture in households of all categories	97.6	4	92.5	8	110.6	2	95	9
Investment in fixed capital	71.5	10	116.1	2	149.4	1	120.7	1
Population size	99.5	3	99.4	7	99.8	9	99.8	7
Use of fuel and energy resources	91.9	5	87.9	9	99.9	8	99.6	8
Number of the unemployed	195.2	1	65.0	10	72.5	10	81.9	10
$\mathbf{R}_{dev.}$		-0.39		0.59		0.48		0.58
$R_{inv.}$		-0.33		0.42		0.33		0.42

Table 8. Dynamics of indicators to evaluate the effectiveness of the regional strategy in the Vologda Oblast (strategic level)

Indicator	2009		2010		2011		2012	
	GR (basic)	Rank	GR (basic)	Rank	GR (basic)	Rank	GR (basic)	Rank
GRP	87.1	8	92.1	6	98.4	8	103.1	6
Personal income	99.6	2	114.3	2	126.1	1	146.8	2
Revenue part of the budget	79.0	9	90.9	7	99.7	6	107.4	4
Retail turnover	89.4	7	104.0	3	111.9	3	133.9	3
Volume of industrial production	90.5	6	100.5	4	105.4	4	105.9	5
Production agriculture in households of all categories	97.6	4	90.3	8	99.8	5	94.9	8
Investment in fixed capital	71.5	10	83.0	9	124.0	2	149.7	1
Population size	99.5	3	98.9	5	98.7	7	98.5	7
Use of fuel and energy resources	91.9	5	80.8	10	80.7	10	80.4	9
Number of the unemployed	195.2	1	127.0	1	92.1	9	75.4	10
$R_{dev.}$		-0.39		0.14		0.45		0.59
$R_{inv.}$		-0.33		0.20		0.33		0.47
Source: compiled by the authors.								

Table 9. Matrix of domination of the strategy implementation (strategic level)

Indicator	1	2	3	4	5	6	7	8	9	10
1. GRP					**-1**	1	**-1**	1		
2. Personal income				1						
3. Budget revenues				**-1**			**-1**			
4. Retail turnover		-1	**1**							
5. Industrial production	**1**						**-1**		1	
6. Agricultural production	-1									
7. Investment	**1**		**1**		**1**			1		
8. Population size	-1						-1			1
9. Natural resources (FER)					-1					
10. Number of the unemployed								-1		

Table 10. Analysis of the region's development problems

Normative order of indicators	Actual order of indicators	Strategic issues
T (gross regional product) > T (volume of industrial production)	T (gross regional product) < T (volume of industrial production)	Reduced industrial output of the region
T (gross regional product) > T (investment)	T (gross regional product) < T (investment)	Decreased effectiveness of investment in the region's economy
T (budget revenues) > T (retail turnover)	T (budget revenues) < T (retail turnover)	Reduced social orientation of the regional budget
T (budget revenues) > T (investment)	T (budget revenues) < T (investment)	Reduced investment yield in the region's economy
T (volume of industrial production) > T (investment)	T (volume of industrial production) < T (investment)	Decreased effectiveness of capital investment

development should be innovative, the mechanism to attract investment and implement investment projects – more effective and the economy, on this basis, – more competitive. It presupposes structural reorganization, technological upgrading and industrial production restructuring.

In our opinion, the author's conclusion [9] is still relevant that it is necessary to develop scientific and methodological foundations of regional strategic planning, elaborate recommendations on strengthening its consistency and information security in order to strengthen institutional, legal and organizational support, expand a range of economic-mathematical modeling methods that forecast future trends and assess effectiveness of the regional strategy implementation. The method to construct dynamic normals provides the systematic approach to the analysis and diagnosis of the region's development strategy implementation. Its basic concept is connected with the formation of the integral estimate of the system functioning that reflects its long-term effectiveness and includes dynamic characteristics of the factors, which give a comprehensive description of various aspects of its activities.

References

1. Analiticheskaya otsenka i prognozirovanie ekonomicheskoi i sotsial'noi effektivnosti regional'nogo razvitiya [Analytical Assessment and Forecasting of Economic and Social Efficiency of Regional Development]. *Ekonomicheskii analiz: teoriya i praktika* [Financial Analytics: Science and Experience], 2006, no. 6 (63), pp. 22-27.
2. Granberg A.G. *Osnovy regional'noi ekonomiki* [Foundations of the Regional Economy]. Moscow, 2004. 495 p.
3. Grinberg A.S., Shestakov V.M. *Informatsionnye tekhnologii modelirovaniya protsessov upravleniya ekonomikoi: ucheb. posobie dlya studentov vuzov* [Information Technologies to Simulate Economic Management Processes: Manual for Graduate Students]. Moscow: YuNITI, 2003. 399 p.

4. Kul'ba V.V., Kononov D.A., Kosyachenko S.A., Shubin A.V. *Metody formirovaniya stsenariev razvitiya sotsial'no-ekonomicheskikh sistem* [Methods of Formation of Scenarios to Develop Socio-Economic Systems]. Moscow: SINTEG, 2004. 296 p.
5. *Ofitsial'nyi sait Federal'noi sluzhby gosudarstvennoi statistiki* [Official Web-Site of the Federal State Statistics Service]. Available at: http://www.gks.ru
6. Prognozirovanie ekonomicheskogo potentsiala regionov [Forecasting Economic Potential of the Regions]. *Ekonomika i matematicheskie metody* [Economics and Mathematical Methods], 2006, vol. 42, no.1, pp. 32-50.
7. *Regional'nye problemy razvitiya infrastruktury i mezhotraslevykh proizvodstv* [Regional Problems of Infrastructure Development and Cross-Sectoral Production]. Under editorship of L.V. Kozlovskaya. Minsk: Nauka i tekhnika, 1985. 246 p.
8. Regiony Rossii. Sotsial'no-ekonomicheskie pokazateli. 2013: stat. sb. [Regions of Russia. Socio-Economic Indicators. 2013: Statistics Digest]. *Rosstat* [Federal State Statistics Service of the Russian Federation]. Moscow, 2013, p. 990.
9. Seliverstov V.E. *Regional'noe strategicheskoe planirovanie: ot metodologii k praktike* [Regional Strategic Planning: from Methodology to Practice]. Novosibirsk: IEOPP SO RAN, 2013. 436 p.
10. *Statisticheskii ezhegodnik Vologodskoi oblasti 2013: stat. sb.* [Statistical Yearbook of the Vologda Oblast 2013: Statistics Digest]. Vologdastat [Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast]. Vologda, 2013. 373 p.
11. Sokolov D.V., Motyshina M.S. *Strategiya regional'nogo razvitiya: formirovanie i upravlenie* [Strategy for Regional Development: Formation and Management]. Saint Petersburg: Izd-vo SPbGUEF, 2002. 153 p.
12. Syroezhin I.M. *Sovershenstvo sistemy pokazatelei effektivnosti i kachestva* [Perfection of the System of Efficiency and Quality Indicators]. Moscow: Ekonomika, 1980. 192 p.
13. *Ukaz prezidenta "Ob osnovakh strategicheskogo planirovaniya v RF"* [Decree of the President "On the Basics of Strategic Planning in the Russian Federation]. Available at: http://lj.rossia.org/users/anticompromat/587675.html
14. Uskova T.V. *Upravlenie ustoichivym razvitiem regiona: monografiya* [Management of Sustainable Development of the Region: Monograph]. Vologda: ISERT RAN, 2009. 355 p.
15. Uskova T.V., Selimenkov R.Yu. K voprosu o formirovanii institutov razvitiya v regione [On the Issue of Formation of Development Institutions in the Region]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2013, no. 2, p. 18.
16. *Federal'nyi zakon Rossiiskoi Federatsii "O strategicheskom planirovanii v Rossiiskoi Federatsii" ot 28 iyunya 2014g. № 172-FZ* [Federal Law of the Russian Federation "On Strategic Planning in the Russian Federation" of June 28, 2014 no. 172-FZ]. Available at: http://www.rg.ru/2014/07/03/strategia-dok.html

Cited works

1. Analytical Assessment and Forecasting of Economic and Social Efficiency of Regional Development. *Financial Analytics: Science and Experience*, 2006, no. 6 (63), pp 22-27.
2. Granberg A.G. *Foundations of the Regional Economy*. Moscow, 2004. 495 p.
3. Grinberg A.S., Shestakov V.M. *Information Technologies to Simulate Economic Management Processes: Manual for Graduate Students*. Moscow: YuNITI, 2003. 399 p.
4. Kul'ba V.V., Kononov D.A., Kosyachenko S.A., Shubin A.V. *Methods of Formation of Scenarios to Develop Socio-Economic Systems*. Moscow: SINTEG, 2004. 296 p.
5. *Official Web-Site of the Federal State Statistics Service*. Available at: http://www.gks.ru
6. Forecasting Economic Potential of the Regions. *Economics and Mathematical Methods*, 2006, vol. 42, no.1, pp. 32-50.

7. *Regional Problems of Infrastructure Development and Cross-Sectoral Production*. Under editorship of L.V. Kozlovskaya. Minsk: Nauka i tekhnika, 1985. 246 p.
8. Regions of Russia. Socio-Economic Indicators. 2013: Statistics Digest. *Federal State Statistics Service of the Russian Federation*. Moscow, 2013, p. 990.
9. Seliverstov V.E. *Regional Strategic Planning: from Methodology to Practice*. Novosibirsk: IEOPP SO RAN, 2013. 436 p.
10. Statistical Yearbook of the Vologda Oblast 2013: Statistics Digest. *Regional Office of the Federal State Statistics Service of the Russian Federation in the Vologda Oblast*. Vologda, 2013. 373 p.
11. Sokolov D.V., Motyshina M.S. *Strategy for Regional Development: Formation and Management*. Saint Petersburg: Izd-vo SPbGUEF, 2002. 153 p.
12. Syroezhin I.M. *Perfection of the System of Efficiency and Quality Indicators*. Moscow: Ekonomika, 1980. 192 p.
13. *Decree of the President "On the Basics of Strategic Planning in the Russian Federation*. Available at: http://lj.rossia.org/users/anticompromat/587675.html
14. Uskova T.V. *Management of Sustainable Development of the Region: Monograph*. Vologda: ISERT RAN, 2009. 355 p.
15. Uskova T.V., Selimenkov R.Yu. On the Issue of Formation of Development Institutions in the Region. *Economic and Social Changes: Facts, Trends, Forecast*, 2013, no. 2, p. 18.
16. *Federal Law of the Russian Federation "On Strategic Planning in the Russian Federation" of June 28, 2014 no. 172-FZ*. Available at: http://www.rg.ru/2014/07/03/strategia-dok.html

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Small business in Russia: everyday issues and development constraints

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Abstract. The article is based on the data of "Russian longitudinal monitoring survey of economic situation and public health NRU HSE" (RLMS-HSE) and considers current issues and specifics of social well-being of entrepreneurs engaged in small business – managers of micro-enterprises and individual entrepreneurs as one of the least protected professional groups who face great difficulties in organizing their business. The analysis confirms that numerous lingering problems impeding their work cause a reduction in the level of entrepreneurial activity, significantly worsen the social well-being of entrepreneurs and force many of them to change professional and life plans. The study reveals that social well-being of entrepreneurs engaged in small business is complex and uncertain; it is a consequence of an inconsistency between conditions of life and work, and the heterogeneity of this category of employees. They feel happy more often than wage workers. However, possessing a relatively high level of job satisfaction and life satisfaction in general, and having higher self-assessment of professional skills, small-scale entrepreneurs are less concerned with the low prestige of their work and their lack of wide power and authority in comparison to other categories of employed persons; they are cautious in establishing relationships with other people and they have a comparatively low level of law-abidance. The article proves that one of the conditions for successful functioning and development of small business consists in a balanced combination of entrepreneurial activity, initiative and efficient state governance. However, today, entrepreneurial ability, which should be the main driving force of the new Russian economy, is used extremely inefficiently, which is evident from the abnormally low level of entrepreneurial activity of citizens. And only about half of those who want to start their own business or establish their own company succeed. Only a small part of them clearly expresses the desire to gain new knowledge and master new technology and other work spheres.

Key words: small business, social well-being, social adaptation, public support, competition.

Continuous and profound changes in the socio-economic situation in Russia are accompanied by significant changes in the social position of various professional groups. Socio-economic processes affect in their own specific way the position and conditions of life and work of entrepreneurs engaged in small business; this gives rise to numerous social, socio-psychological and purely psychological problems, which, if ignored, complicate further transformations. The current situation of this category of entrepreneurs, like any other social group, largely depends on the extent to which "a society objectively needs those social functions that the group performs; it also depends on subjective assessments of representatives of other social groups and power structures concerning the benefits that the activities of this group produce"[1]. Social feeling is an indicator that shows how successful the process of adapting to the changes is for an individual; it also shows the extent to which he/she is satisfied with his/her own position and the current level of well-being.

Social feeling is also an extremely important indicator of the degree of adaptation, "a basic element that shows certain achievements" in a particular situation[2]. It characterizes the general internal state of an individual and a social group, which is formed in everyday life and includes their attitude toward the environment, the assessment of living conditions and life prospects, their position in society, and the degree of life satisfaction. Differences in social feeling are associated to a great extent with positive or negative assessments of one's life as a whole and its various sides.

This article focuses on the analysis of the main issues of activity, the specifics of the situation and social feeling of entrepreneurs who represent the simplest forms of business organization – managers of micro-enterprises (with the average number of employees over the previous year being up to 15 persons) and individual entrepreneurs, which according to the Federal Law "On the development of small and medium entrepreneurship in the Russian Federation" of July 24, 2007 No. 209-FZ belong to small and medium-sized businesses. The study reveals certain trends and factors in the adaptation entrepreneurs engaged in small business to the changing socio-economic situation, especially their behavior in the labor market. The analysis is based on data of the "Russian longitudinal monitoring survey of economic situation and public health NRU HSE" (RLMS-HSE) for 2012[3].

[1] Mansurov V.A. Vmesto vvedeniya. Issledovanie professional'nykh grupp rossiiskoi intelligentsii: situatsiya, metodologiya i metodika [In Lieu of an Introduction. Research into Professional Groups of the Russian Intelligentsia: the Situation, Methodology and Technique]. *Professional'nye gruppy intelligentsii* [Professional Groups of Intelligentsia]. Executive editor V.A. Mansurov. Moscow: Izd-vo Instituta sotsiologii RAN, 2003. P. 8.

[2] Dudchenko O.N., Mytil' A.V. Dve modeli adaptatsii k sotsial'nym izmeneniyam [Two Models of Adaptation to Social Change]. *Rossiya: transformiruyushcheesya obshchestvo* [Russia: the Society under Transformation]. Ed. by V.A. Yadov. Moscow: Izd-vo "KANON-press-Ts", 2001. P. 610.

[3] *"Rossiiskii monitoring ekonomicheskogo polozheniya i zdorov'ya naseleniya NIU VShE (RLMS-HSE)" provoditsya NIU VShE i ZAO "Demoskop" pri uchastii Tsentra narodonaseleniya Universiteta Severnoi Karoliny v Chapel Khille i Instituta sotsiologii Rossiiskoi akademii nauk* ["Russian Longitudinal Monitoring Survey of Economic Situation and Public Health NRU HSE" (RLMS-HSE) is carried out by NRU HSE and Demoscop CJSC with the Participation of the Carolina Population Center at the University of North Carolina at Chapel Hill and the Institute of Sociology of the Russian Academy of Sciences]. Available at: http://www.hse.ru/org/hse/rlms, http://www.cpc.unc.edu/projects/rlms.

Small entrepreneurship that includes individual, family and small business initiatives plays a very important role in the development of regional markets and national economy as a whole. In many respects this role is determined by benefits of small business such as the sufficiently high independence and autonomy of action, mobility, flexibility and efficiency, the ability to make and implement decisions quickly, high susceptibility to different kinds of innovation, focused specialization, and responsiveness to changing local conditions. It is subject to the simplified procedures of creation and liquidation of business, the decision-making procedure, the simplified system of taxation, accounting and reporting. Due to the lack of saturation of the services market in Russia, any entrepreneurial initiative can be in demand today; this promotes a relatively high yield of small business.

Of great importance is the fact that the main spheres of activity of small businesses include the crucial spheres of everyday life associated with human life sustenance. For instance, 52.8% of our respondents were employed in trade and consumer services; 13.2% – in transport; 11.7% – in the construction industry; 4.2% – in agriculture. This business segment forms the most extensive network of companies working for the mass consumer, satisfying the most diverse and urgent needs of the population. The majority of small entrepreneurs prefer to start their business in the sphere of trade and consumer services because it requires relatively less resources at the start, and the competition in these spheres is not so tough, as in other types of business. These entrepreneurs do not differ by level of education from the rest of the employed: among them 32.2% have higher education; 25.5% graduated from technical school; 42.3% – from vocational school and secondary school. The vast majority of the respondents (97.3%) have set out their business on their own, and only some of the respondents said that they had received support from their relatives or friends in this respect.

Small business is closely linked with the development of self-employment, which is a very heterogeneous phenomenon. According to the general viewpoint, which is reflected in the recommendations by the International Labor Organization, self-employment includes employers who use hired labor; individual entrepreneurs (self-account self-employed), working individually or with the help of unpaid labor of their family members; members of producers' cooperatives; unpaid workers in family enterprises (individual entrepreneurs' relatives, who help them)4. The Rosstat methodological provisions, in addition to these categories, states that self-employed persons are also those engaged in the household production of goods and services for sale5. But there are other points of view as well. According to one of them, self-employment includes formal employment (small enterprises, micro-enterprises, individual entrepreneurs,

[4] *Obzor zanyatosti v Rossii* [Overview of Employment in Russia]. Issue 1 (1991–2000). Moscow: TEIS, 2002. P. 70.

[5] *Metodologicheskie polozheniya po statistike* [Methodological Provisions of Statistics]. Issue 1. Moscow: Goskomstat Rossii, 1996.

peasant/farm enterprises) and informal employment (rural and urban personal subsidiary plots, gathering, and others)[6].

The category of self-employed persons comprises not only capable and active entrepreneurs, who chose this occupation voluntarily[7]. It happens very often that this occupation is the only option, a way to survive in the difficult economic situation, and it is not focused on high incomes. Self-employment is currently considered as one of the ways to reduce unemployment and address acute socio-economic issues. Russia has been implementing self-employment programs for several years, and they are developed individually for each region. In this regard, the most important social function of small business is its ability to provide a great number of jobs for the unemployed, thus reducing unemployment and social tension.

Despite its importance and advantages, small business in Russia is constantly faced with difficulties that hinder its development. We are talking primarily about the lack of effective mechanisms of support of business from the state, frequent changes in the business environment, limitations of various resources, high level of risk, and constant pressure of large companies, which leads to great instability in the market and impede the intensive development of business activity. High monopolism and excessive involvement of the government not only in business but also in other spheres of life have negative consequences for the expansion of all forms of entrepreneurial activity.

For the period of the so-called recovery economic growth accompanied by an increase in adaptive abilities of the population, strengthening the role of active adaptation practices in the formulation and implementation of life strategies, there has been a significant increase in the number of citizens who prefer to rely on their own efforts without shifting the responsibility for what is happening in their life on other people and external circumstances. These people are optimistic even in difficult situations, and they try to build their adaptive strategies by focusing on the improvement of well-being of their families. Some of them have been quite successful in adapting to the changed socio-economic conditions, and moved up to higher social positions.

However, the majority of Russians, as before, have low social ambitions, and are infected with paternalism. Many people of middle and older age, having lost faith in the ability to achieve success in life, lower the bar of their aspirations and lead a modest life, which does not allow them to reveal and implement their potential to the fullest extent. Since the relationship between career and well-being often turns out to be weak, their desire to earn money and get a stable job prevails over career aspirations. Many prefer to be employees with a stable salary, enjoy social benefits and privileges,

[6] Abramova E.A. Samozanyatost' naseleniya kak stupen' pod"ema ekonomiki v period preodoleniya krizisa [Self-Employment as a Stage of Economic Recovery in the Period of Crisis]. *Prilozhenie k zhurnalu "Sovremennye naukoemkie tekhnologii"* [Supplement to the Journal "Modern High Technologies"], 2010, no. 1, pp. 5-11.

[7] Aistov A.I. O razvitii nekotorykh form samozanyatosti v Rossii v 1994–2002 godakh [About the Development of Some Forms of Self-Employment in Russia in 1994–2002]. *Ekonomicheskii zhurnal VShE* [HSE Economic Journal], 2005, vol. 9, no. 2, pp. 185-215.

get free education and medical services. A dominant subculture today is the one, the representatives of which avoid goals that are hard to achieve; they lower the bar of life aspirations, i.e. they choose "the strategy of avoidance"[8]. Even among young people there are a lot of those who prefer a quiet, slow and stable career of a common officer, financier, economist or lawyer to the risk and high responsibility of entrepreneurship and private initiative[9].

The results of different studies show that the Russians have a high level of pessimism in the assessment of conditions for development of entrepreneurship, and a low level of entrepreneurial activity. According to VTSIOM, 44% of the respondents assessed the conditions for doing business in their city, rural settlement or village as very bad or bad in 2009; as for 2013, the figure was 55%. The residents of a small provincial towns and villages express the most critical opinions; the share of pessimists reaches 62% there[10].

The recent streamlining of some bureaucratic procedures is clearly not enough to improve business climate and promote business activity the country. For instance, according to the Global Entrepreneurship Monitor (GEM), in 2012 only about 7% of the Russians were involved in entrepreneurial activity. And only 3.8% of the Russians intended to start their own business in the next three years, while in the BRICS countries this figure was about 21%, and in Eastern Europe – over 24%. Entrepreneurs who plan to open a new business constituted about a half of the Russians who have entrepreneurial intentions. Consequently, the share of potential beginning entrepreneurs accounted for about 2%, which was the lowest figure among all the countries participating in the international study since 2006[11]. According to the RAS Institute of Sociology, among the young people aged 18–30, whose aspirations outline the future, the proportion of those planning to start their own business even in the relatively prosperous years did not exceed 5%[12].

Not everyone who intends to engage in business activities achieves success in this field. For example, according to RLMS-HSE, of all the respondents interviewed in 2012 approximately one in ten people tried to organize his/her own company and start his/her own business. But in the end only 4.7% of the respondents, i.e., about half of those who tried to engage in entrepreneurial activity, managed to overcome all the difficulties and to succeed. Approximately 55% of the respondents coped with this task completely independently, while others resorted to the help of their relatives, friends and acquaintances.

[8] *Rossiya na novom perelome: strakhi i trevogi* [Russia at a New Turning Point: Fears and Anxiety]. Ed. by M.K. Gorshkov, R. Krumm, V.V. Petukhov. Moscow: Al'fa-M, 2009. P. 12.

[9] *Molodezh' novoi Rossii: obraz zhizni i tsennostnye prioritety* [Young people of the New Russia: Lifestyle and Values]. Moscow: Institut sotsiologii RAN, 2007. Pp. 12-14.

[10] Antonets O. Biznes-illyuzii [Business Illusions]. *RBK* [RBC], 2014, no. 1, p. 33.

[11] *The results of the study "the Global Entrepreneurship Monitor 2012" announced*. Available at: http://www.gsom.spbu.ru/all_news/obyavleny_rezultaty_issledovaniya_globalnyj_monitoring_predprinimatelstva_2012

[12] Gorshkov M.K., Sheregi F.E. *Molodezh' Rossii: sotsiologicheskii portret* [The Youth of Russia: a Sociological Portrait]. Moscow: TsSPiM, 2010. Pp. 186-187.

Currently, it is men and women aged 25–35 who are most energetic in the organization of entrepreneurial activity. However, this activity is rewarded mainly when they reach a more mature age. This may be due to the fact that some older people have a higher adaptive capacity and resources than younger people due to the more profound knowledge, rich experience, and a wide circle of friends and acquaintances.

Education is an important factor that determines the success of business start-up. Among those who organized their own business, there turns out to be a lot more people with higher education than among those who have never tried to do business or tried, but did not succeed.

Other researchers point out, as a positive fact, the presence of a high proportion of the so-called "voluntary" entrepreneurs aimed at self-realization (up 42%), in contrast to 27% "forced" entrepreneurs, i.e. those who lost their jobs and decided to start a small business as the only way out[13]. As practice shows, the "forced" entrepreneurs are much less likely to succeed in business in comparison to those who choose to do it more consciously.

Due to these and some other circumstances, the contribution of small and medium entrepreneurship in the country's GDP remains quite modest – it does not exceed 21%. Meanwhile, it is 30% in Brazil, and about 65–75% in Spain, Greece and Norway[14]. The majority of other European countries show a significant lag in the value of this indicator. In general, entrepreneurs in the BRICS countries create about 42% of GDP, while in the EU – up to 58%.

Assessing their own experience and the experience of others, many entrepreneurs are extremely pessimistic about the prospects for positive change in the conditions of business development in the near future. They become more convinced in that, in particular, due to the continuous abuse of power on the part of officials, groundless audits and numerous violations in the course of these audits, and the huge scale of various fines and "unofficial fees". A significant part of entrepreneurs finds such fines so large that it forces them to work illegally or to resort to "off-the-book" schemes.

Besides, only in the last five years about 240 thousand businessmen were convicted in Russia. It turns out that the state, while adopting large-scale programs for support of small business, at the same time sets out such requirements that put off any desire to do business.

For example, a twofold increase in insurance premiums in Russia from January 01, 2013; as a result, almost 500 thousand individual entrepreneurs, which is over 11% of the total number of all the entrepreneurs registered in Russia, terminated their business in the course of the year, during which the new tariff policy was implemented.

[13] Kulikov S. Otechestvennyi biznes pridushili chinovniki [Domestic Business Smothered by Officials]. *Nezavisimaya gazeta* [Independent Newspaper], 2012, January 24.

[14] *"OPORA Rossii": predprinimatel'skaya aktivnost' v strane ostaetsya nizkoi* [All-Russian Public Organization of Small and Medium-Sized Enterprises "OPORA Russia: Entrepreneurial Activity in the Country Remains Low]. Available at: http://www.creditforbusiness.ru/news/24757/

Some of them have withdrawn into the "shadows". All this forced the government to reconsider the decision and to introduce in 2014 the differentiated approach to the calculation of insurance premiums. Such abrupt changes in the legislation, as well as the lack of transparent and simple tax rules for entrepreneurial activity in general, have a negative impact on the economy, reducing the activity of small and medium business and contributing to the expansion of the shadow economy, leaving many more or less successful entrepreneurs on the sidelines and turning them into losers.

The lack of reliable financial support of small business in the regions is another important problem, well-known to professionals and entrepreneurs themselves. According to the All-Russian Public Organization of Small and Medium-Sized Enterprises "OPORA Russia", only about 21% of small businesses can expect to receive financial support when implementing their starting projects. And only one in four municipalities has any organizations for providing financial support to small business.

Extremely negative impact on the development of small businesses is caused by the low quality of justice, which generates additional threats not only to business, but also to all the other market participants. According to V.D. Zor'kin, Chairman of the Constitutional Court, the court system is flawed by corruption, nepotism, and the imperfection of the legal system. He supports this point with the research data, according to which 45% of entrepreneurs have faced the violation of their rights by the authorities in recent years, and only 8% had problems with organized crime[15]. It is no coincidence that small entrepreneurs have a very high level of distrust in the judicial system. Among our respondents, the proportion of people who do not trust the court is 46%, while only 18% think otherwise. More than 53% of the respondents are sure that judges are corrupt, and only 13% believe in their integrity (among all the employed, respectively, 44.1 and 18.4%).

Due to these circumstances, as well as certain specifics of lifestyle, entrepreneurs engaged in small business have a low level of law-abidance. In the course of the survey 49.3% of the entrepreneurs agreed that in Russia it is impossible to live without violating the law *(tab. 1)*. And this figure is 7.5 percentage points higher than that among all the employees. About one-third of the respondents (32.3%) more or less agreed with the statement "If the supreme state or political figures do not comply with the laws, then common people may do the same". And almost a quarter of the respondents (23.4%) expresses the opinion that if a person believes the law is unjust, he/she has the right to "dodge it".

The lack of a reliable and efficient judicial system, the lack of protection of property rights, the excessive interference

[15] Zor'kin V.D. *Osvoboditel'nye reformy i pravovaya modernizatsiya Rossii: doklad na nauchno-prakticheskoi konferentsii "Velikie reformy i modernizatsiya Rossii", Sankt-Peterburg, 3 marta 2011 g.* [Liberation Reforms and Legal Modernization of Russia: Report on the Research-to-Practice Conference "Great Reforms and Russia's Modernization", Saint Petersburg, March 3, 2011]. Available at: http://isknaisk.ru/index.php?option=com_content&task=view&id=2817&Itemid=31

Table 1. Evaluation judgments that characterize the attitude of the respondents towards the necessity to observe the law (in % of the number of respondents)

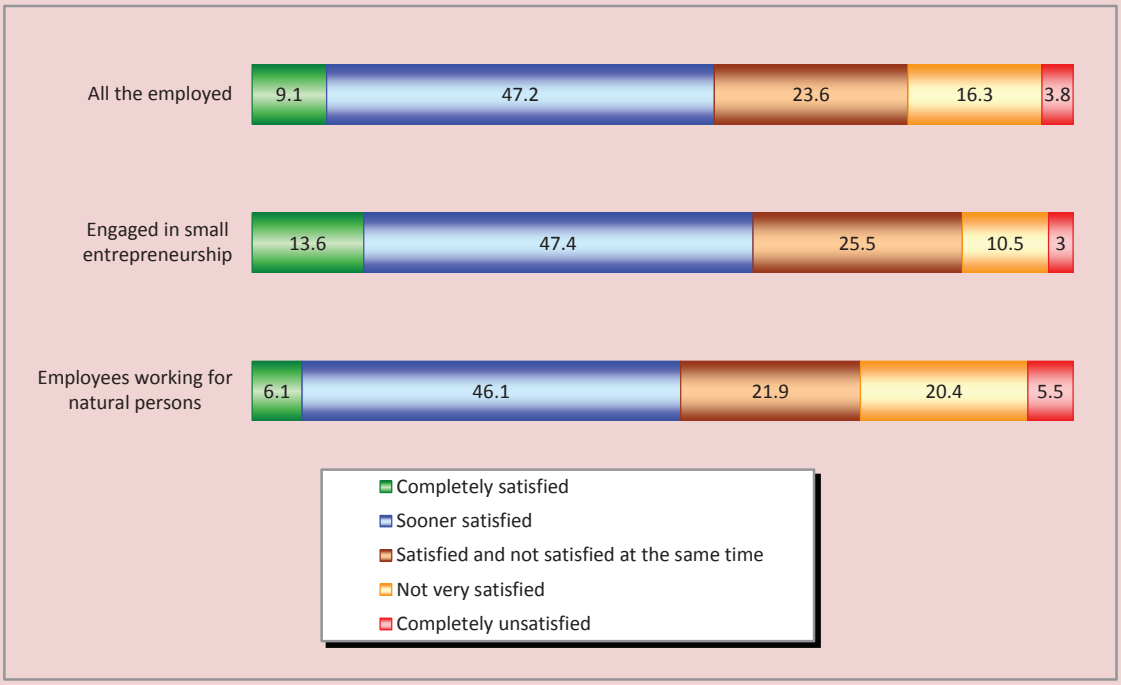
Judgement	Employed in general		Engaged in small business	
	Agree	Do not agree	Agree	Do not agree
If a person believes the law is unjust, he/she has the right to "dodge it"	19.7	59.8	23.4	59.0
in Russia it is impossible to live without violating the law	41.8	30.4	49.3	28.8
If the supreme state or political figures do not comply with the laws, then common people may do the same	28.0	49.8	32.3	50.6

of law enforcement agencies in entrepreneurial activity, along with high taxes and all sorts of bureaucratic obstacles are the factors that hinder the development of existing business and impede the development of entrepreneurial activity. This can explain the fact that the surveyed entrepreneurs more often than other employed people indicate the importance of establishing fair and independent courts and ensuring law and order in the country. Entrepreneurs want to live and work in transparent and stable conditions, and as for their low level of compliance with the law, it is often forced, due to the fact that they constantly have to deal with crime, abuse of power and bribery of officials and the police.

The study reveals the ambiguity of social well-being of entrepreneurs engaged in small business, as a consequence of the inconsistency of living conditions and the heterogeneity of this category of employees. Relying on their own strength and capabilities, adapt to changing socio-economic conditions allow them to rate their health higher than with other people. As can be seen from figure 1, the representatives of the small business more than among employees in General, the proportion of people in more or less satisfied with their lives (61% vs. 56.3 per cent), and almost one and a half times less than those who are dissatisfied with their existence (13,5% versus 20.1%). Noteworthy and noticeable predominance of this indicator dealing with small business and over engaged in gainful employment outside the enterprise (for individuals), a significant proportion of which is associated with the informal sector. Among the various professional groups, higher levels of social well-being differ only in the heads (representatives) of public authorities and management at all levels, as well as specialists of the highest qualification.

Assessing the current level of well-being taking into account specific circumstances, life in general, whether it is successful or unsuccessful, more than half of respondents described themselves as very happy and quite happy (21.5 and 32.5%, respectively). In addition, 37.1% of the respondents indicate that they are sooner happy than unhappy, and the proportion of those, who are not very happy or completely unhappy, amounted to only 8.9%. The feeling of happiness as the highest state of inner satisfaction with the conditions of one's existence does not rule out temporary

Figure 1. Satisfaction with their life in general (in % of the number of respondents)



dissatisfaction with certain aspects of life, including the relations in the family, at work, and other aspects of employment, health, etc. It is no coincidence that one in five respondents who consider themselves happy, was not able to say for sure that he/she was satisfied with his/her life in general.

In comparison with the majority of the population, entrepreneurs are more persistent and mobile – they change their place of residence and type of activity more often. They are more inclined to risk, more tolerable to temporary failures and unexpected obstacles, and they also feel successful and happy more often than people who are not involved in entrepreneurship. Those who are not engaged in entrepreneurial activities, most often explain this by a lack of entrepreneurial talent, the need to pay high taxes, the imperfection and corruption of the judicial system, etc.

It is necessary to point out an interesting fact that not only entrepreneurs have an increased level of social feeling, but even those who only tried to start their own business. This may indicate that entrepreneurial activity appears to be a more important factor in the reduction of social discomfort than achieving success in this area. Having failed in one sphere of activity, enterprising and active people switch their attention to other spheres and most often find their niche. Part of such people is characterized by high willingness to act even when they assess

their opportunities as limited. And as practice shows, in the periods of social transformations and breaking points in life, it is people with inflated self-esteem that often turn out in a better position than those who follow the "voice of reason". Inflated self-esteem becomes a way of mobilizing their own resource necessary for achieving success in another, more complex, level of social activity and moving into a more prestigious social group.

Entrepreneurs engaged in small business have a high level of satisfaction with their work in general, which is higher than the total level of satisfaction with the work among other employees (74.9% vs. 65.5%). They also have higher satisfaction with aspects of their work such as working conditions (67.4% vs. 64.2%) and, especially, labor remuneration (57.3% compared to 38.2%). But at the same time, many respondents express the desire to earn even more. Many are not satisfied with occupational hazards such as high tension, irregular working day, absence of a normal work and rest schedule, etc. Independent entrepreneurial activity takes a lot of time and effort, which affects the psychological condition. Thus, the respondents engaged in the sphere of small business, experience the following conditions almost to the same extent as other workers: periodic depression (13.8% vs. 13.5%), weakness of memory (15.1% vs. 14.2%) and chronic insomnia (10.9% vs. 10.1%); but they are significantly more likely to feel anxiety and frequent panic attacks (20.5% vs. 16.8%), nervousness (29.7% vs. 26%), fits of anger and spontaneous aggression (26.8% vs. 21.7%).

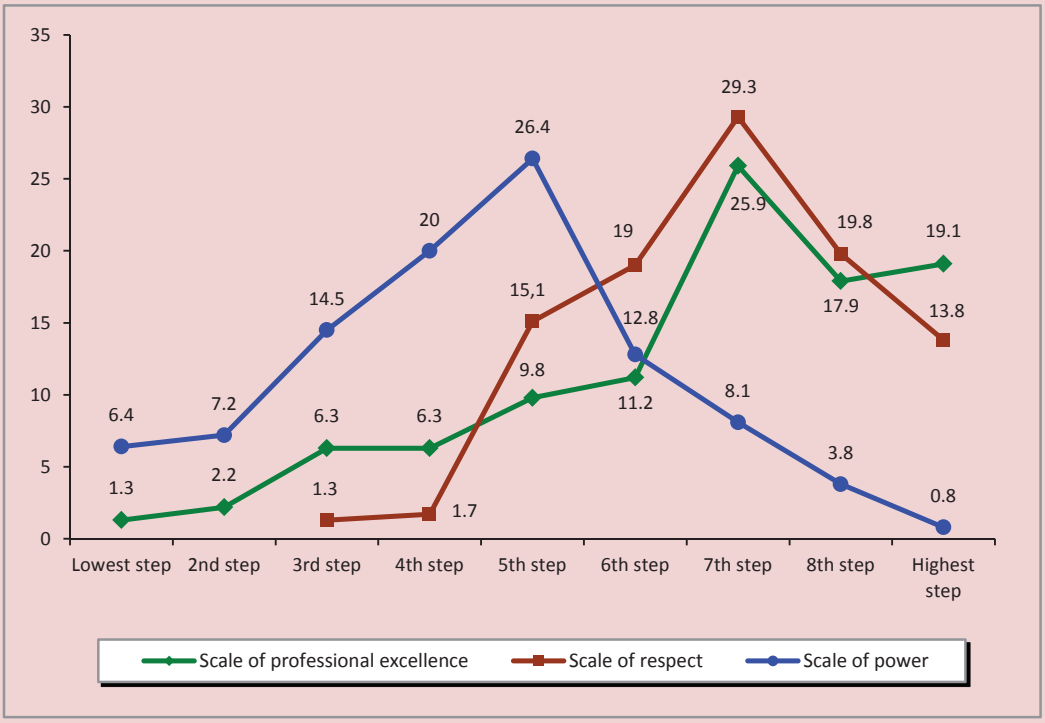
High level of job satisfaction among entrepreneurs corresponds to the high self-assessment of their professional skills. Defining their position on the 9-step scale of professional skill ("beginner, student" – "high-class professional"), 62.9% of the respondents placed themselves at the three upper levels of the scale, and only 27.3% – at the three middle levels, and 9.8% – at the three lower levels *(fig. 2)*.

Comparison of these data with the estimates of all the employed shows that entrepreneurs assess their skills higher than the working population as a whole, being second only to legislators, managers, and specialists of the highest level. But at the same time, their professional identification is not so pronounced in comparison to other employed.

Thus, if 68.7% of all the employed feel unity with people of the same profession and occupation, then the figure among the surveyed entrepreneurs is 63.6%. They are less concerned about the prestige of their work and the ability to influence other people. Few of them are eager to learn new knowledge and technology. In the last 12 months preceding the survey, only 2.5% of them attended certain educational courses, including language courses and vocational training.

Currently there is not much hope for intensive change in the mass notions of this category of the employed, which make it possible to assess the extension of the process of formation of modernization consciousness that can become a factor in economic recovery. We agree that small businesses have already made a significant

Figure 2. Distribution of the respondents by the levels of the scales of professional excellence, respect and power, %

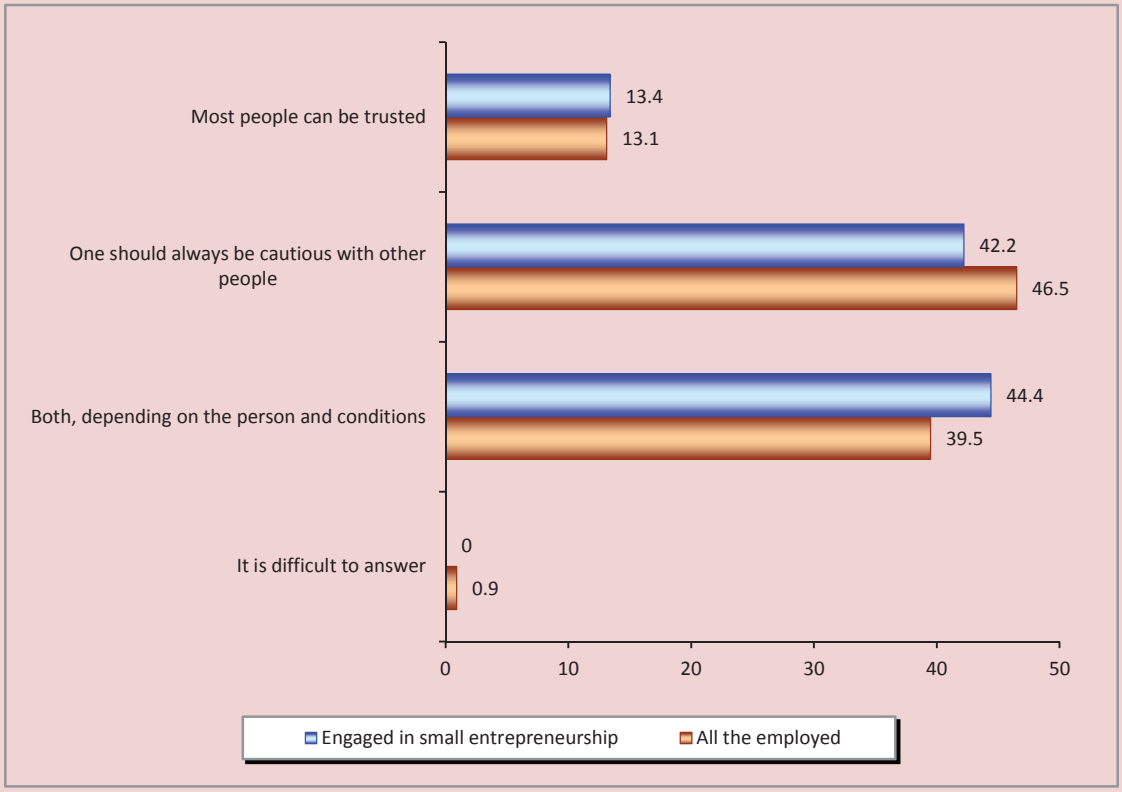


contribution to the modernization of retail trade and consumer services, but its insufficient penetration in "high-tech" sectors such as industrial production and scientific research indicates its minor role in those innovation processes that are a crucial factor in scientific and technological progress and economic growth[16]. And over the years, this situation does not change, in fact. Although, as the experience of most developed countries shows, the role of small business in innovation can be very significant.

A vast majority of surveyed small employers assess highly not only the level of their professional skills, but also the attitude of other people toward them. This can be proved by simply indicating that, according to self-assessments, 62.9% of the respondents placed themselves at the three upper levels and 35.8% – at the three stages of the mid-level of the 9-step scale of respect. As for the estimates of possession of authority, they prove to be much lower: only 12.7% of the respondents say they have great authority, while the majority, reaching 59.2%, is located on the mid-level of this scale, and 28.1% say they do not possess any authority and place themselves at the three lower levels.

[16] Diligenskii G.G. *Lyudi srednego klassa* [People of the Middle Class]. Moscow: Institut Fonda "Obshchestvennoe mnenie", 2002. P. 162.

Figure 3. Level of trust in other people (in % of the number of respondents)



Entrepreneurs have a more rational and pragmatic approach in assessing how to build relationships with other people. We are talking about trust in other people in general, i.e. in strangers who are not relatives, friends, close friends, co-workers, colleagues, etc.; such trust is called generalized trust in modern English scientific literature.

The presence of this trend is evidenced by the increased percentage of persons who share a rather pragmatic viewpoint, i.e. they believe that one should trust or not trust other people depending on what qualities they have, what are their virtues and shortcomings, and how they behave in particular situations, etc., *(fig. 3)*. But, when considering these data, one should not overlook the fact that "the decision to trust or distrust is generated mainly by the emotional sphere, and its rationalization in many cases requires a lot of efforts and skills"[17]. As for those who believe that most people can be trusted, there are as few of them among entrepreneurs as among persons with other types of employment (13.4% vs. 13.1%).

[17] Belyanin A.V., Zinchenko V.P. *Doverie v ekonomike i obshchestvennoi zhizni* [Trust in the Economy and Public Life]. Moscow: Fond "Liberal'naya missiya", 2010. P. 66.

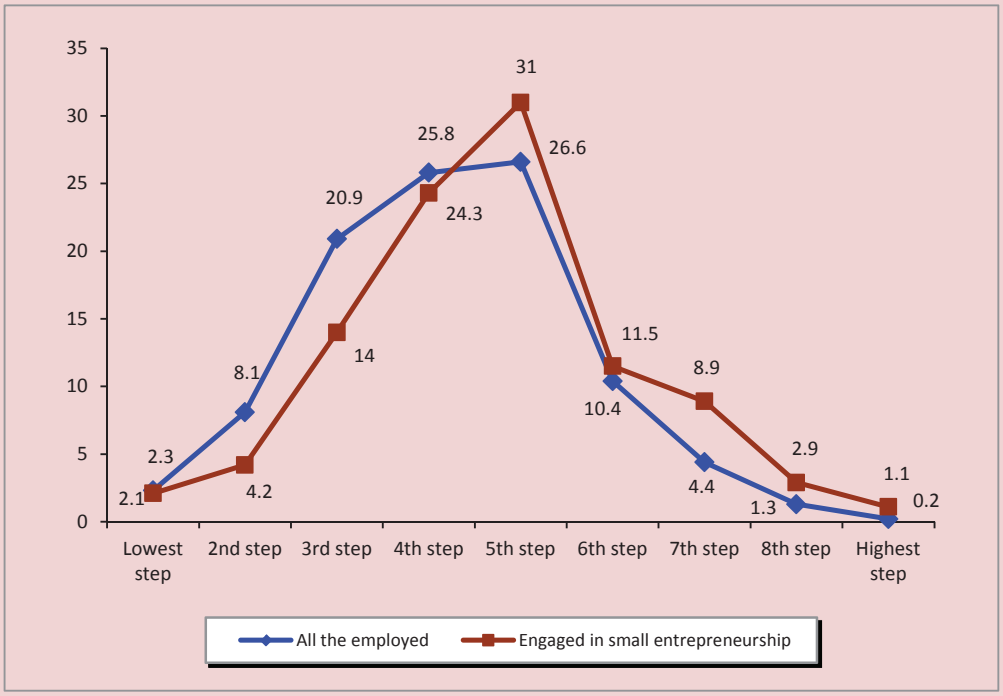
The analysis shows that the failure in starting one's own business, the failure in organizing any other private business significantly increases the distrust of an individual in other people.

More than half of losers believe that one should always be very careful and cautious with other people, while only 36% share a rational and balanced viewpoint. The rational viewpoint is shared mainly by legislators, public officials, senior and middle managers, and specialists of the highest qualification, i.e., the most educated and informed citizens, many of whom have extensive experience in leadership and in working directly with people.

The level of satisfaction of small entrepreneurs with their financial situation is only slightly higher than that among the rest of the employed (31.8% against 25.9%). But the differences were even less significant in the estimates of the changes in financial position of one's family in the year preceding the survey.

For instance, among the representatives of small business, 31.4% feel the improvement of the financial position of their families, and only 9.2 say it has deteriorated, while the majority has not noticed any serious changes. At the same time, these shares among other employed are, respectively, 31 and 12.2%. The overall picture of the financial situation of the respondents engaged in small business is supplemented by the following data *(fig. 4)*.

Figure 4. Distribution of the respondents by levels of the scale of financial well-being, in %



As for the purchasing opportunities of small entrepreneurs, they far surpass the opportunities of other employees. In particular, among the representatives of small business there are in 1.5–2 times more of those who are able to improve their housing conditions, i.e., to buy an apartment, house, part of the house (20.9% vs. 10.1%); to save money for major purchases, like a car, house, furniture, jewelry, etc. (42.3% vs. 24.8%); to spend a family vacation abroad (34.3% vs. 22%). In addition, among those entrepreneurs to whom it applies, 85.5% are able to pay for their children's extra tuition at music school, language courses, sports clubs, creative circles; 69.7% can pay for their children's tuition at the university (among other employed – 44.1 and 67.7%, respectively).

These differences are even more significant if we consider the quality of purchased goods and services. Obviously, people with different financial well-being have different views on what it means to improve their living conditions, to buy a new car, to choose a prestigious university for their child.

Those engaged in small business show moderate optimism or anxiety in the estimates of personal and family life prospects. In recent years, like many other people in general, they have no expectations of drastic deterioration of life; they also have no confidence that the situation will improve or remain stable. Their life plans are cautious, but quite pragmatic. In late 2012 45.6% of the respondents hoped for a better life in the next 12 months, and 36% – for the preservation of the achieved level of well-being.

And at the same time, 61% of the respondents expressed concern that they will not be able to provide themselves with even the most necessary things in the course of the next year, while the absence of anxiety in this respect was typical only for one in every four people. About 46% of the respondents are to a greater or lesser extent concerned that they might lose their job.

It is necessary to pay attention to the fact that entrepreneurs, who are engaged in small businesses, are distinguished by a particularly noticeable influence of the nature and results of their professional activity on the degree of satisfaction with their life in general, and on the assessment of personal and family life prospects. They show a more pronounced dependence of the increase in the anxiety about the fact that in the course of the next year they will not be able to provide for themselves, on the reduction in the level of job satisfaction in general and its aspects such as wages, as well as on the growing concern about possible loss of work.

Thus, in its daily activities small business faces great difficulties, many of which require close attention. They include various kinds of administrative and tax barriers, high fines and corruption fees, lack of investment, lack of a reliable system of financial support in the regions, flaws in the judicial system, instability of legislation, low financial strength and general survival of small business. All this reduces the

level of entrepreneurial activity of the population; it also has a negative impact on social well-being of entrepreneurs and forces many of them either to choose those areas of activity that do not involve significant costs and provide a rapid return on investment, or to abandon the business and move to the shadow economy.

References

1. Abramova E.A. Samozanyatost' naseleniya kak stupen' pod''ema ekonomiki v period preodoleniya krizisa [Self-Employment as a Stage of Economic Recovery in the Period of Crisis]. *Prilozhenie k zhurnalu "Sovremennye naukoemkie tekhnologii"* [Supplement to the Journal "Modern High Technologies"], 2010, no. 1, pp. 5-11.
2. Aistov A.I. O razvitii nekotorykh form samozanyatosti v Rossii v 1994–2002 godakh [About the Development of Some Forms of Self-Employment in Russia in 1994–2002]. *Ekonomicheskii zhurnal VShE* [HSE Economic Journal], 2005, vol. 9, no. 2, pp. 185-215.
3. Antonets O. Biznes-illyuzii [Business Illusions]. *RBK* [RBC], 2014, no. 1, p. 33.
4. Belyanin A.V., Zinchenko V.P. *Doverie v ekonomike i obshchestvennoi zhizni* [Trust in the Economy and Public Life]. Moscow: Fond "Liberal'naya missiya", 2010. P. 66.
5. Gorshkov M.K., Sheregi F.E. Molodezh' Rossii: sotsiologicheskii portret [The Youth of Russia: a Sociological Portrait]. Moscow: TsSPiM, 2010. Pp. 186-187.
6. Diligenskii G.G. *Lyudi srednego klassa* [People of the Middle Class]. Moscow: Institut Fonda "Obshchestvennoe mnenie", 2002. P. 162.
7. Dudchenko O.N., Mytil' A.V. Dve modeli adaptatsii k sotsial'nym izmeneniyam [Two Models of Adaptation to Social Change]. *Rossiya: transformiruyushcheesya obshchestvo* [Russia: the Society under Transformation]. Ed. by V.A. Yadov. Moscow: Izd-vo "KANON-press-Ts", 2001. P. 610.
8. Zor'kin V.D. *Osvoboditel'nye reformy i pravovaya modernizatsiya Rossii: doklad na nauchno-prakticheskoi konferentsii "Velikie reformy i modernizatsiya Rossii", Sankt-Peterburg, 3 marta 2011 g.* [Liberation Reforms and Legal Modernization of Russia: Report on the Research-to-Practice Conference "Great Reforms and Russia's Modernization", Saint Petersburg, March 3, 2011]. Available at: http://isknaisk.ru/index.php?option=com_content&task=view&id=2817&Itemid=31
9. Kulikov S. Otechestvennyi biznes pridushili chinovniki [Domestic Business Smothered by Officials]. *Nezavisimaya gazeta* [Independent Newspaper], 2012, January 24.
10. Mansurov V.A. Vmesto vvedeniya. Issledovanie professional'nykh grupp rossiiskoi intelligentsii: situatsiya, metodologiya i metodika [In Lieu of an Introduction. Research into Professional Groups of the Russian Intelligentsia: the Situation, Methodology and Technique]. *Professional'nye gruppy intelligentsii* [Professional Groups of Intelligentsia]. Executive editor V.A. Mansurov. Moscow: Izd-vo Instituta sotsiologii RAN, 2003. P. 8.
11. *Metodologicheskie polozheniya po statistike* [Methodological Provisions of Statistics]. Issue 1. Moscow: Goskomstat Rossii, 1996.
12. *Molodezh' novoi Rossii: obraz zhizni i tsennostnye prioritety* [Young people of the New Russia: Lifestyle and Values]. Moscow: Institut sotsiologii RAN, 2007. Pp. 12-14.
13. *Obzor zanyatosti v Rossii* [Overview of Employment in Russia]. Issue 1 (1991–2000). Moscow: TEIS, 2002. P. 70.
14. *"OPORA Rossii": predprinimatel'skaya aktivnost' v strane ostaetsya nizkoi* [All-Russian Public Organization of Small and Medium-Sized Enterprises "OPORA Russia: Entrepreneurial Activity in the Country Remains Low]. Available at: http://www.creditforbusiness.ru/news/24757/
15. *Rossiya na novom perelome: strakhi i trevogi* [Russia at a New Turning Point: Fears and Anxiety]. Ed. by M.K. Gorshkov, R. Krumm, V.V. Petukhov. Moscow: Al'fa-M, 2009. P. 12.

16. *"Rossiiskii monitoring ekonomicheskogo polozheniya i zdorov'ya naseleniya NIU VShE (RLMS-HSE)" provoditsya NIU VShE i ZAO "Demoskop" pri uchastii Tsentra narodonaseleniya Universiteta Severnoi Karoliny v Chapel Khille i Instituta sotsiologii Rossiiskoi akademii nauk* ["Russian Longitudinal Monitoring Survey of Economic Situation and Public Health NRU HSE" (RLMS-HSE) is carried out by NRU HSE and Demoscop CJSC with the Participation of the Carolina Population Center at the University of North Carolina at Chapel Hill and the Institute of Sociology of the Russian Academy of Sciences]. Available at: http://www.hse.ru/org/hse/rlms, http://www.cpc.unc.edu/projects/rlms.

Cited works

1. Abramova E.A. Self-Employment as a Stage of Economic Recovery in the Period of Crisis. *Supplement to the Journal "Modern High Technologies",* 2010, no. 1, pp. 5-11.
2. Aistov A.I. About the Development of Some Forms of Self-Employment in Russia in 1994–2002. *HSE Economic Journal,* 2005, vol. 9, no. 2, pp. 185-215.
3. Antonets O. Business Illusions. *RBC,* 2014, no. 1, p. 33.
4. Belyanin A.V., Zinchenko V.P. *Trust in the Economy and Public Life*. Moscow: Fond "Liberal'naya missiya", 2010. P. 66.
5. Gorshkov M.K., Sheregi F.E. *The Youth of Russia: a Sociological Portrait*. Moscow: TsSPiM, 2010. Pp. 186-187.
6. Diligenskii G.G. *People of the Middle Class*. Moscow: Institut Fonda "Obshchestvennoe mnenie", 2002. P. 162.
7. Dudchenko O.N., Mytil' A.V. Two Models of Adaptation to Social Change. *Russia: the Society under Transformation*. Ed. by V.A. Yadov. Moscow: Izd-vo "KANON-press-Ts", 2001. P. 610.
8. Zor'kin V.D. *Liberation Reforms and Legal Modernization of Russia: Report on the Research-to-Practice Conference "Great Reforms and Russia's Modernization", Saint Petersburg, March 3, 2011.* Available at: http://isknaisk.ru/index.php?option=com_content&task=view&id=2817&Itemid=31
9. Kulikov S. Domestic Business Smothered by Officials. *Independent Newspaper*, 2012, January 24.
10. Mansurov V.A. In Lieu of an Introduction. Research into Professional Groups of the Russian Intelligentsia: the Situation, Methodology and Technique. *Professional Groups of Intelligentsia*. Executive editor V.A. Mansurov. Moscow: Izd-vo Instituta sotsiologii RAN, 2003. P. 8.
11. *Methodological Provisions of Statistics*. Issue 1. Moscow: Goskomstat Rossii, 1996.
12. *Young people of the New Russia: Lifestyle and Values*. Moscow: Institut sotsiologii RAN, 2007. Pp. 12-14.
13. *Overview of Employment in Russia*. Issue 1 (1991–2000). Moscow: TEIS, 2002. P. 70.
14. *All-Russian Public Organization of Small and Medium-Sized Enterprises "OPORA Russia: Entrepreneurial Activity in the Country Remains Low*. Available at: http://www.creditforbusiness.ru/news/24757/
15. *Russia at a New Turning Point: Fears and Anxiety*. Ed. by M.K. Gorshkov, R. Krumm, V.V. Petukhov. Moscow: Al'fa-M, 2009. P. 12.
16. *"Russian Longitudinal Monitoring Survey of Economic Situation and Public Health NRU HSE" (RLMS-HSE) is carried out by NRU HSE and Demoscop CJSC with the Participation of the Carolina Population Center at the University of North Carolina at Chapel Hill and the Institute of Sociology of the Russian Academy of Sciences*. Available at: http://www.hse.ru/org/hse/rlms, http://www.cpc.unc.edu/projects/rlms.

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Dynamics of investment in fixed capital in the economy of the Northern regions

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Abstract. The article describes characteristics and trends of investment in fixed capital of the Northern regions. It singles out phases of rapid pre-crisis growth, crisis, post-crisis growth and stagnation. Stagnation and decline in recent years are caused by completed major investment projects, reduced own funds of enterprises, limited availability of investment resources and increased capital outflow. The article reveals

that the growth of investment in fixed capital of the North in the post-crisis period is provided by the regions, carrying out major investment in oil and gas pipeline transport, oil extraction, production and distribution of electricity, gas and water.

The changes in the sectoral structure of investment in fixed capital of the Northern regions are barely visible; the share of investment in the traded sector is still high, especially in mining, due to the Northern regions' specialization in the extractive industries. The share of investment in the public sector and social services remains low. The specific structure of investment in fixed capital has changed: the share of investment in buildings (excluding housing) and structures has increased greatly; the share of investment in machinery, equipment, vehicles has decreased due to insufficient investment in mining enterprises and financial shortages in manufacturing.

In most regions the structure of investment in fixed capital by directions is characterized by the increase in the share of investment in machinery, equipment, vehicles in new construction, investment in buildings and structures and the decline in the proportion of investment in machinery, equipment, vehicles modernization and reconstruction and acquisition of new fixed assets. The dynamics and the inefficient structure of investment in fixed assets and directions testify the shortage of investment in innovation in the Northern regions.

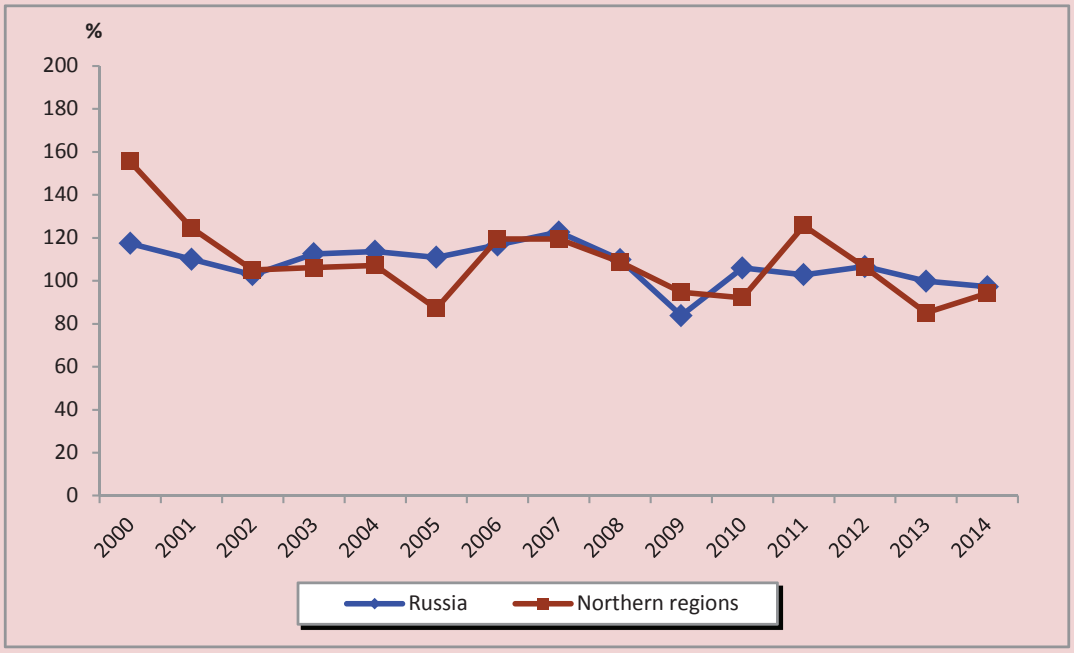
Key words: stagnation; investment in fixed capital; structure of investment by types, new construction, modernization and reconstruction; purchase of fixed assets; Northern regions.

Nowadays the main task of the country's economy is to find a way out of stagnation. Its practical solution is directly related to overcoming deceleration and boosting economic growth by means of increased investment, primarily in the real sector as the main factor in modernization and economic growth. The situation is especially critical in the Northern regions, as the productive facilities are worn out, and the funding of investment does not fully ensure its updating and necessary technological and structural changes in the economy. These circumstances determine the need to study characteristics of dynamics, territorial, sectoral, and specific structures of investment in the fixed capital of the Northern regions.

Analysis of investment dynamics

Dynamics of investment in fixed capital of the economy in the North in 2000–2014 (January–February) was characterized by an unstable trend (*figure*) [5, pp. 922-923; 7, pp. 932-933; 11]. In the period under analysis in the North the indices of physical volume of investment in fixed capital dropped twice sharply, falling below 100% in 2005 and during the 2009–2010 global crises, then they grew rapidly in 2011 and again quickly fell in 2013–2014. In the first case the recession was caused by their sharp reduction in such investment-intensive regions, as Yamalo-Nenets Autonomous Okrug and Khanty-Mansi Autonomous Okrug, due to the termination of investment cycles; in the second case – by the consequences of the global economic and financial crisis; in the third – by the low base effect; in the fourth – by the completion of major investment projects and the entrepreneurs' expectations for more favorable conditions for investments.

Dynamics of investment in fixed capital of the Northern regions and Russia in 2000–2014, %



In Russia, compared with the North, the dynamics of investment in the economy was more smooth, it did not have a sharp drop (below 100%) in investment in 2005, but had a short-term downturn in 2009, then followed by significant growth in 2010–2012; in 2013–2014 there was a slight decline [5, pp. 922-923; 7, pp. 932-933; 11]. The main reasons are the following: restricted availability of investment resources (direct investment and loans) for domestic enterprises; speculation on the currency market due to the ruble depreciation; suspension of the natural monopolies' investment programs due to the tariffs freezing in 2014 and the sharp increase in the capital outflow, which significantly exceeds the volume of lending to the economy due to the events in Ukraine.

It should be noted that during the crisis in the Northern regions of Russia the decline in investment was much deeper than the drop in GRP and GDP. So, in 2009 investment in fixed capital in the North and in the Russian Federation fell respectively to 5.4 and 16.2% against 3.3% of GRP and 7.6% of GDP [4, pp. 296-293; 7, pp. 932-933].

In 2000–2012[1] the dynamics of investment in fixed capital of the North had three phases: *growth* (2000–2008), *crisis recession* (2008–2009) and *post-crisis growth* (2009–2012) (*tab. 1*). The recovery phase was characterized by the rapid growth of investment in the Northern regions, which amounted to 97.9% (in Russia – 152.4%).

[1] The analyzed period is limited to 2012 due to the lack of the Russian Statistics data for 2013

The revenue from large-scale export of raw materials, cheap foreign loans and government funding were key factors promoting rapid investment growth in the Northern regions and the country in general. Nenets Autonomous Okrug, the Sakhalin Oblast and the Arkhangelsk Oblast, Chukotka Autonomous Okrug, Kamchatka Krai and the Sakha (Yakutia) Republic had the highest rates of investment growth in 2000–2008 due to large investment in oil and gas production, diamond and gold mining, and defense industry. Khanty-Mansi Autonomous Okrug and the Komi Republic had the lowest rates due to the high base effect.

The *crisis years*, on the contrary, were marked by the deep decline of investment in the fixed capital of the Northern regions. In 2008–2009 it amounted to 7.9% (in Russia – 16.3%). The drop was especially sharp in Nenets Autonomous Okrug, the Republic of Karelia and the Magadan Oblast due to the global financial crisis consequences, namely drastic reduction of the funds from parent enterprises and considerable appreciation of the loans provided by foreign and domestic banks. It was also partly affected by the regions' specialization on the industries sensitive to decline.

The growth of investment in fixed capital in the crisis years was observed in Chukotka Autonomous Okrug, Kamchatka Krai, the Komi Republic and the Sakha (Yakutia) Republic due to the continuous financing of large investment projects, particularly, the construction of the "Eastern Siberia–Pacific Ocean" oil pipeline (ESPO) and the "Bovanenkovo-Ukhta" gas pipeline, the launch of the "World" and the "Aykhal" mines in the

Table 1. Growth of investment in fixed capital of the Northern regions, 2000–2012, %*

Regions	2000–2008	2008–2009	2009–2012	2010–2012
Russian Federation, total	152.4	-16.3	16.7	9.6
Northern regions, total	97.9	-7.9	20.7	31.8
Republic of Karelia	85.2	-31.9	26.3	26.4
Komi Republic	65.1	24.7	110.6	66.6
Arkhangelsk Oblast	364.2	-50.2	37.7	22.8
Nenets Autonomous Okrug	651.4	-61.6	-41.8	-32.5
Murmansk Oblast	152.3	-18.4	34.8	23.9
Khanty-Mansi Autonomous Okrug	44.5	-4.3	25.3	25.5
Yamalo-Nenets Autonomous Okrug	84.6	-10.8	-19.8	25.6
Sakha (Yakutia) Republic)	256.7	9.4	61.7	36.2
Kamchatka Krai	280.2	61.9	12.9	1.6
Magadan Oblast	154.9	-24.6	231.4	65.7
Sakhalin Oblast	446.6	-16.3	-59.9	18.4
Chukotka Autonomous Okrug	282.4	61.9	104.5	503.2

* Calculated by: [5, pp. 922-923, pp. 918-919; 7, pp. 928-929, pp. 932-933].

Sakha (Yakutia) Republic [7] and the "Step" investment project in the pulp and paper industry in the Komi Republic [8] and investment in the extraction of gold and silver in Chukotka Autonomous Okrug and Kamchatka Krai [9].

The *post-crisis period* (2009–2012) was characterized by the significant growth rates of investment in fixed capital of the Northern regions economy, which amounted to 20.7% (in Russia – 9.5%). They were especially high in the Magadan Oblast, the Komi Republic, Chukotka Autonomous Okrug mainly due to the allocations to mineral extraction, transport and the low base effect. At the same time, the negative growth rates were recorded in the Sakhalin Oblast, Nenets Autonomous district and Yamalo-Nenets Autonomous Okrug due to the completion of investment projects, the small amount of own funds and the limited availability of investment resources (direct investments and loans).

The regions' contribution to the investment growth rates

The regions' contribution to the growth rates of investment in fixed capital (IFC) was determined by the re-calculation of nominal volumes in 2004 constant prices and the calculation of absolute growth (CAG) as the difference between the actual volume (IFC) of the regions of the current and base years and the correlation of absolute values of growth (IFC) of the regions with the overall growth (IFC) in percent.

The pre-crisis years (2005–2008) were characterized by the positive contributions of all regions to the growth rates of investment in fixed capital of the Northern regions. Export-oriented Yamalo-Nenets Autonomous Okrug, Khanty-Mansi Autonomous Okrug and the Sakha (Yakutia) Republic made the greatest contribution due to the revenues from oil, gas and diamonds export and the inflow of cheap foreign loans (*tab. 2*). Nenets Autonomous Okrug, the Sakhalin Oblast and the Arkhangelsk Oblast made a less significant contribution. Chukotka Autonomous Okrug, the Magadan Oblast and the Republic of Karelia made the lowest contribution. In general, despite a slight decrease, the Northern regions' contribution to the growth of investment in fixed capital of the Russian economy remains substantial – 14.9%.

The *crisis years* (2008–2009) were marked by the drastic negative contribution (20.8%) of the Northern regions to the fall of investment in fixed capital of the country (see tab. 2). It was manifested in the oil and gas producing regions, such as Nenets Autonomous Okrug, Yamalo-Nenets Autonomous Okrug, Khanty-Mansi Autonomous Okrug and the Arkhangelsk Oblast, to the greatest extent. The main reasons were the following: the sharp reduction of own and borrowed funds due to substantial decline in the world oil and gas prices, the rising cost of loans on the global and domestic markets, the investors' waiting for more favorable conditions to invest. During this period, only six regions made insignificant positive contribution to investment growth.

The *post-crisis period* was characterized by the Northern regions' large contribution

Table 2. Contribution to the growth of investment in fixed capital of the Northern regions' economy in 2005–2012, %*

Regions	2005–2008		2008–2009		2009–2012	
	Russian Federation	Northern regions	Russian Federation	Northern regions	Russian Federation	Northern regions
Economy, total	100	100	100	100	100	100
Northern regions	14.9	-	-20.8	-	22.7	
Republic of Karelia	0.3	1.9	-0.7	-3.2	0.4	1.9
Komi Republic	0.7	5.0	1.1	5.2	9.5	41.7
Arkhangelsk Oblast	1.1	7.3	-4.1	-19.9	1.1	4.9
Nenets Autonomous Okrug	1.5	9.9	-5.8	-27.7	-1.2	-5.1
Murmansk Oblast	0.6	4.1	-1.9	-9.2	1.2	5.2
Khanty-Mansi Autonomous Okrug	3.0	20.4	-3.5	-17.1	9.1	39.9
Yamalo-Nenets Autonomous Okrug	3.7	25.0	-5.1	-24.4	-5.9	-25.9
Sakha (Yakutia) Republic	2.3	15.1	2.3	11.0	8.6	38.0
Kamchatka Krai	0.1	0.6	0.1	0.3	0.1	0.6
Magadan Oblast	0.2	1.1	-.5	11.0	2.0	8.9
Sakhalin Oblast	1.4	9.1	-2.2	0.3	-3.3	-14.7
Chukotka Autonomous Okrug	0.1	0.7	-0.5	11.0	1.0	4.6

* Calculated by: [5, pp. 922-923, pp. 918-919; 7, pp. 928-929, pp. 932-933].

to the growth rate of investment in fixed capital of the country's economy (22.7%) due to the Komi Republic, Khanty-Mansi Autonomous Okrug and the Sakha (Yakutia) Republic (see tab. 2). At the same time, the large negative contribution of Yamalo-Nenets Autonomous Okrug and the Sakhalin Oblast was associated with the relocation of significant funds to other regions by OAO Gazprom, for example to the Komi Republic, the construction of the "Yamal-Europe" gas pipeline.

Sectoral structure of investment

Recently the structure of investment in fixed capital by sectors and branches of the Northern regions' economic activity has not changed radically. Thus, in 2005–2012 the share of investment of *traded* and *non-traded sectors* remained almost unchanged and amounted to 58.9 and 35.8%, respectively, while that of the public and social services sector fell considerably: from 5.8 to 4.9% (*tab. 3*). Let us mention that the share of investment of the traded sector in the Northern regions was significantly higher than in Russia, and the share of the non-traded sector and the public and social services sector, on the contrary, was much lower. The Northern regions' raw-material orientation caused this situation.

Investment in mineral extraction prevails in the *traded sector* of the Northern regions (see tab. 3). In 2012 its share was almost 3.5 times higher than in Russia. The share of investment in manufacturing

Table 3. Structure of investment in fixed capital in terms of the key sectors of the RF Northern regions (in current prices), %*

Region	2005		2008		2012	
	Russian Federation	Northern regions	Russian Federation	Northern regions	Russian Federation	Northern regions
Economy, total	100	100	100	100	100	100
Traded sector	34.3	58.5	34.2	57.7	35.9	59.2
Agriculture, hunting and forestry	4.0	0.6	4.4	0.4	4.3	0.3
Fisheries	2.1	1.0	0.1	0.1	0.1	0.3
Mining	13.4	55.3	14.1	54.5	16.4	56.8
Manufacturing	16.8	2.3	15.7	2.7	15.1	1.8
Non-traded sector	58.1	35.7	65.8	42.3	54.7	35.9
Production and distribution of electricity, gas and water	6.6	5.1	7.7	3.8	10.7	7.2
Construction	3.5	3.1	3.4	4.1	3.0	1.8
Wholesale and retail trade; repair of motor vehicles, motorcycles, etc.	3.9	0.5	3.2	0.5	3.9	0.3
Hotels and restaurants	0.3	0.1	0.4	0.1	0.5	0.0
Transport and communication	25.9	19.9	24.4	23.6	31.5	21.4
Financial activities	1.4	0.3	0.9	0.3	3.3	0.6
Real estate transactions, lease and services	16.6	6.6	16.7	5.3	1.8	4.5
Sector of government and social services	7.7	5.8	8.7	4.7	9.4	4.9
Public administration and military security, mandatory social insurance	1.5	1.1	1.7	1.2	1.9	1.4
Education	1.5	1.8	2.0	1.3	1.9	1.4
Health and social services	2.2	1.4	2.4	1.2	2.3	1.1
Provision of public utilities, social and personal services	2.4	1.6	2.7	1.1	3.2	1.0

* Calculated by: [5, pp. 934-937; 6, pp. 542-545; 7, pp. 942-945].

industry is still insufficient – 8 times less than in the country as a whole. Less than 1% accrues to agriculture, hunting and forestry, fishing and fish farming. In general, investment in the traded sector is not enough to accelerate the pace of economic growth; the sectoral structure of investment remains inefficient, as the allocations to fixed capital of manufacturing and agriculture are negligible.

Nenets Autonomous Okrug (91.9%), Khanty-Mansi Autonomous Okrug (73.4%), Yamalo-Nenets Autonomous Okrug (67.1%), Chukotka Autonomous Okrug (61.9%) and the Sakhalin Oblast (61.9%) had the highest share of investment in fixed capital of the traded sector among the Northern regions in 2012. Investment in mineral extraction prevailed [5, pp. 934-937; 6, pp. 542-545; 7, pp. 942-945].

Kamchatka Krai (24.3%), the Komi Republic (26.2%) and the Sakha (Yakutia) Republic (33.5%) have the low share of investment. In the first two regions it was caused by large-scale investment in fixed capital of transport (pipelines), and in the third – in production and distribution of electricity, gas and water. The sectoral structure of investment of the traded sector is the best possible in the Republic of Karelia, where the funds are equally directed to mineral extraction (13.7%) and manufacturing (24.5%) [5, pp. 934-937; 6, pp. 542-545; 7, pp. 942-945].

The *non-traded sector* of the Northern regions is marked by investment in fixed capital of transport and communication. Their share amounted to 21.4% in 2012 due to the peripheral location of the regions and the laying of pipelines of large extent (see tab. 3). They are followed by investment in production and distribution of electricity, gas and water, real estate transactions, lease and services, etc. In general, the sectoral structure of investment in the non-traded sector of the North is not effective, as little funds are given to such important industries, as construction, wholesale and retail trade, hotel and restaurant activities, etc.

In 2012 among the Northern regions the Komi Republic (71.6%), the Sakha (Yakutia) Republic (57.8%) and Kamchatka Krai (56.7%) had the largest share of investment in the non-traded sector, mostly investment in transport and communications, real estate transactions, lease and services [5, pp. 934-937; 6, pp. 542-545; 7, pp. 942-945]. Nenets Autonomous Okrug (7.1%), Khanty-Mansi Autonomous Okrug (23.6%), Yamalo-Nenets Autonomous Okrug (29.4%) and Chukotka Autonomous Okrug (33.5%) had the low share of the non-traded sector due to relatively low investment in infrastructure and high investment in the traded sector [5, pp. 934-937; 6, pp. 542-545; 7, pp. 942-945].

There were no significant changes in the sectoral structure of investment of the *public and social services sector* of the North in 2005–2012, although the share of investment in education, public administration and military security increased slightly (see tab. 3).

The regions with the large share of investment in fixed capital of this sector were the following in 2012: Kamchatka Krai (19%) – due to massive investment in education and health and social services; the Murmansk Oblast (16.8%) and the Arkhangelsk Oblast (10.5%) – due to growing investment in public administration. Nenets Autonomous Okrug (1.0%), the Komi Republic (2.2%), Khanty-Mansi Autonomous Okrug (3.0%) and Yamalo-Nenets Autonomous Okrug (3.5%) were characterized by the small share of investment due to private enterprises' large scale financing of this sector, i.e., extra-budgetary funds.

In general, the sectoral structure of investment in fixed capital of the Northern regions in terms of their economies development can be considered normal; investment in the traded sector prevail, as it brings in return. However, large scale investment in mining operations on the

background of too modest investment in manufacturing raises concern. The share of investment in the public and social services sector, particularly, in education, health and public services, is very low.

Structure of investment by types

The *structure of investment in fixed capital by types of fixed assets* of the North has changed. So, in 2005–2012 the share of investment in machinery, equipment and vehicles decreased from 36.4 to 30.4% (in Russia – from 41.1 to 36.3%); the reduction (27.9%) was especially sharp in the 2009 crisis year (*tab. 4*).

This reduction is caused by the export-oriented enterprises' lack of interest in reindustrialization due to easily obtained large revenues in the pre-crisis and a lack of funds in the crisis and post-crisis periods. At the same time, there was an increase in the share of investment in housing, buildings (excluding housing) and structures due to grown investment in private housing construction and transmission devices (oil and gas pipelines, transmission lines), infrastructure (transport and terminal facilities) and environmental (waste disposal facilities and sewage treatment plants) objects. It should be noted that this structure is characterized by the high level of *other investment* associated with high costs for maintenance and deep exploratory drilling for oil and gas. The above trends are typical for the Russian economy as a whole.

The Murmansk Oblast (56.6%), the Magadan Oblast (45.0%), Kamchatka Krai (39.3%) and the Republic of Karelia (38.9%) had the highest share of investment in machinery, equipment and vehicles among the Northern regions in 2012 [3, pp. 59-64]. However, this rather indicates their specialization in manufacturing

Table 4. Dynamics of the structure of investment in fixed capital of the Northern regions by types of fixed assets in 2005–2012, %*

Types of fixed assets	2005	2006	2007	2008	2009	2010	2011	2012
Russian Federation								
Investment in fixed capital, total	100	100	100	100	100	100	100	100
Housing	12.0	11.8	13	13.6	15.3	11.4	12.7	15.2
Buildings (excluding housing) and structures	40.4	40.9	41.7	42.6	45.5	42.6	43.3	42.6
Machinery, equipment and vehicles	41.1	40.5	38.9	37.7	33.1	38.6	37.9	36.3
Other	6.5	6.8	6.4	6.1	6.1	7.4	6.1	5.9
Northern regions								
Investment in fixed capital, total	100	100	100	100	100	100	100	100
Housing	4.9	4.3	4.3	3.6	5.0	5.1	3.7	5.8
Buildings (excluding housing) and structures	47.6	52.3	47.4	48.9	52.7	53.4	54.1	54.7
Machinery, equipment and vehicles	36.4	33.2	37.7	35.2	27.9	27.3	32.4	30.4
Other	11.1	10.2	10.5	12.3	14.4	14.2	9.9	9.1

* Calculated by: [1, pp. 58-63; 3, pp. 59-64].

industries than the active modernization of industrial enterprises. The large proportion of investment in buildings (excluding housing) and structures, characteristic of the Sakhalin Oblast (81.5%), the Komi Republic (65.5%), Yamalo-Nenets Autonomous Okrug (62.4%) [3, pp. 59-64] is caused by the specificity of production technologies used in these regions (for example, ice-resistant platforms for oil and gas extraction in the Sakhalin Oblast, etc.) and the replacement and renewal of obsolete structures.

The recent years have witnessed positive and negative changes in investment *in fixed capital directions* in the Northern regions *(tab. 5)*.

The positive trends in 2007–2012 include the reduction in the proportion of investment in buildings and structures and the rise in the share of investment in machinery, equipment and vehicles in the *new construction*; the increase in the share of investment in buildings and structures in the *modernization*, *reconstruction* and *acquisition of new fixed assets*.

Table 5. Dynamics of the structure of investment in fixed capital of the Northern regions by the key directions in 2007–2012, %*

Direction	2007	2008	2009	2010	2011	2012
Russian Federation						
New construction						
Buildings and structures	78.3	77.9	76.5	75.1	75.6	75.2
Machinery, equipment, vehicles	11.9	77.9	14	14.8	14.7	15.5
Modernization and reconstruction						
Buildings and structures	61.1	60.5	61	64	61.8	75.2
Machinery, equipment, vehicles	36.4	36.7	35.8	33.2	32.9	15.5
Acquisition of new fixed assets						
Buildings and structures	4.6	6.3	7.2	7.1	7	5.8
Machinery, equipment, vehicles	88.8	88.9	88.1	89.9	90.1	91.1
Northern regions						
New construction						
Buildings and structures	78.3	73.0	76.1	76.8	76.1	75.4
Machinery, equipment, vehicles	11.9	13.8	11.4	8.3	12.8	12.4
Modernization and reconstruction						
Buildings and structures	61.1	64.2	67.9	63.2	71.1	70.9
Machinery, equipment, vehicles	36.4	25.9	23.1	31.5	21.3	22.2
Acquisition of new fixed assets						
Buildings and structures	4.6	10.0	13.7	11.8	11.3	11.4
Machinery, equipment, vehicles	88.8	81.8	78.8	83.6	82.7	85.6

*Calculated by: [1, pp. 64-69; 2, pp. 64-69; 3, p. 64-69].

The negative trends concern the decline in the share of investment in machinery, equipment, vehicle in the *modernization, reconstruction* and *acquisition of new fixed assets*.

In 2012 among the Northern regions the largest share of investment in buildings and structures in the new construction belonged to Kamchatka Krai (96.4%), Chukotka Autonomous Okrug (90.1%), the Republic of Karelia (86.2%) and the Magadan Oblast (84.1%); machinery, equipment and vehicles – the Murmansk Oblast (27.0%), the Komi Republic (19.7%) and the Magadan Oblast (14.1%) [3, pp. 64-69].

The large share of investment in buildings and structures in the modernization and reconstruction belonged to the Sakhalin Oblast (94.6%), Kamchatka Krai (86.2%), Chukotka Autonomous Okrug (85.6%) and the Republic of Karelia (84.2%); machinery, equipment and vehicles – the Murmansk Oblast (44.1%), the Magadan Oblast (43.6%) and the Sakha (Yakutia) Republic (32.3%) [3, p. 64-69].

In the acquisition of new fixed assets the large share (85.6%) belonged to investment in machinery, equipment and vehicles. Such investment was particularly high in the Republic of Karelia (97.1%), the Magadan Oblast (95.2%), Kamchatka Krai (94.4%), the Murmansk Oblast (93.8%) and Chukotka Autonomous Okrug (93.5%) [3, pp. 64-69].

Among the Northern regions the large share of investment in buildings and structures was characteristic of Nenets Autonomous Okrug (48.6%), the Sakha (Yakutia) Republic (16.0%) and the Komi Republic (15.5%) due to the expenditure on infrastructure, environmental and transmission facilities for production needs.

The process to improve the reproductive structure of fixed assets, investment in fixed capital by directions of the Northern regions is ambiguous. In terms of the payback period (repayment) it is more profitable to invest in the modernization and reconstruction than in the new construction, that is why the increase in the share of investment in this form of reproduction of fixed assets can be considered as a progressive trend. However, if you consider this in terms of enterprises' innovative development, involving the transition to a qualitatively new technological production level, you need to invest in the new construction. Though they give feedback at later time than investment in the modernization and reconstruction, but boost the production due to scientific-technological progress achievements. If the share of morally and physically outdated industrial enterprises is high, obviously, it is more profitable to invest in the first two directions than in the acquisition of new fixed assets.

Thus, the analysis of the dynamics and the structure of investment in fixed capital of the Northern regions' economy has revealed the following:

– investment in the Northern regions' economy, compared with Russia, fell down during the crisis to a lesser extent and rose in the recovery period more quickly due to the implementation of large-scale investment projects;

– the Magadan Oblast, the Komi Republic, the Murmansk Oblast and the Sakha (Yakutia) Republic had high growth rates of investment in fixed capital in the recovery period due to investment in mining, pipeline transport and the low base effect;

– the decline of investment in fixed capital of the Northern regions in 2013 and the expected decline in 2014 is caused by the completion of major investment projects, the limited availability of investment resources (direct investments and loans), the entrepreneurs' expectations for more favorable conditions to invest, the speculations on the foreign exchange market due to ruble depreciation, the suspension of natural monopolies' investment programs due to the freezing of tariffs in 2014;

– the Komi Republic, Khanty-Mansi Autonomous Okrug and the Sakha (Yakutia) Republic made a great contribution to the growth of investment in fixed capital of the North in the recovery period due to large investment in oil and gas pipeline transport, oil extraction, production and distribution of electricity, gas and water;

– the sectoral structure of investment in fixed capital has not changed significantly, there is still a high share of investment in the traded sector, especially mining, due to the Northern regions' specialization in the extractive industries;

– the structure of investment in fixed capital by types has changed dramatically, the share of investment in buildings (excluding housing) and structures has increased, the share of investment in machinery, equipment and vehicles has notably decreased due to reluctant investment in rough manufacturing;

– there are positive and negative trends in the structure of investment in *fixed capital by directions*. The positive ones include the decline in the proportion of investment in buildings and structures and rise in the share of investment in machinery, equipment and vehicles in the *new construction*; the increase in the share of investment in buildings and structures in the *modernization* and *reconstruction* and the *acquisition of new fixed assets*. The negative trends are the following: the decline in the share of investment in machinery, equipment and vehicles in the *modernization* and *reconstruction* and the *acquisition of new fixed assets*.

References

1. Investitsii v Rossii. 2009: stat. sb. [Investment in Russia. 2009: Statistics Digest]. *Rosstat* [Federal State Statistics Service of the Russian Federation]. Moscow, 2009. 323 p.
2. Investitsii v Rossii. 2011: stat. sb. [Investment in Russia. 2011: Statistics Digest]. *Rosstat* [Federal State Statistics Service of the Russian Federation]. Moscow, 2011. 303 p.
3. Investitsii v Rossii. 2013: stat. sb. [Investment in Russia. 2013: Statistics Digest]. *Rosstat* [Federal State Statistics Service of the Russian Federation]. Moscow, 2013. 326 p.
4. Natsional'nye scheta Rossii v 2003–2010 godakh: stat. sb. [National Accounts of Russia in 2003–2010: Statistics Digest]. *Rosstat* [Federal State Statistics Service of the Russian Federation]. Moscow, 2011.
5. Regiony Rossii. Sotsial'no-ekonomicheskie pokazateli. 2006: stat. sb. [Regions of Russia. Socio-Economic Indicators. 2006: Statistics Digest]. *Rosstat* [Federal State Statistics Service of the Russian Federation]. Moscow, 2007. 981 p.

6. Regiony Rossii. Sotsial'no-ekonomicheskie pokazateli. 2009: stat. sb. [Regions of Russia. Socio-Economic Indicators. 2006: Statistics Digest]. *Rosstat* [Federal State Statistics Service of the Russian Federation]. Moscow, 2009. 990 p.
7. Regiony Rossii. Sotsial'no-ekonomicheskie pokazateli. 2013: stat. sb. [Regions of Russia. Socio-Economic Indicators. 2006: Statistics Digest]. *Rosstat* [Federal State Statistics Service of the Russian Federation]. Moscow, 2013. 990 p.
8. *Respublika Sakha (Yakutiya): Megaproekt novoi Rossii* [The Republic of Sakha (Yakutia): Project for the New Russia]. Moscow: Promsvyaz'bank, 2010.
9. Sotsial'no-ekonomicheskoe polozhenie Respubliki Komi. Yanvar'–dekabr' 2009 g. [Socio-Economic Situation of the Komi Republic. January–December 2009]. *Komistat* [Regional Office of the Federal State Statistics Service of the Russian Federation in the Republic of Komi]. Syktyvkar, 2010.
10. *Statisticheskii ezhegodnik Chukotki. 2009: statisticheskii sbornik* [Statistical Yearbook of Chukotka. 2009: Statistics Digest]. Anadyr', 2010.
11. *Indeksy fizicheskogo ob"ema investitsii v osnovnoi kapital* [Indices of Physical Volume of Investment in Fixed Capital]. Available at: C:\DOCUME~1\411-GS~1\LOCALS~1\Temp\info-stat-02-2014.rar\info-stat-02-2014\07 investitsii\

Cited works

1. Investment in Russia. 2009: Statistics Digest. *Federal State Statistics Service of the Russian Federation*. Moscow, 2009. 323 p.
2. Investment in Russia. 2011: Statistics Digest. *Federal State Statistics Service of the Russian Federation*. Moscow, 2011. 303 p.
3. Investment in Russia. 2013: Statistics Digest. *Federal State Statistics Service of the Russian Federation*. Moscow, 2013. 326 p.
4. National Accounts of Russia in 2003–2010: Statistics Digest. *Federal State Statistics Service of the Russian Federation*. Moscow, 2011.
5. Regions of Russia. Socio-Economic Indicators. 2006: Statistics Digest. *Federal State Statistics Service of the Russian Federation*. Moscow, 2007. 981 p.
6. Regions of Russia. Socio-Economic Indicators. 2006: Statistics Digest. *Federal State Statistics Service of the Russian Federation*. Moscow, 2009. 990 p.
7. Regions of Russia. Socio-Economic Indicators. 2006: Statistics Digest. *Federal State Statistics Service of the Russian Federation*. Moscow, 2013. 990 p.
8. *The Republic of Sakha (Yakutia): Project for the New Russia*. Moscow: Promsvyaz'bank, 2010.
9. Socio-Economic Situation of the Komi Republic. January–December 2009. *Regional Office of the Federal State Statistics Service of the Russian Federation in the Republic of Komi.* Syktyvkar, 2010.
10. *Statistical Yearbook of Chukotka. 2009: Statistics Digest*. Anadyr', 2010.
11. *Indices of Physical Volume of Investment in Fixed Capital*. Available at: C:\DOCUME~1\411-GS~1\LOCALS~1\Temp\info-stat-02-2014.rar\info-stat-02-2014\07 investitsii\

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Resource security of healthcare in Russia: issues of territorial differentiation*

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Abstract. Russia's regions (federation subjects) vary greatly by level of socio-economic development; this fact leads to inequality in social infrastructure development as well. The same can be said about healthcare. There is a strong link between economic development in the regions and funding of medical care. It is necessary to point out that the actual level of morbidity and mortality is not reflected in the volumes of resource supply of the sector in terms of territories; consequently, the principles of social justice and social solidarity are violated.

The article analyzes statistical data on the RF subjects and shows the extent of territorial disparities in the provision of population with the main healthcare resources: financial (the amount of per capita funding and the level of implementation of territorial programs of state guarantees), labor (provision of population with doctors and nursing staff), equipment (provision with hospital beds). The author points out the regions that show consistently low rates of resource security of healthcare.

The article reveals that the differentiation between the RF subjects by level of per capita financing of healthcare reaches 10 times, the provision of population with doctors – 3 times, with nursing staff – 2 times, with hospital beds – 3 times. Moreover, territorial differences in the provision of Russia's citizens with healthcare services are quite stable. The reduction of differentiation is observed only in the indicator of provision of citizens with ward beds; it was achieved through the restructuring and reduction of the number of hospital beds. Territorial inequalities in the provision of healthcare and population with resources still exist at the municipal level as well.

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Government agencies should conduct social policy that aims to eliminate sharp disparities in providing citizens with medical care; moreover, this should be done only by improving the situation in the regions where the situation is the gravest. In addition, it is necessary to use more extensively the mechanisms of funding taking into account the specifics of territories and objective needs of population with regard to healthcare. In Russia this process, as the article shows, is going on, but very slowly.

Key words: healthcare, financial resources, human resources, hospital beds, territorial differentiation, subject of federation.

Introduction

The problems of resource support of healthcare are classified as the most relevant and important for Russia. They are regularly reflected in the works of leading Russian scientists and practitioners, who agree that limited resources are unreasonably used in Russian healthcare [5, 7, 17].

The important measures to increase the financing of the sector, taken in 2000–2012 (the national project "Health" and the Healthcare Modernization Program), undoubtedly played an important role in the development of the healthcare system, but there were no fundamental changes in the financial provision of the sector. The situation is worsening today. So, the 2015 budget in terms of healthcare costs was rigorously criticized by the well-known Russian expert G.E. Ulumbekova who called it "500,000 deaths" [15]. We agree with her authoritative opinion that the lack of state financial assistance to healthcare can lead to these consequences.

The situation with the underfunded healthcare sector is further complicated by the RF subjects' unequal socio-economic development. The heterogeneity of the regions' provision with healthcare infrastructure objects and, more importantly, the lack of correlation between demand and supply of health services result in the territorial inequality in the opportunities to get medical care [8]. And if the popular notion "every nation gets healthcare that it deserves" (regarding the relations between the level of socio-economic and legal development of the society and the state of healthcare) can be justified at the international level, the sharp differences in the access to medical assistance within a single state are a violation of social justice and social solidarity principles[1].

In this respect, it is critical to analyze the resource potential of healthcare of the territories. The article studies the provision of healthcare with material, labor and financial resources and the RF territories' differentiation by resource capabilities of the sector.

Financial resources of healthcare

The deficit financing of national healthcare often sounds as the main reproach to those responsible for making decisions [15]. Indeed, spending on health in the Russian Federation is noticeably

[1] Article 41 of the Constitution of the Russian Federation stipulates equal rights for free medical care for all citizens, but does not consider its quantity and quality, therefore, it is impossible to refer to the violation of constitutional guarantees. However, the equality of citizens regardless of residence is stipulated by the law on CMI.

inferior to that in the developed world. In Russia in 2012 it amounted to 6.3% of GDP (this corresponds to the level of the countries, such as Turkey, Albania, Latvia, Uzbekistan), and during several previous years this figure had not changed significantly. In 2008 it amounted to 5.1% of GDP. In the post-industrial countries the share of spending on healthcare is higher; it ranges from 9–11% (Germany, Canada, Japan, Finland, Italy, etc.) to 17% in the USA [14, 19, 20]. At the same time, the share of public expenditure in the total healthcare financing in Russia comprised 61% (in 2012), which was considerably less than in many developed countries (for example, in Germany – 76%, Finland – 75%, Italy – 78%). Thus, the low levels of health expenditure in Russia can not be justified by its free provision guaranteed by the state.

The universal health insurance (in Russia – compulsory medical insurance (CMI)), designed to ensure the citizens' equal access to medical services anywhere in the country, is not able to achieve this goal in its present state of development. And while it is true that the territories of any country, especially if we are talking about Russia, are extremely heterogeneous by institutional characteristics, the provision and implementation of social guarantees should not differ significantly among the regions.

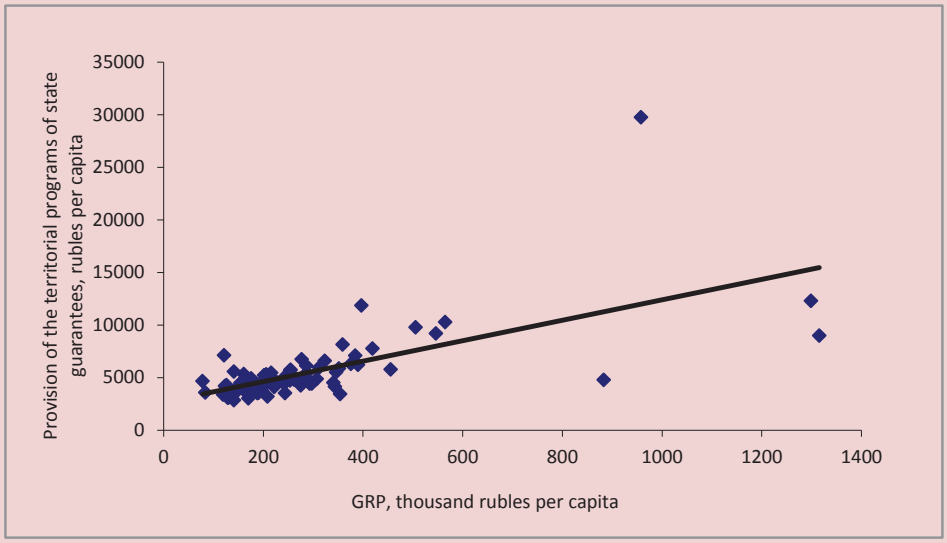
Meanwhile, to date the territorial programs of state guaranteed free medical care differ by the level of financial assistance provided in the RF subjects. According to the Federal State Statistics Service data, the differentiation by actual expenditure on healthcare per capita is great: there is the maximum value in Chukotka Autonomous Okrug (in 2012 – 29750.4 rubles per person) and the minimum one in the Republic of North Ossetia-Alania (2841.9 rubles per person).

It is important that the regional disparities in per capita expenditures on healthcare are mainly caused not by the different levels of insurance risks, i.e. the actual state of the population's health, but by the unequal economic development of territories, regarding the tax base [7]. As a result, the regions with the developed industry and the high level of GRP per capita allocate more funds to healthcare than the less developed (the population size is also important, for example, the multimillion city of Moscow is among the regions with low expenditure on health per capita). There is a close correlation (the correlation of mean force, R=0.642) between the indices of GRP per capita and the provision of the territorial programs of state guarantees with the resources of insurance funds (CMI) (*figure*)[2].

The chart in Figure 1 shows that the expenditure is high in the Northern, oil-producing regions (particularly, the Sakhalin Oblast) and in the small region rich in minerals – Chukotka Autonomous Okrug.

[2] There is a correlation of mean force (R=0.574) between GRP per capita and the total expenditure on TPSG. There is a weak correlation (R=0.372) between the indices of GRP per capita and the provision of territorial programs with budget means, as in Saint Petersburg, the Chelyabinsk Oblast and the Magadan Oblast in 2012 the indicators of budget expenditures on healthcare were significantly greater than in other regions. For this reason the correlation between GRP per capita and the total expenditure on TPSG is quite weak.

Correlation between the provision of the territorial programs of state guarantees and GRP per capita, 2012



Source: Federal State Statistics Service data, 2013.

The North Caucasian republics demonstrate, as a rule, the minimum values[3].

The shortage of the territorial program of state guarantees is a significant indicator of health financing. It is expressed in percent as a share of the shortfall in the healthcare funds from their required amount. Though, in general, the shortage of territorial programs of state guarantees in the Russian Federation is reduced (for example, if in 2011 it reached almost 19%, in 2013 it amounted to little more than 9%), it is early to talk about success. In 2013 the territorial programs were balanced only in 25 RF subjects, including in the cities of Moscow and Saint Petersburg[4]. In 2013 the maximum deficit of financial support of the programs was registered in the Republic of Dagestan – 22% of the total demand (in 2011 it amounted to more than 50%) or 65% of the demand in budgetary allocations of the RF subjects' budgets (*tab. 1*)[5].

[3] Undoubtedly, Moscow, Chukotka Autonomous Okrug and the Republic of Dagestan are too different territorial units to analyze them together without appropriate conditions. The Northern regions, Southern republics and megacities differ qualitatively from each other not only by the level of socio-economic development, but also by social and cultural contexts. However, in this work the complex coefficients are analyzed across a range of RF subjects, primarily, for clarity and convenience. The author understands that many comparisons and conclusions presented in the article require additional methodological comments.

[4] Here and below: for the detailed information on the RF subjects see the Report on Implementation of the Program of State Guarantees of Free-of-Charge Provision of Citizens with Medical Care in 2013. Available at: http://www.rosminzdrav.ru

[5] In 2013 in 58 RF subjects the deficit of financial support of the territorial programs at the expence of budgetary appropriations of the RF subjects' consolidated budgets amounted to 81.7 billion rubles (9% of the total demand, or 27% of the RF subjects' demand in budget allocations, calculated in accordance with the 2013 regulations).

Table 1. Deficit of financial support of the territorial programs of state guarantees in the RF subjects, 2013

Rank	10 subjects with the maximum deficit	Value, in %	Rank	10 subjects with the minimum deficit	Value, in %
1	Republic of Dagestan (max)	22.1	49	Orel Oblast	4.7
2	Mari El Republic	21.4	50	Krasnoyarsk Oblast	2.5
3	Republic of Khakassia	20.1	51	Republic of Bashkortostan	2.3
4	Altai Republic	19.9	52	Lipetsk Oblast	2.3
5	Republic of Kalmykia	19.5	53	Nizhny Novgorod Oblast	1.5
6	Tambov Oblast	18.5	54	Novgorod Oblast	1.0
7	Chechen Republic	17.8	55	Ryazan Oblast	0.7
8	Republic of Ingushetia	17.8	56	Belgorod Oblast	0.6
9	Altai Krai	17.5	57	Samara Oblast	0.6
10-11	Volgograd Oblast	17.3	58	Republic of Mordovia (min)	0.2
10-11	**Vologda Oblast**	**17.3**			

Note. In the RF as a whole – 9.2
*Without 25 regions with 100% provision of the territorial programs of state guarantees.
Source: Federal State Statistics Service, 2014.

The territorial inequality persists at the municipal level as well. For example, the expenditures on health per capita differ by 2–3 times in the Vologda Oblast municipalities [5]. It is important that this is caused not only by the differences in the population's objective requirements in healthcare, but by the unevenly developed facilities and resources of medical institutions. In Cherepovets, Sokolsky District and Velikoustyugsky District where there are large networks of medical institutions, mainly hospitals, the quantitative and qualitative characteristics of the facilities and resources are significantly higher than in other areas [5].

The volume of budget financing of the municipalities is calculated according to the standard on the basis of actual expenses on healthcare in the previous period, therefore, the value of the correction factors used to estimate the costs for the Vologda Oblast municipalities differ by more than two times.

The application of the advanced methods to pay for medical care is one of the mechanisms to eliminate such distortions. They encourage institutions not to maintain already established material assets, but to finance the volumes of medical care, taking into account the requirements of separate territories. It creates the preconditions for greater social justice in the distribution of public health resources and promotes their effective use.

In 2004–2006 the prevalence of different methods to pay for medical care in regions was studied on the basis of the surveys of healthcare executives. This study has revealed the significant differentiation of RF subjects by the use of mechanisms to finance healthcare and revealed the

widespread popularity of obsolete methods to pay for medical services. In 2004–2006 Russian healthcare approved the practice to pay for outpatient services, which led to the growth of visits to doctors, but did not result in the prevention of diseases. Devoid of these shortcomings and tested in other countries the per capita payment method was used only in 14% of the regions in 2006 (19% in 2004). In 8–11% of the RF subjects the unconstructive and outdated "cost estimates" method was used to pay for outpatient care [12].

In the same period a greater number of regions used such method, as payment for the number of days spent at hospital – from 42% in 2004 to 47% in 2006. It encourages hospitals to maintain the maximum number of beds, increase stationary admission and length of treatment. There is a rise in the application of the payment method based on the average cost of treatment in specialized departments, but this method does not consider the differences in the expenses to treat diseases of varying complexity. Meanwhile, the method of payment for the agreed amount of medical care, which takes into account the real complexity of aid and promotes hospitals to enhance the use of resources, was used in only 8% of the regions at that time (in the Kemerovo Oblast, the Kostroma Oblast, the Samara Oblast, the Tula Oblast and the Chuvash Republic) [12].

However, there were positive changes in this period. For example, the payment for each completed case of stationary admission became widespread among the methods to pay for hospital care: in 2005 it was used in 49% of the regions and in 2006 – already in 65%.

How has the situation changed after 10 years? According to the Ministry of Healthcare of the Russian Federation, 57 RF subjects, providing medical care on an outpatient basis, used the method of payment per unit volume of medical care (medical service, visit, reference, completed treatment case) in 2013.

Eighteen RF subjects used the best method of payment by per capita financing for registered individuals together with payment per unit volume of medical care. However, only 8 RF subjects (the Arkhangelsk Oblast, the Penza Oblast, Altai Krai, the Tyumen Oblast, the Kemerovo Oblast, the Tomsk Oblast, the Sakha (Yakutia) Republic and Kamchatka Krai) used the method of payment by per capita financing for registered individuals with regard to the indicators of medical organization performance, including the costs on medical care provided by other medical organizations [1].

In 2013 twenty-one subjects of the Russian Federation paid for each completed treatment case at hospital. It was a positive trend. However, nine RF subjects used the payment methods that were not stipulated by the program, including per unit volume of medical care (a bed-day).

Thus, the transfer to the leading methods of payment for medical care is very slow in Russia. This is caused not only by the sluggishness of local authorities, but by the lack of institutional leaders' interest in adopting new principles of financing, which can reduce the revenue of institutions.

Labor resources of healthcare

The healthcare system presupposes the availability of well-trained medical personnel, providing healthcare, prevention and treatment of diseases, rehabilitation of patients at a high professional level with the observance of ethical standards. Availability of doctors and nurses refers to the relative number of these categories of professionals working in medical institutions of the region.

According to the World Bank, the number of doctors in Russia amounts to 4.3‰ (persons per 1,000 population), which is highly significant. In the world the average value of this indicator is only 1.5‰, in Europe – 3.7‰. There are index values, similar to the Russian one, in Lithuania (4.1‰), Georgia (4.2‰), Switzerland and Andorra (3.9‰), Sweden and Bulgaria (3.8‰), Uruguay, Spain and Norway (3.7‰), the Czech Republic and Kazakhstan (3.6‰). In a few countries there is a greater availability of doctors than in the Russian Federation. It is methodologically incorrect but still rather illustrative to compare our country with them. They are the following: Austria (4.8‰), San Marino (5.1‰), Greece (6.2‰), Cuba (6.7‰), Monaco (7.2‰) and Qatar (7.7‰) [20].

The territorial inequalities in the availability of doctors retain its sharpness at the level of RF subjects. The differentiation in the provision of doctors covers a wide range of values – from the maximum one in the largest cities of Moscow (68.6‰) and Saint Petersburg (81.2‰), Chukotka Autonomous Okrug and the Republic of North Ossetia-Alania (73.8 and 71.7‰) to the minimum one in the Chechen Republic (27‰) (*tab. 2*).

Table 2. Availability of doctors, persons per 10,000 population, 2013

10 regions with the highest availability *	Value in ‰		10 regions with the lowest availability (2013)	Value in ‰	
	2003	2013		2003	2013
Saint-Petersburg	77.3	81.2	Kostroma Oblast	36.1	35.5
Chukotka Autonomous Okrug	73.2	73.8	Pskov Oblast	34	35.5
Republic of North Ossetia-Alania	67.1	71.7	Mari El Republic	35.6	35
Moscow	73	68.6	Vologda Oblast	33.9	34.7
Astrakhan Oblast	65.5	65.8	Tambov Oblast	34.4	34.5
Tomsk Oblast	68.6	61.1	Leningrad Oblast	29.8	34.3
Amur Oblast	59.2	60.6	Vladimir Oblast	34.7	33.9
Magadan Oblast	54.7	59.5	Tula Oblast	33.7	33.6
Yaroslavl Oblast	56.9	58	Kurgan Oblast	27.7	30.2
Khabarovsk Krai	58.3	57.9	Chechen Republic	no data	27

Note. In the RF as a whole – 49; the difference between the maximum and minimum values – 3 times.
*Ranked according to the 2013 data
Source: Federal State Statistics Service, 2014.

The territorial differences in the availability of labor resources in healthcare are quite stable, and in 2003 the ratio of maximum and minimum values of the analyzed indicator among the RF subjects amounted to 3.2. The composition of the groups of regions-leaders and regions-outsiders by the availability of doctors is relatively constant. There is a stable low level of the availability of doctors in the Pskov Oblast, the Vologda Oblast, the Tula Oblast and the Kurgan Oblast (in 2003 and 2013 they belonged to the group of 10 regions with the lowest value).

The differences in the availability of doctors retain at the municipal level. So, the difference between the minimum (10‰ in Kaduysky District) and the maximum (22.4‰ in Velikoustyugsky District) values of the availability of doctors is 2.2 times in the Vologda Oblast, even if we do not take into account large cities.

The low staffing level and the high secondary employment level cause the shortage of physicians in the Russian Federation. The situation in the Vologda Oblast is quite vivid: the availability of doctors in the Vologda Oblast hospitals averaged 91% in 2013 but the provision of established post with individuals amounted only to 49%. At the same time, the secondary employment factor was equal to 1.9 and in certain areas of the region it reached 2.1 (Babaevsky District). The availability of nurses is higher: when the availability of nursing staff amounted to 94%, the provision of established post with individuals – 63%, with the secondary employment coefficient being equal to 1.5. Excessive load at work (including night shifts) has a negative impact on physical and mental health of doctors, which leads to the lower quality of medical service (according to the population survey, 18% of the citizens, visiting medical institutions, mentioned the medical personnel's careless attitude and 14% – rudeness), provided by the regional health institutions, and the decline in the prestige of the profession [4].

Though the Russian Federation has a great number of doctors in comparison with other countries, their shortage is officially declared (in 2000–2013 the availability of doctors in Russia increased insignificantly – by 2%). There is reason to believe that this does not refer to the lack of doctors in general, but to the lack of primary care specialists.

So, the Minister of Healthcare of the Russian Federation V. Skvortsova argues that the number of primary care physicians in Russia is below the WHO standard by 2–2.5 times [13]. However, this is true only in relation to general practitioners: in Russia their number is two or more times less than in Europe and the world. So, in Russia their number amounted to 20.5[6] per 1,000 population in 2000, in the WHO European Region – 54 in 2000 and 60.8 in 2012, in the UK – 81.2 in 2012 (64.5 in 2000), Germany – 65.8 in 2011 and in France 159.2 in 2012 [19].

[6] This is the latest data on the Russian Federation, given in the WHO data base in 2014.

Such differences are understandable: the institute of family physicians was not typical for Russia; however, general practitioners and medical assistants were quite common.

What is the situation with the development of services provided by general practitioners in the RF subjects? Despite the fact that in 2013 the values of the indicators cover a wide range – from 0.1% in Moscow, the Republic of Ingushetia and Yamalo-Nenets Autonomous Okrug to 3.8% of the Chuvash Republic; in most RF subjects the number of family physicians is insignificant (from 0.1 to 0.9%). The situation in the Chechen Republic and the Republic of Adygea is particularly unfavorable, as there are practically no family doctors.

The concern of those responsible for the decision making in healthcare about the lack of general practitioners is clear: they follow the WHO recommendations, in accordance with which the major emphasis is laid on primary healthcare. However, in the context of Russian realities this opinion is not always shared by both citizens and medical staff.

First, the situation with the availability of general practitioners is quite favorable, according to the data on the world countries. In Russia its level reaches 145.9; it is the largest value in the world. To be more convincing we present the data on the number of general practitioners in the countries close to the Russian socialist past and the countries of the Western world. The number of first contact physicians was 140.9 in Belarus in 2011, 135.1 in Ukraine in 2012, 83.4 in France in 2011, 89.8 in Germany in 2011 and 137.5 in Italy in 2011 [19].

Second, in the adverse conditions of high mortality and extensive-stage diseases the narrow specialists are extremely important. Primary care doctors and general practitioners can not succeed in such urgent and acute sector, as oncology – the specialized public service should be established. One can not but notice the outflow of personnel from public institutions to private clinics. What is more, the surveys show that the patients are concerned about the shortage of narrow specialists. It is especially noticeable in those regions where there are no medical educational institutions or the level of socio-economic development and the wages in healthcare are low.

According to the sociological surveys conducted in the Vologda Oblast, 32% of the citizens often face the problem of a lack of the necessary specialist [4]. However, the citizens find it most difficult to get an appointment with a doctor due to long queues (55%); it indicates a lack of district primary care physicians and general practitioners. It leads to longer waiting time, reduced reception time and, consequently, decreased effectiveness of primary care and increased flow of patients to the specialists and hospitals[7].

[7] Staff shortage is acute not only for primary or secondary healthcare. For example, "The public report on the performance of the Vologda Oblast Healthcare Department in 2013", which touches upon human resources in healthcare, argues that the shortage is felt in all types of medical organizations in the region. Available at: http://okuvshinnikov.ru/files/ocenka/duganov.pdf

Russia has notable regional differences in the availability of nursing staff. Thus, the differentiation between the richest and poorest regions reaches twice the value. The highest level of the availability of nursing staff is observed in the Magadan Oblast (151.3 ‰), Chukotka Autonomous Okrug (151.1‰), the Murmansk Oblast (149.3‰), the Komi Republic (146.6‰) and Khanty-Mansi Autonomous Okrug (144.4‰). The stable low level of the availability of nursing staff is registered in the Republic of Dagestan, the Republic of Ingushetia, the Moscow Oblast, the Chechen Republic, the Leningrad Oblast (in 2003 and 2013 they belonged to the group of 10 regions with the minimum values). In general, the most unfavorable situation is observed in the Republic of Ingushetia, the Republic of Dagestan, the Rostov Oblast and Primorsky Krai (*tab. 3*).

The availability of nursing staff is quite stable in the country as a whole. In 2000–2013 it decreased only by 2%. The analysis of the situation in retrospect indicates the reduction of territorial disparities in availability of nursing staff in the region. In 2003–2013 the differences in the values of maximum and minimum indices decreased from 2.8 to 2 times.

The optimal ratio of the number of physicians and nurses working in the medical institutions of the country plays an important role. Health economics has an axiom, which states that the effective staffing can not be achieved without a significant numerical advantage of nursing staff over doctors.

In Russia the number of nurses is 2 times higher that doctors but in Europe and the United States the number of nursing staff is 4 times higher. In the Vologda Oblast, for example, the situation is close to the "Western pattern" but due a rather acute shortage of doctors in the region.

Table 3. Availability of nursing staff, persons per 10,000 population

10 regions with the highest availability*	Value, in ‰		10 regions with the lowest availability (2013)	Value, in ‰	
	2003	2013		2003	2013
Magadan Oblast	147.9	151.3	Rostov Oblast	89.3	92.1
Chukotka Autonomous Okrug	137.3	151.1	Samara Oblast	100.1	91.7
Murmansk Oblast	136.7	149.3	Kaliningrad Oblast	86.2	90.9
Komi Republic	138.8	146.6	Krasnodar Oblast	100.1	88.1
and Khanty-Mansi Autonomous Okrug	133.1	144.4	Primorsky Krai	88.1	87.4
Sakhalin Oblast	127.6	143.5	Republic of Dagestan	80.4	82.1
Tyva Republic	137.3	139.7	Republic of Ingushetia	51.6	77.1
Arkhangelsk Oblast	141.8	139.7	Moscow Oblast	81.5	76.7
Sakha (Yakutia) Republic	138.5	137.4	Chechen Republic	н.д.	73.2
Altai Republic	128.7	135.3	Leningrad Oblast	73.3	73

Note. In the RF as a whole – 105.7; the difference between the maximum and minimum values – 2 times.
* Ranked according to the 2013 data
Source: Federal State Statistics Service, 2014.

It is difficult to give an objective assessment of personnel resources due to the complexity of the issue (the average figures include important quality characteristics: specialization, professional category, staffing structure, wages, impact of incentives, etc.). However, even the analysis of general statistical indicators allows us to determine the problems typical for the Russian healthcare, particularly, the problems of territorial disparities in the availability of medical personnel in the region.

We can not but mention a paradoxical situation: on the background of impressive indicators of the availability of physicians in the country as a whole, the municipalities complain of the acute shortage of medical personnel.

Hospital bed[8]

Russia is in the lead among the world countries by the scale of inpatient care. According to the WHO estimates, in 2005–2012 the availability of public hospital beds reached 97‰ in the Russian Federation. By this indicator Russia lags behind only 4 countries: Monaco (165‰), Japan (137‰), North Korea (132‰) and the Republic of Korea (103‰) [19][9].

This great availability is the heritage of the Soviet healthcare system that primarily presupposed the functioning of hospitals. In the Soviet period the large number of hospitals was considered as the main indicator of a good healthcare system. It is no coincidence that the N.A. Semashko Research Institute of Social Hygiene and Health Service Management set standards (number of beds per 10,000 population, etc.), which are mandatory throughout the country. The need to provide all Soviet people with medical care led to the construction of many hospitals of various specialties and all levels of territorial organization.

In the post-Soviet period due to the chronic lack of funds in Russia many hospitals were closed and the number of hospital beds was reduced. Consequently, the reception of patients was also decreased, but the timing of inpatient treatment remained high due to the extensiveness of the treatment regime [18].

In 2004 the hospital stock was further diminished in the framework of the healthcare restructuring process, aimed, according to the official statements, at boosting intra-industry efficiency[10].

The method to estimate the Executive authorities' performance in the RF subjects was developed in 2007 and recommended to use. It encouraged the regional authorities to reduce "excessive" hospital stock. The goal was simple – to eliminate disparities in the volume of inpatient care among the

[8] The facilities and resources of healthcare include not only hospital stock, however, this article, primarily due to the universality and accessibility of official statistics data, uses the indicator of ward bed provision. The development of inpatient care does not reveal the effectiveness of healthcare, however, provides valuable information about its availability.

[9] The minimum level is observed in Mali, where there is 1 ward bed per 10,000 population.

[10] The basic principles of the restructuring process are set out in the draft sectoral program "Enhancement of the structural efficiency of the RF healthcare system for 2004–2010" (2004).

Table 4. Availability of public hospital beds, persons per 10,000 population

10 regions with the highest availability	Value, in ‰		10 regions with the lowest availability*	Value, in ‰	
	2000	2013		2000	2013
Chukotka Autonomous Okrug (max)	184.5	148.3	Chelyabinsk Oblast	120.7	74.9
Magadan Oblast	143.8	125.6	Chechen Republic	No data	74.1
Nenets Autonomous Okrug	116.2	121.5	Moscow Oblast	106.7	72.1
Sakhalin Oblast	131.5	120.8	Stavropol Krai	88.8	72.1
Tyva Republic	161.7	117.4	Republic of Dagestan	81.2	67.7
Sakha (Yakutia) Republic	148.2	106.9	Republic of Adygea	103.5	67.4
Kamchatka Krai	146.6	106	Tyumen Oblast	106.7	67.3
Orel Oblast	118.9	97.7	Leningrad Oblast	99.2	66.7
Zabaikalsky Krai	125.3	96.3	Republic of Tatarstan	114.1	65.5
Smolensk Oblast	130.6	95	Republic of Ingushetia (min)	41.6	47.2

Note. In the RF as a whole – 81.5; the difference between the maximum and minimum values – 3 times.
Source: Federal State Statistics Service, 2000; Ministry of Health of the Russian Federation, 2014.

regions and reduce them to a single federal "standard"[11].

The implementation of these "optimization" measures has resulted in the rapid reduction of hospital stock. For example, in the Vologda Oblast in 2000–2013 the bed complement decreased by 30%. As a result, the bed population ratio was high in the region compared to the country as a whole for a long time; in 2009 it was equal to the federal rate.

This policy has led to the reduced availability of hospital beds; the territorial differentiation remained, but became more moderate. If in 2000 the difference in the bed population ratio between the richest and poorest regions (Chukotka Autonomous Okrug and the Republic of Ingushetia) reached more than 4 times (without taking into account the then existing Koryak Autonomous Okrug, Evenk Autonomous Okrug and Taymyr Dolgano-Nenets Autonomous Okrug), in 2013 – 3 times. The most unfavorable situation was observed in the republics of the North Caucasus, where the healthcare system remained at a low level of development during this period (*tab. 4*).

It is interesting to note that in the North-Caucasian republics the executive authorities' performance in the sphere of healthcare was evaluated as "effective" in accordance with the approved method due to the weak development of healthcare infrastructure [3].

There is the indicator that does not reveal significant differences between the RF subjects. It is a level of funding for palliative care, which is equally low in all regions of the country. This is a great

[11] The method was developed and approved by the Commission for Improvement of State Administration and Justice under the President of the Russian Federation to execute the decree of the RF President "On the assessment of Executive authorities' performance in the subjects of the Russian Federation" of June 28, 2007, No. 825. Protocol No. 1 of July 18, 2007.

organizational and ethical problem of the Russian healthcare system. In Russia, as a rule, the patient with severe and incurable disease requiring regular medical supervision is discharged from the hospital to "follow up by place of residence", i.e. to let him/her die at home. This problem is not being solved today. Despite the fact that in 2013 the Program of state guarantees for the first time established the average ratios of volume and cost per unit volume of palliative care provided in hospitals, their size is extremely small. In 2013 the actual volume of palliative care in hospital amounted to 0.035 bed-days per person, which is more than 2 times lower than the average standard set by the program (0.077 bed-days per person) [1]. The average cost of 1 bed-day for palliative care was by one third lower than the 2013 limited standard and amounted to 1,180.7 rubles. This medical care was not provided to citizens in 29 subjects of the Russian Federation.

Conclusion

The problems of territorial inequality are always complex. The article tries to reveal the scale and reasons of territorial differentiation in the provision of basic health resources on the basis of simple and accessible statistical information. Not all the possible and important aspects of the problem were discussed. Thus, it is necessary to analyze the role of the Federal Law No. 326 "On compulsory medical insurance" in the leveling of territorial imbalances in the availability of healthcare, the specificity and the efficiency of spatial distribution of healthcare networks, etc. However, this study has indicated acute problems of the Russian healthcare system related to the uneven distribution of resources and objects of healthcare infrastructure in the country.

The analyzed facts should help draw the authorities' attention to the financing gap in healthcare, which is exacerbated by the nonfulfillment of the RF subjects' expenditure commitments to provide medical assistance. Even the officially approved expenditure level is not ensured by the necessary funds. In 2013 the programs of state guarantees were fully funded only in 25 RF subjects.

The RF subjects are characterized by the significant differentiation in the level of human resources and the development of the material and technological base, primarily hospital stock. Thus, among the RF subjects the difference in the availability of doctors reaches 3 times, of nursing staff – 2 times, hospital beds – 3 times. The restructure of hospital stock, aimed at optimizing and aligning the provision of inpatient care in the regions, has reduced the gap in the provision of public hospital beds at the expense of the significant reduction of inpatient care.

The given examples of territorial differentiation should not lead to the conclusion about the redundant financing of healthcare in the regions with the highest indices of costs and the overall provision of resources in healthcare. It is inappropriate, especially in the conditions of insufficient financing of the industry. It is important to pay attention to the regions-outsiders, where the provision of medical care is lower than should be according to the scarce federal standard.

References

1. Doklad o realizatsii Programmy gosudarstvennykh garantii besplatnogo okazaniya grazhdanam meditsinskoi pomoshchi v 2013 godu [Report on Implementation of the Program of State Guarantees of Free-of-Charge Provision of Citizens with Medical Care in 2013]. *Ofitsial'nyi sait Ministerstva zdravookhraneniya RF* [Official Website of the Ministry of Healthcare of the Russian Federation]. Available at: http://www.rosminzdrav.ru/documents/8122-doklad-o-realizatsii-programmy-gosudarstvennyh-garantiy-besplatnogo-okazaniya-grazhdanam-meditsinskoy-pomoschi-v-2013-godu
2. *Doklad o sostoyanii zdravookhraneniya v mire, 2008 g. Pervichnaya mediko-sanitarnaya pomoshch' segodnya aktual'nee, chem kogda-libo* [The World Health Report 2008 – primary Health Care (Now More Than Ever)]. Geneva: WHO, 2008. 152 p.
3. Duganov M.D., Shabunova A.A., Kalashnikov K.N. Otsenka effektivnosti raskhodov na zdravookhranenie: opyt Vologodskoi oblasti [Efficiency of Health Care Expenditures: Assessing the Experience of Vologda Oblast]. *Region: ekonomika i sotsiologiya* [Region: Economics and Sociology], 2010, no. 3, pp. 201-218.
4. Kalashnikov K.N., Kalachikova O.N. Dostupnost' i kachestvo meditsinskoi pomoshchi v kontekste modernizatsii zdravookhraneniya [The Availability and Quality of Medical Care in the Context of Modernization of Healthcare]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2011. Pp. 23-30.
5. Kalashnikov K.N., Shabunova A.A., Duganov M.D. *Organizatsionno-ekonomicheskie faktory upravleniya regional'noi sistemoi zdravookhraneniya: monografiya* [Organizational-Economic Factors in the Management of Regional Healthcare System: Monograph]. Vologda: ISERT RAN, 2012. 153 p.
6. *Konstitutsiya Rossiiskoi Federatsii* [The Constitution of the Russian Federation]. Moscow: Yurait, 2009. 48 p.
7. Lindenbraten A.L. Aktual'nye problemy finansirovaniya zdravookhraneniya [Topical Issues of Healthcare Financing]. *BYuDZhET.RU* [Budget.ru]. Available at: http://bujet.ru/article/40147.php
8. Marquez P. Gosudarstvennye raskhody na zdravookhranenie v Rossiiskoi Federatsii: problemy i puti ikh resheniya [Public Spending in Russia for Health Care: Issues and Options]. *Vsemirnyi bank* [World Bank]. Available at: http://siteresources.worldbank.org/INTRUSSIANFEDERATION/Resources/Public_Spending_report_ru.pdf
9. *Ministerstvo zdravookhraneniya RF Ofitsial'nyi sait* [Official Website of the Ministry of Healthcare of the Russian Federation]. Available at: http://www.rosminzdrav.ru/
10. Popovich L.D., Potapchik E.G., Salakhutdinova S.K., Selezneva E.V., Sheiman I.M., Shishkin S.V. *Modernizatsiya zdravookhraneniya: novaya situatsiya i novye zadachi* [Modernization of Healthcare: New Situation and New Tasks]. Ed. by I.M. Sheiman, S.V. Shishkin. Moscow: "Delo" RANKh, 2010. 232 p.
11. *Osnovnye pokazateli deyatel'nosti uchrezhdenii zdravookhraneniya Vologodskoi oblasti* [Key Performance Indicators of Healthcare Institutions in the Vologda Oblast]. Vologda: Departament zdravookhraneniya Vologodskoi oblasti, 2013.
12. *Realizatsiya reformy zdravookhraneniya v sub"ektakh RF: baza dannykh* [Implementation of Health Care Reform in the Subjects of the Russian Federation: Database]. Available at: http://www.healthreform.ru/
13. Skvortsova: sistema zdravookhraneniya v RF obeskrovlena defitsitom kadrov [Skvortsova: Healthcare System in the Russian Federation Is Weakened by Lack of Personnel]. *Ria-novosti* [Russian Agency of International Information "RIA Novosti"]. Available at: http://ria.ru/society/20131209/982823851.html
14. *OECDiLibrary Database*. Available at: http://www.oecd-ilibrary.org
15. Ulumbekova G.E. Byudzhet-2015 – eto 500 000 smertei [The 2015 Budget Means 500,000 Deaths]. *Pravda.ru*. Available at: http://www.pravda.ru/video/society/15488.html
16. Mossialos E., Dixon A., Figueras J., Kutzin J. *Finansirovanie zdravookhraneniya: al'ternativy dlya Evropy* [Funding Health Care: Options for Europe]. Translated from English. Moscow: Ves' Mir, 2002. 352 p.

17. Shishkin S.V. Strategii transformatsii gosudarstvennykh garantii okazaniya besplatnoi meditsinskoi pomoshchi [Strategies for Transformation of State Guarantees of Free Medical Care]. *SPERO. Sotsial'naya politika: ekspertiza, rekomendatsii, obzory* [SPERO. Social Policy: Expertise, Recommendations, Overview], 2007, no. 7, spring–winter. Available at: http://uisrussia.msu.ru/docs/nov/spero/07/N7_2007-27-50.pdf
18. *Hospitals in a changing Europe*. Ed. by M. McKee and J. Healy. Buckingham, Philadelphia: Open University Press, 2002. P. 320.
19. *Official Website of the WHO*. Available at: http://www.euro.who.int/ru
20. *World Bank Database*. Available at: http://data.worldbank.org/

Cited works

1. Report on Implementation of the Program of State Guarantees of Free-of-Charge Provision of Citizens with Medical Care in 2013. *Official Website of the Ministry of Healthcare of the Russian Federation*. Available at: http://www.rosminzdrav.ru/documents/8122-doklad-o-realizatsii-programmy-gosudarstvennyh-garantiy-besplatnogo-okazaniya-grazhdanam-meditsinskoy-pomoschi-v-2013-godu
2. *The World Health Report 2008 - primary Health Care (Now More Than Ever)*. Geneva: WHO, 2008. 152 p.
3. Duganov M.D., Shabunova A.A., Kalashnikov K.N. Efficiency of Health Care Expenditures: Assessing the Experience of Vologda Oblast. *Region: Economics and Sociology*, 2010, no. 3, pp. 201-218.
4. Kalashnikov K.N., Kalachikova O.N. The Availability and Quality of Medical Care in the Context of Modernization of Healthcare. *Economic and Social Changes: Facts, Trends, Forecast,* 2011. Pp. 23-30.
5. Kalashnikov K.N., Shabunova A.A., Duganov M.D. *Organizational-Economic Factors in the Management of Regional Healthcare System: Monograph*. Vologda: ISERT RAN, 2012. 153 p.
6. *The Constitution of the Russian Federation*. Moscow: Yurait, 2009. 48 p.
7. Lindenbraten A.L. Topical Issues of Healthcare Financing. *Budget.ru*. Available at: http://bujet.ru/article/40147.php
8. Marquez P. Public Spending in Russia for Health Care: Issues and Options. *World Bank*. Available at: http://siteresources.worldbank.org/INTRUSSIANFEDERATION/Resources/Public_Spending_report_ru.pdf
9. *Official Website of the Ministry of Healthcare of the Russian Federation*. Available at: http://www.rosminzdrav.ru/
10. Popovich L.D., Potapchik E.G., Salakhutdinova S.K., Selezneva E.V., Sheiman I.M., Shishkin S.V. *Modernization of Healthcare: New Situation and New Tasks*. Ed. by I.M. Sheiman, S.V. Shishkin. Moscow: "Delo" RANKh, 2010. 232 p.
11. *Key Performance Indicators of Healthcare Institutions in the Vologda Oblast*. Vologda: Departament zdravookhraneniya Vologodskoi oblasti, 2013.
12. *Implementation of Health Care Reform in the Subjects of the Russian Federation: Database*. Available at: http://www.healthreform.ru/
13. Skvortsova: Healthcare System in the Russian Federation Is Weakened by Lack of Personnel. *Russian Agency of International Information "RIA Novosti"*. Available at: http://ria.ru/society/20131209/982823851.html
14. *OECDiLibrary Database*. Available at: http://www.oecd-ilibrary.org
15. Ulumbekova G.E. The 2015 Budget Means 500,000 Deaths. *Pravda.ru*. Available at: http://www.pravda.ru/video/society/15488.html

16. Mossialos E., Dixon A., Figueras J., Kutzin J. *Funding Health Care: Options for Europe*. Translated from English. Moscow: Ves' Mir, 2002. 352 p.
17. Shishkin S.V. Strategies for Transformation of State Guarantees of Free Medical Care. *SPERO. Social Policy: Expertise, Recommendations, Overview,* 2007, no. 7, spring–winter. Available at: http://uisrussia.msu.ru/docs/nov/spero/07/N7_2007-27-50.pdf
18. *Hospitals in a changing Europe.* Ed. by M. McKee and J. Healy. Buckingham, Philadelphia: Open University Press, 2002. P. 320.
19. *Official Website of the WHO*. Available at: http://www.euro.who.int/ru
20. *World Bank Database*. Available at: http://data.worldbank.org/

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Urban and rural students in the Urals: socio-residential assimilation issues

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Abstract. The article discusses current problems of the rural youth migration to the cities in the context of socio-residential assimilation, suggesting a convergence of lifestyles of different large and small social groups living in different types of settlements. The author analyzes the significance of social environments for the formation of political culture of young villagers and the development of their values in the sphere of self-identification.

The article suggests that successful strategic socio-economic development (prosperity) of large cities, especially megacities, should be closely connected with their responsibility for the adequate development of small towns and rural settlements in order to reproduce and save labor potential of agricultural production in the region and ensure decent life for all actors in this production.

The authors' reflections and conclusions are based on the results of comparative sociological surveys of the urban and rural youth, carried out in various cities and rural settlements of some RF subjects within the Ural Federal District in 2008–2014.

Key words: city, village, family, youth, socialization, labor, education, socio-residential assimilation, values, lifestyle.

Historically *socio-residential assimilation* has been one of the mechanisms of society's progressive development, suggesting *convergence of lifestyles of different large and small social groups living in different types of settlements*. In the broad sense assimilation (from lat. *assimilatio* – adaptation, amalgamation, adoption) is a process when two or more

groups, previously different in the internal organization, value orientations and culture, create a new community, where their group identity is changed and the sense of identity and specificity is lost.

The concept *"village-city"* reflects socio-residential differences existing in Russia most vividly. Basic assimilation changes of the population are determined primarily by the processes concerning the youth part of the society and manifested in the transformed lifestyle of "fathers and children" generations. This transformation can be fixed in the changed structure and character of forming (formed) needs and value orientations of young people as they get older. They are reflected in their life plans, choice of basic means of their achievement and forms of everyday behavior and actions. What features does the process of socio-residential assimilation of young people have in the Urals?

The article uses data of integrated regional studies on livelihoods of the rural and urban families in the Urals, their role in preparing children for adult life. Specifically sociological studies were conducted by the author in 2008–2014 at the Institute of Economics, the Ural Branch of the Russian Academy of Sciences on the basis of a number of towns and rural settlements in the Urals, in particular:

1. *In 2008* in 7 cities and 14 rural settlements of the Perm Oblast, the Sverdlovsk Oblast and the Chelyabinsk Oblast the following respondents were surveyed by the author's questionnaire:

a) middle and high school students in urban schools – 900 persons;

b) middle and high school students in rural schools – 540 persons;

c) parents surveyed students in urban schools – 770 persons – **"Ural-1"**.

2. *In 2009* the survey of 680 students of technical and humanitarian faculties of USTU-UPI about the involvement in religion – **"Ural-2**".

3. *In February–March 2013* there was a survey of 510 middle and high school students in 15 secondary schools in Kirovsky District of the city of Yekaterinburg and 300 students in 9 schools in the closed administrative-territorial formation of Lesnoy of the Sverdlovsk Oblast connected with the analysis of socialization processes and young citizens training for adult life (boys – 46%, girls – 54%) – **"Ural-3"**.

The overall research goal of the social projects implementation was to identify the factors and circumstances that accompany the undesirable trend of narrowed reproduction of the capable rural population in the region at the expense of young villagers who are eager to learn, live and work in cities. The study object was high school students from rural and urban schools, university students, that is young people on the verge of choice of occupation, place of residence, place of realization of their social, in particular labor, potencies. Another important factor should be emphasized. The research is carried out in a particular Russian region –the Urals, which has, along with the national traits and characteristics, its own, often unique, natural-climatic, historical-settlement, socio-economic and ethnic characteristics. The latter exert their influence on the process of

human reproduction, in general, and on the socialization of young generations, in particular.

There is a significant limitation. Due to the restrictions presupposed by the article size, our empirical framework is mainly based on the results of public opinion polls. Let us remember that the key attributes of the new governance model include the principle, according to which "public opinion, citizens' opinion should be the main indicator to evaluate the performance of the government providing services to citizens and social institutions" [1].

First of all, let us note that the characteristics of a rural lifestyle (as opposed to urban) are associated with the specifics of labor and life of the inhabitants: subordination of their activity to rhythms and cycles of the year; more difficult working conditions than in the city; low capacity for villagers' labor mobility; great integration of work and life, cogency and labor-intensiveness of work at farm household. So, the work on private land, in the garden takes villagers literally a half of their lives – about 180 days a year on average; a number of lessons in free time is relatively limited.

The rural environment of children's socialization has its own traditional features. It should be taken into account that the lifestyle of rural settlements has preserved the elements of traditional neighborhood. There is quite a stable composition of the population, weak socio-professional and cultural differentiation and close family and neighborhood relations. To what extent does the continuing traditional rural lifestyle determine features of the natural reproduction process and formation of material and spiritual needs, values and life plans of young villagers?

Our young respondents in the Ural cities and villages **("Ural-1")**, as well as in the big city – Yekaterinburg **("Ural-3")** were asked a question: "*Below there are some values, which an adult can seek after. Choose five most important values to you*". We got the following answers *(tab. 1)*.

First of all, it cannot but surprise that the responses of young city dwellers and villagers are practically identical in the 2008 survey. The difference in various positions is within the statistical error. Such similarity in value orientations is mainly related to the impact of the single information-ideological field created by the Internet, television, radio and other media on young people. The five-year lag between surveys ("Ural-1" and "Ural-2") has not practically changed the structure of value orientations of young citizens in the sphere of material wealth, but a bit raised their claims and expectations in the sphere of spiritual life (*friends, leisure, good to people, good name*) [2].

The family was, is and will remain a key social institution of the population reproduction, ensuring nation-building. The family was, is and will remain the most important component in the construction of identity and way of life of each particular person and each particular social group. It is the institute of the parent family with its unique influence on the formation of a child's personality that serves as the main tool of assimilation processes among the youth. The health and attitude of urban and rural adolescents to the conditions

Table 1. Most preferred life values, which, according to the young city dwellers and villagers, young people can seek after (% of the total number of respondents for each group; in 2008 – a survey of 900 urban and 570 rural adolescents: in 2013 – a survey of 510 adolescents in Yekaterinburg and 300 in CATF "Lesnoy")

Values to be pursued	Groups of pupils			
	"Ural-1"		**"Ural-3"**	
	City	Village	Ekaterinburg	Lesnoy
Good family and children	87	88	No data	No data
Good parents	No data	No data	57	62
Good health	68	70	72	78
Good friends, true friends	66	54	81	77
Favorite job and successful business career	68	67	No data	No data
Opportunity to study favorite education profession in the university	No data	No data	68	69
Opportunity to earn money for your own needs	No data	No data	61	51
Material well-being, economic independence, self-dependence	58	46	52	47
Good housing conditions	42	46	40	49
Consciousness that you do good to people	23	25	31	30
Informative, interesting leisure	27	20	47	44
Honesty, conscientiousness, good name	23	23	30	33
Sense of security from violence, theft	No data	No data	29	29
Faith in God	No data	No data	21	13
No data – this option was not included in the questionnaire of the respective survey.				

of its existence in the parent family can be assessed, to some extent, by the results of the survey "Ural-1". Below we present the questions and answers of our young respondents (% of the total number of respondents; in the numerator – in the city – 900 people; in the denominator – in the village – 540 people).

1. Which category do you, your family, parents belong to in terms of living standard and prosperity now?

Live in full prosperity for now	45/52
Have an average income	52/45
Live on the edge of poverty	2/2
Live on the breadline	1/1
It is difficult to answer	0.6/0.7

2. Please, rate how you eat in the parent family:

My meals in the family can be assessed as:	Excellent	58/64
	Good	32/30
	Satisfactory	4/2
	Unsatisfactory	1/1
They can be different: stuff today and starve tomorrow		2/1
Difficult to answer		3/2

3. Rate, how friendly your family is:

Very friendly	57/60
More or less friendly	36/33
Not very friendly	5/5
Not friendly, everyone on their own	2/1
It is difficult to answer	0.3/1

It is not difficult to notice almost identical socio-economic well-being of urban and rural adolescents in parent families. Socio-economic illnesses experienced by the society as a whole can not but affect the livelihood of families that make up this society. The society is "ill" – most families are "ill". The institute of Russian families both in the city and in the village is "ill". Here are some manifestations of this disease.

"Education, if it wishes happiness to a person," K.D. Ushinsky wrote, "should educate him/her not for happiness, but prepare for work life... Education should develop a habit and love of work; it should give a person the opportunity to find work in his/her life... Education should not only develop human brain and give him a known volume of information, but it should spark a serious thirst for labor, without which his/her life can be neither decent nor happy" [4, p. 155].

We will try to answer the question, to what extent today's parent families "*spark thirst for serious work in children*". Adulthood is not only age period, but also participation in work and fulfilment of family obligations. However, the period of adolescence can be a time of lost opportunities and increased (from a medical point of view) risk if there is no adequate preparation for adult life, including family, or if the youth's behavior models can not be adapted to changing social conditions. We got the following responses (% of the total number of surveyed boys and girls in the village; *tab. 2*) on the question "Do you know how to do (more or less satisfactorily) the following activities?"

Is it good or bad, that in Russia (in our case in the **Urals**) 47% of modern 16–17-year-old rural girls (note: who will be wives and mothers in the near future) know how to cook beet-root soups, soups, 40% – bake cakes, 17% – make jam and pickles? Yes, it is most likely good for the families of their parents and their own future families. But let us look at these numbers from the other side. According to the self-assessments of girls-villagers, by the 10–11th grade 53% of the total number of respondents had not learned to cook soup, 60% – bake cakes and 83% – make jam and pickles. Let us note

Table 2. Skills of rural adolescents
(% of the total number of respondents for each family group)

Types of work activities	Boys (village)	Types of work activities	Girls (village)
Cut, chop wood	45	Cook beet-root soups, soups	47
Cut grass	33	Bake cakes	40
Drive a car	33	Embroider	39
Ride a motorcycle	29	Knit mittens, socks	17
Mow up hay, straw	14	Make pickles, jams	17
Drive a tractor	13	Sew dresses, clothing	13
Work as carpenter	11	Milk a cow	13
Tackle up	7	Bake bread	9

that the girls were not city dwellers, "close" to public catering, but villagers, "close to the earth" and natural economy.

It would be wrong to assess the children's sense of belonging to domestic work only in terms of their utilitarian readiness for self-service in the sphere of consumer activity of the family group. Skills in one or another form of domestic labor, permanent attachment to it is an evidence of general labor socialization of the child (young person), development of not only labor qualities like diligence, dedication, endurance, agility, but also such personal qualities as an ability to combine personal, group and public interests, formation of a respectful attitude to material wealth, work, sense of responsibility for behavior, development of a sense of kindness, empathy and compassion, etc.

According to the survey **"Ural-3"**, urban adolescents do not work much at home. As for the question *"What kind of work do you do regularly at home and in the garden (more or less constantly)?"*, the answers of the pupils living in two towns in the Urals were distributed as follows (% of the total number of respondents for each city; in the numerator – answers of the respondents from Ekaterinburg – 510 people, in the denominator – CATF "Lesnoy"– 300 people):

a) work at home:

Dust with a vacuum cleaner	67/64
Wash up the dishes	65/66
Regularly go to the grocery store	49/51
Do wet cleaning, wash the floors	46/ 46
Cook food (soup, main dish)	32/32
Iron linen	27/28

b) work in the garden:

Water vegetables, flowers, berries	51/39
Collect "time-consuming" berries (sea-buckthorn, currants, etc.)	37/33
Weed seed beds	33/26
Dig the earth, seed beds	27/23
Heat the stoves (in the house, bath-house)	21/17
Responsible for cooking	13/13

c) work either at home or in the garden:

Look after domestic animals (dogs, cats, etc.)	59/55
Help to repairs the house, garden	35/36
Look after younger brothers and sisters	32/33
Look after older relatives (a grandmother)	22/19
Plant (look after) seedlings, flowers	17/15
Look after a car, motorcycle	12/10

"Intellectualism" of a modern teenager and large amount of acquired knowledge are often achieved due to a lack of household duties in the family and in the process of school education. Meanwhile, the problem of labor education is intrinsically linked to the formation of teenager's social maturity, which does not always coincide with the acceleration of its physical development and saturation of information [5].

"Rural syndrome" has its antipode – "city syndrome" with the traits that are less perceptible for humans, but socially even more negative. We are talking about the temptations of idleness provoked by real opportunities to live in the city (a large one) for months and years (even a lifetime) without doing any work. This involves direct moral decay of if not parents, then surely of their children. The possibility of domestic consumption "contributes" to the citizens' estrangement from labor activity; it leads to the full orientation on the service sector in all little things of life.

Thus, there appears an infantile generation who is not capable for basic self-service and has corresponding shifts in the psyche [6].

Such a fact draws our attention. The survey **"Ural-3"** included an additional position *"faith in God"*. Of 510 young people from Ekaterinburg 105 respondents (21%) chose this value, along with the others; 13% of the respondents from CATF "Lesnoy" did the same (see tab. 1). Not giving the detailed analysis of this phenomenon, we note that nowadays religiosity (for example, the fact of considering themselves as believers in the youth environment) often has a situational character, it does not reveal worldview, but mindset, "elements of youth subcultures", characterized by considerable mobility. Often people consider themselves as Orthodox believers or Muslim, perceiving these religions as an essential element of cultural traditions.

The rural youth's adoption of a "basis" of the urban peers' deviant subculture is one of the most important components of the socio-residential assimilation process [7]. In particular, it is important to identify young people's moral and ethical values in the sphere of asocial manifestations and how they are reflected in the social development process. According to the study "Ural-2", the relative difference in value orientations and moral evaluations of most asocial manifestations in various socio-demographic groups is insignificant. So, 57% of all surveyed pupils did not consider "drunkenness" as a sin, 50% of them identified themselves as "Orthodox believers".

There is an interesting distribution of answers to the same question by two groups of students – men and women. "*Abortion*" is considered as a sin by 66% of men and 78% of women; "*homosexuality*" – by 64/41%, respectively; "*prostitution*" – 59/69%; "*infidelity*" (to husband/wife) – 57/65%; "*drunkenness*" – 37/48%, etc. [8].

There is another important thesis for our analysis. The sphere of professional education, represented mainly by universities in large cities, is the socio-cultural "forge", through a moral "crucible" and "anvil" of which the vast majority of future specialists of the village come. With the certificate of degree they bring culture from city to village, along with the antipodes and flaws of urban civilization. It is sad, but true.

Socio-residential assimilation of the rural youth in the cities is closely connected not only with the solution of socio-cultural tasks of strategic development of the Russian society. Any turning point in their solution directly affects the state of economy, welfare of the population and food security. In the near future the Russian society will have to answer the questions: who and how will cultivate the Russian land-feeder; who will grow cattle and poultry for future kebabs and burgers; how can it arouse interest (note: "not force") in rural boys and girls to ignore alluring lights of the city and live and work on the homeland of their fathers? and, finally, how can it stimulate the urban youth to reproduce attractive aspects of the rural lifestyle? These aspects should be attractive not due to ensured "hearty buffet", but

due to preserved physical and moral health and maintained healthy lifestyle, in general. How serious is this problem in the Urals?

It is known that the city has always attracted the population of villages, farms and towns primarily due to: (a) an opportunity to get "prestigious" and "well-to-do" education; b) a wider choice of employment; c) a higher level of public services and amenities; d) a number of utilities and cultural services; d) unwillingness to do hard agricultural labor. All this has formed and reproduces the main direction of migration flows from rural settlements to urban, from small towns to large.

Let us try to answer the question: how identical are the interests of rural parent families and the state in the formation and realization of life plans of rural school pupils? Most parents want to "educate" and "settle" their children in the city, "far away from the village". In turn, due to acute labor shortage in the agricultural production the state (if we ignore beautiful words) is interested to "settle" the villagers (both parents and their children) at their place of birth, following the proverb "Where you were born there you are useful". Hence, there emerge and exist "objective" obstacles to the rural youth migration to the cities: limits with registration, difficulties with housing, "unaffordable" cost for training "urban professions".

Let us summarize.

1. First of all, let us note that the emergence of fee paid higher education has significantly changed the combination of those factors that determine the entry of the rural (and not only rural) youth to the universities. "Parents' money" solves the problem of entering the university, paying for it, having means for life and leisure activities in the city. Getting a degree in "urban occupation" and the five-year urban lifestyle (taste of "beautiful life") encourage them to settle in the city, closer to social benefits, which today are (and it is unknown when they will be) provided in their rural homeland. Villagers' aspirations are based on almost identical (with the needs of urban peers) material and especially spiritual needs and interests, we have talked at the beginning of the article.

2. Today it is often argued that it is possible to solve the problem of labor resources in the Russian village by attracting labor migrants (in particular, from the CIS countries) and using surplus labor of the cities. Without dwelling on the analysis of unacceptability of (conviction of the author) the first option to solve the problem (and this is beyond the scope of this article), we will provide the reader with the available data regarding the second option. Let us raise a question: should the Ural villages wait for young personnel from the city? In our study **"Ural-3**" the pupils of two Ural cities were asked two questions concerning their future professional activity: the first is "What occupation would you like to get? (choose no more than five answer options) and the second is "What occupation do your parents advise you to choose?". In the questionnaire of 40 occupations to choose there were three "truly rural" occupations: veterinarian, zootechnician and agronomist. The results are presented below (% of the total number of respondents

for each city; in the numerator – answers of the respondents from Yekaterinburg – 510 people; in the denominator – CATF "Lesnoy – 300 people):

Rural occupations	I have chosen on my own	Parents have advised
Veterinarian	6.2/6.7	3.6/4.6
Zootechnician	2.1/2.1	1.8/1.8
Agronomist	1.1/1.8	0.3 (1 person)/0.0

Obviously, such occupation as *agronomist* is "unpopular" among parents and their adolescent children in the Urals. Urban schoolchildren prefer traditionally rural occupation, such as a zootechnician, as in the city these specialists are required to treat domestic animals, primarily dogs and cats.

3. The Strategy for Innovative Development of the Village should address the following problems: why and how we should develop the economy of agricultural production, the rural way of life, in general, in order to implement the vision, mission and achieve the desired goals in the future. The innovation strategy provides a long-term prospect, a view "from the future to the present". The strategy defines what to change and how to change. The questions being answered give us the opportunity to elaborate the mechanism of innovation development of the village as a system [9].

The essence of the innovation strategy of rural development is not only to foresee the changes of its commercial and industrial activities and develop solutions that ensure harmonious and sustainable development of this vital reproductive process. The strategy is to "provide" the desired transformation of all spheres of social life in the rural society, its relationship with the city, the urban lifestyle. "The important goal", the Presidential Address to the Federal Assembly of the Russian Federation of December 12, 2013 states, "to increase the attractiveness of rural areas for life and work... the task to settle people in rural areas, create a modern and comfortable infrastructure in the rural areas is in the foreground" [10].

4. It is known that the doctrine of the noosphere developed and became widespread in the 20th century. It is a shell of the Earth, formed by the human mind on the basis of the biosphere (spheres of life). At the beginning of the3d Millennium the researchers' attention to studying global problems increased due to the necessity to find ways out of the global crisis. To save the world of those who are accurately described as our "younger brothers" by S. Esenin is a moral duty of the mankind, guilty of the destructive consequences of its impact on the natural environment. We are talking about the paternalism of Man over endangered species of fauna and flora.

We dare compare, by association, the relationship between major cities (especially megacities), on the one hand, and numerous small towns and rural-settlements, on the other hand, with the relationship between "older" and "younger brothers" in the development of urban culture in Russia. The results of these relations are not good. For the last decades the map of the country has lacked tens of thousands of villages and small towns. "The red book of settlements" should include thousands of previously

flourished and now stagnating cities, workers' settlements and large settlements. Let us note that the process of small settlements extinction is accompanied with the rapid growth and improvement of large and largest cities. They are, as a rule, administrative centers of the regions. There is a vivid example, such as the expanding and becoming more beautiful city of Ekaterinburg and most "thinning" cities and villages of the Sverdlovsk Oblast [11].

5. And the last one. Without going in detail about the problem (*it is the subject of another study*), we will present our proposal for the elaboration and implementation of strategic plans for the development of successful cities. Increasing its beauty, fashionable character, strength and attractiveness, they ("older urban brothers") we should not forget about deep roots of such an "upsurge" of development. In other words, we are talking about the reconstruction of the special institute of "urban paternalism", which stipulates responsibility of big cities for "socio-economic health" and decent survival of surrounding residential areas. They say: "Don't cut the bow you are standing on"...

References

1. *Poslanie Prezidenta RF V.V. Putina Federal'nomu Sobraniyu* [Address of V.V. Putin to the Federal Assembly]. Available at: http://www.b-port.com/news/item/93504.html.
2. Pavlov B.S., Bondareva L.N. O problemakh vosproizvodstva sel'skogo naseleniya na Urale [About the Problems of Reproduction of Rural Population in the Urals]. *Agrarnyi vestnik Urala* [Agricultural Herald of the Urals], 2013, no. 12, pp. 90-94.
3. Pavlov B.S., Razikova N.I. "Ottsy i deti" v gorodskoi sem'e: obshchenie ili otchuzhdenie ["Fathers and Sons" in the Urban Family: Communication or Alienation]. *Diskussiya* [Discussion], 2012, no. 10, pp. 110-119.
4. Ushinskii K.D. *Izbrannye pedagogicheskie proizvedeniya* [Selected Pedagogical Works]. Moscow: Mysl', 1968. P. 155.
5. Pavlov B.S. *Iz shkol'nogo v rabochii klass* [Out of the Classroom and into the Working Class]. Moscow: Sovetskaya Rossiya, 1989. 240 p.
6. Pavlov B.S. Potreblenie i potrebitel'stvo molodezhi v "inter'ere" bednosti roditel'skikh semei (na primere Urala) [Consumption and Consumerism in Young People on the Background of Poverty in Their Families (Case Study of the Urals)]. *EKO* [All-Russian Economic Journal], 2013, no. 7, pp. 128-138.
7. Pavlov B.S. Nad opasnym "sotsial'nym pridon'em" (o deviantnoi subkul'ture podrostkov) [Over the Dangerous "Social Lower Depths" (about Deviant Subculture]. *Sotsiologicheskie issledovaniya* [Sociological Studies], 2013, no. 2, pp. 69-80.
8. Pavlov B.S., Razikova N.I., Podvysotskii A.I. Veryat li v boga ural'skie studenty [Do the Students in the Urals Believe in God]. *Diskussiya* [Discussion], 2012, no. 8, pp. 104-110.
9. Bersenev V.L., Vazhenin S.G., Pavlov B.S. Osobye grani sovremennoi rossiiskoi ekonomiki i ne tol'ko [Special Facets of Modern Russian Economy and Other Issues]. *Ekonomika regiona* [Economy of the Region], 2011, no. 1, pp. 264-267.
10. *Ezhegodnoe Poslanie Prezidenta RF V.V. Putina Federal'nomu Sobraniyu 12 dekabrya 2013 g.* [Annual Address of V.V. Putin to the Federal Assembly, December 12, 2013]. Available at: http:// http://www.rg.ru/2013/12/12/poslanie.html.

11. Pavlov B.S. *Vosproizvodstvo chelovecheskogo potentsiala v regione: teoreticheskie i metodicheskie aspekty sotsial'no-ekonomicheskogo analiza (na primere Urala)* [Reproduction of Human Potential in the Region: Theoretical and Methodological Aspects of Socio-Economic Analysis (Case Study of the Urals)]. Yekaterinburg: In-t ekonomiki UrO RAN, 2014. 575 p.

Cited works

1. *Address of V.V. Putin to the Federal Assembly*. Available at: http://www.b-port.com/news/item/93504.html.
2. Pavlov B.S., Bondareva L.N. About the Problems of Reproduction of Rural Population in the Urals. *Agricultural Herald of the Urals*, 2013, no. 12, pp. 90-94.
3. Pavlov B.S., Razikova N.I. "Fathers and Sons" in the Urban Family: Communication or Alienation. *Discussion,* 2012, no. 10, pp. 110-119.
4. Ushinskii K.D. *Selected Pedagogical Works*. Moscow: Mysl', 1968. P. 155.
5. Pavlov B.S. *Out of the Classroom and into the Working Class*. Moscow: Sovetskaya Rossiya, 1989. 240 p.
6. Pavlov B.S. Consumption and Consumerism in Young People on the Background of Poverty in Their Families (Case Study of the Urals). *All-Russian Economic Journal*, 2013, no. 7, pp. 128-138.
7. Pavlov B.S. Over the Dangerous "Social Lower Depths" (about Deviant Subculture. *Sociological Studies,* 2013, no. 2, pp. 69-80.
8. Pavlov B.S., Razikova N.I., Podvysotskii A.I. Do the Students in the Urals Believe in God. *Discussion,* 2012, no. 8, pp. 104-110.
9. Bersenev V.L., Vazhenin S.G., Pavlov B.S. Special Facets of Modern Russian Economy and Other Issues. *Economy of the Region*, 2011, no. 1, pp. 264-267.
10. *Annual Address of V.V. Putin to the Federal Assembly, December 12, 2013*. Available at: http:// http://www.rg.ru/2013/12/12/poslanie.html.
11. Pavlov B.S. *Reproduction of Human Potential in the Region: Theoretical and Methodological Aspects of Socio-Economic Analysis (Case Study of the Urals)*. Yekaterinburg: In-t ekonomiki UrO RAN, 2014. 575 p.

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Problem of drug addiction in the youth in the Republic of North Ossetia-Alania of the RF North Caucasian Federal District

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Abstract. This article is based on the large-scale survey "the problem of drug addiction among the youth in the Republic of North Ossetia-Alania of the RF North Caucasian Federal District". In April-May North Ossetian Center of Social Research of the Institute of Socio-Political Research RAS together with North Ossetian State University after K.L. Khetagurov conducted a monitoring aimed at evaluating the drug abuse situation in the Republic of North Ossetia-Alania and identifying the causes of drug abuse among young citizens of the republic. It studied the system of beliefs, habits and aspirations of young people. The research focused on the sociological assessment of the drug abuse situation in the Republic of North Ossetia and it was based on the study of systems of beliefs, habits and preferences of the residents, as well as on the identification of the reasons for the spread of drug addiction among the population. The achievement of this goal required solution of the following tasks:

- to evaluate beliefs, value systems, life plans, the state of health of the North Ossetia-Alania citizens, learn their opinion on the possibility of rational leisure time and recreation by means of monitoring;

• to assess bad habits of the republic citizens, estimate the society's relation to the problems of drug addiction and drug addicts, analyze the reasons for the emergence and existence of this phenomenon in the society;

• to evaluate effectiveness of the measures to combat drug addiction;

• to identify reasons for drug addiction, most frequently used types of drugs, the cost of a single dose, a market place and consumers' access to drugs;

• to assess practical activities aimed at improving the drug abuse situation in the republic. The sample size was 600 people.

Key words: liberalization, psychotropic substances, drug dealers, drug addiction, drug addicts, former drug addicts, lectures and talks, adolescent, prosperous European countries, advertising, authorities, pupils, students, pleasure, feelings, stress relief, high level of income, drug treating.

Measures against drug use

In the scientific literature, on paper and on the Internet there are plenty of sources that reflect the research methods to socialize drug addicts. The most extensive sector of such information demonstrates drug addiction as a social, medical, psychological phenomenon. The experts have developed research areas in the field of drug prevention. However, the survey of social events, conducted in this direction, is presented insufficiently. It often just registers the measures carried out by ministries, departments and associations without their proper evaluation.

Sometimes the publications authors only consider activities, such as thematic lectures, discus-sions in certain educational institutions, claiming that the projection of the latter on a larger audience can be effective [9]. Some publications in the journal "Narcology" are exceptions [8]. This article fully presents an overview of drug prevention resources of the Russian-speaking segment of the Internet. The main attention is paid to the description of the informational projects implemented by the government agencies, private entities and individuals. The analysis of advantages and disadvantages of the thematic Internet-projects created for the drug use prevention. These reviews help form a clear picture of drug prevention activities, performed in our country and the world, highlight the most effective of them and give recommendations in this direction to the social institutions.

According to some experts, participated in our study, in the Republic of North Ossetia-Alania there are many public events aimed at drug prevention. The Ministry of Youth Affairs, Physical Culture and Sports, the Youth Parliament held a number of successful events with the participation of pop singers and dance groups. However, propaganda, its scale and frequency, is still weak. This discloses people's insufficient awareness about these events, and their concentration mainly in the capital and irregular character.

Over half of the respondents answered the question about the concerts and festivals against drug use negatively: "For the last two years I have not come across them" (52.3%). Other survey participants

can be divided into two practically equal groups: "I have participated, seen, heard" (23.4%) and "I have known about it from friends, acquaintances, read about it" (24.3%). The responses of Vladikavkaz residents are identical to those in the general survey. So, 52.7% of Vladikavkaz also have not come across them for the last two years. The rest of responses are divided into 2 groups: "I have participated, seen, heard" (22.8%), and "I have known about it from friends, acquaintances, read about it" (24.5%) (*tab. 1*).

The answers of the respondents living in the region vary greatly. So, the respondents of Digorsky District (77.4%) and Alagirsky District (70.4%) are the least aware of the activities. Then, the same answers are given by 57.1% of the Kirovsky District residents, 55.2% of Mozdoksky District, 48.45 of Pravoberezhny District and 44.4% of Ardonsky District. The least number of the answer "For the last 2 years I have not come across them" is registered in Irafsky District (31.0%). The answer "I have participated, seen, heard" is given by 41.9% of the Pravoberezhny District residents, 37.9% of the Irafsky District residents, 24.1% of the Mozdoksky District residents, 22.6% of the Prigorodny District residents, 22.2% of the Ardonsky District residents, 21.4% of the Kirovsky District residents. The least number of the response "I have participated, seen, heard" (14.8%) is observed in Alagirsky District

The answer "I have known about it from friends, acquaintances, read about it" is given by 45.2% of the Prigorodny District residents, one third of the Ardonsky District residents, 31.0% the Irafsky District residents, 21.4% the Kirovsky District residents, 20.7% the Mozdoksky District residents, 16.1% of the Digorsky District residents, 14.8% of the Alagirsky District residents. The respondents from Pravoberezhny District give the answer "I have learned about it from friends, acquaintances, read about it" least of all (9.7%).

The respondents living in the region are poorly informed about the concerts and festivals dedicated to the campaign to combat drugs.

Table 1. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Special concerts, festivals; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	23.4	22.8	14.8	22.2	6.5	37.9	21.4	24.1	41.9	22.6
I have learned about it from friends, acquaintances, read about it	24.3	24.5	14.8	33.3	16.1	31.0	21.4	20.7	9.7	45.2
For the last 2 years I have not come across them	52.3	52.7	70.4	44.4	77.4	31.0	57.1	55.2	48.4	32.3
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

On average, about 70% of the respondents answer "For the last 2 years I have not come across them". The share of those who answer "I have participated, seen, heard" does not exceed 40% and amounts to 25% on average. The negative answers are especially wide-spread among the respondents of Digorsky District: more than 70% have no idea about current activities; the number of people participated in the events is significantly lower than in other districts of the republic.

So, in the districts of North Ossetia-Alania there is a large percentage of those who are not aware of the republic's drug prevention events (concerts, festivals). Irafsky District is the only exception: its residents are equally unaware of the measures and aware from friends. It is noteworthy that teenagers, pupils and students of secondary specialized educational establishments are least aware of such events (about 50%); less than a third of the university students know about them.

More than half of the large-scale survey participants (55.4%) claim "I have participated, seen, heard" regarding anti-drug advertising on television, radio, in the press *(tab. 2)*.

23.0% of them have learned about these events from friends or have read, 21.5% have not come across them for the last 2 years. The capital residents have participated, seen, heard more often (65.7%). 16.7% have learned about them from friends, acquaintances, read about it, 17.6% have not come across them for the last 2 years.

The villagers' responses vary greatly. Thus, the residents of Prigorodny District and Irafsky districts have participated, seen, heard about the events more than others (74.2 and 70.0%, respectively). The least activity was shown by the respondents from Digorsky District (22.6%), Alagirsky District and Ardonsky District (both 25.9%). About half of the respondents from Mozdoksky District (51.6%), Pravoberezhny District (45.2%) and Kirovsky District (41.9%) have participated, seen, heard about the measures. The Ardonsky District residents (66.7%) have learned about it from friends,

Table 2. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Anti-drug advertising on television, radio, in the press; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	55.4	65.7	25.9	25.9	22.6	70.0	41.9	51.6	45.2	74.2
I have learned about it from friends, acquaintances, read about it	23.0	16.7	25.9	66.7	9.7	26.7	38.7	22.6	25.8	22.6
For the last 2 years I have not come across them	21.5	17.6	48.1	7.4	67.7	3.3	19.4	25.8	29.0	3.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

acquaintances, read about it more than other respondents. The share of such respondents in other districts varies between a third and a quarter: namely, 38.7% of the responses are given by the respondents of Kirovsky District, 26.7% – Irafsky District, 25.9% – Alagirsky District, 25.8% – Pravoberezhny District, 22.6% Mozdoksky District and Prigorodny District. The respondents from Digorsky District (9.7%) are less informed about the current events. 67.7% of the Digorsky District residents and 48.1% of the Alagirsky District residents have not come across them for the last 2 years. The same answer is given by 29.0% of the respondents of Pravoberezhny District, 25.8% – of Mozdoksky District, 19.4% – of Kirovsky District and 7.4% – of Ardonsky District. The share of such respondents in Irafsky District and Prigorodny District is negligible – 3.3 and 3.2%, respectively.

According to *table 3*, the respondents in North Ossetia assess the quality of anti-drug posters and postcards negatively.

For the last two years 44.4% of all respondents have not come across such products, about one-third (33.6 percent) have participated, seen, heard about them, 22.0% have learned about them from friends, acquaintances, read about it.

The answers given by the capital residents are similar to those of all respondents: for the last two years 47.9% have not come across such products, 34.3% have participated, seen, heard about it, 17.8% have learned about it from friends, acquaintances, read about it.

The villagers' responses are very different. Such products are least of all spread in Digorsky District (according to 77.8% of the respondents).

There is a downward trend in the answers of respon-dents living in other districts: 57.7% of the Alagirsky District residents, 48.4% of the Kirovsky District residents, 41.9% of the Mozdoksky District and Prigorodny District residents, 29.0% the Pravoberezhny District residents, 23.1% of the Ardonsky District residents have never seen posters or postcards for the last two years. The respondents from Irafsky District are least aware (6.7%).

Table 3. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Posters, postcards; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	33.6	34.3	19.2	30.8	16.1	63.3	19.4	32.3	48.4	32.3
I have learned about it from friends, acquaintances, read about it	22.0	17.8	23.1	46.2	6.5	30.0	32.3	25.8	22.6	25.8
For the last 2 years I have not come across them	44.4	47.9	57.7	23.1	77.4	6.7	48.4	41.9	29.0	41.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

There is a downward trend in the answers of respondents living in other districts: 48.4% of the Pravoberezhny District residents, and 32.3% of the Mozdoksky District and Prigorodny District residents, 30.8% of the Ardonsky District residents, 19.4% of the Kirovsky District residents, 19.2% of the Alagirsky District residents have participated, seen, heard about posters and postcards on this topic. The respondents from Digorsky District are least aware (16.1%).

Of all the surveyed residents the representatives of Ardonsky District (46.2%) are more aware about similar products from friends. There is a downward trend in the answers of respondents living in other districts: 32.3% of the Kirovsky District residents, 30.0% of the Irafsky District residents, 25.8% of the Mozdoksky District and Prigorodny District residents, 23.1% of the Alagirsky District residents, 22.6% of the Pravoberezhny District residents have learned about them from friends, read about similar products. The respondents from Digorsky District are least aware (6.5%).

So, about a third of the villagers have seen drug-prevention posters and postcards. Practically the same share has known about such products from friends or has read. The Pravoberezhny District respondents are most active in this regard. On average, about half of the villagers have not seen posters or postcards for the last two years.

As for the question about the distribution of drug prevention booklets and brochures, half of all the respondents with such a variable as "place of residence", state that they have not come across them for the last 2 years (47.8%) *(tab. 4)*.

28.4% choose the option "I have participated, seen, heard"; 23.7% – "I have known about it from friends, acquaintances, read about it"; 47.8% – "for the last 2 years I have not come across them".

Exactly one third of the respondents from Vladikavkaz have participated, seen, heard about the measures, 17.0% have learned about them from friends or have read about it. Half of them have not seen drug prevention booklets and brochures for the last two years.

Table 4. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Drug prevention booklets and brochures; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	28.4	33.0	11.5	25.9	6.7	17.2	25.8	13.3	60.0	29.0
I have learned about it from friends, acquaintances, read about it	23.7	17.0	34.6	59.3	6.7	51.7	32.3	33.3	3.3	25.8
For the last 2 years I have not come across them	47.8	50.0	53.8	14.8	86.7	31.0	41.9	53.3	36.7	45.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

60.0% of the Pravoberezhny District residents, 29.0% of the Prigorodny District residents, 25.9% of the Ardonsky District residents, 25.8% of the Kirovsky District residents, 17.2% of the Irafsky District residents chose the answer option "I have participated, seen, heard". This option is seldom observed among the respondents from Mozdoksky District (13.3%), Alagirsky District (11.5%), Digorsky District (6.7%). In the latter case there is a small number of answers "I have known about it from friends, acquaintances, and have read about it".

More than half of the respondents from Ardonsky District (59.3%) and Irafsky District (51.7%), 34.6% of Alagirsky District, exactly one third of Mozdoksky District, 32.4% of Kirovsky District, 25.8% of Prigorodny District have known about it from friends, acquaintances or have read about it. The respondents from Pravoberezhny District are least aware (3.3%).

89.7% of the residents of Digorsky District, more than half of the residents of Alagirsky District (53.8%) and Mozdoksky District (53.3%), 45.2% of Prigorodny District, 41.9% of Kirovsky District, 36.7% of Pravoberezhny District, 31.0% of the Irafsky District have not seen these products for the last two years. The respondents from Ardonsky District are least aware (14.8%).

According to the study, the citizens of the republic do not read drug prevention booklets and brochures actively: only one third of the population in Vladikavkaz, up to 30% in the rural areas. The Digorsky District residents are least aware (6.7%). The respondents from Pravoberezhny District (60%) are an exception – about half of the respondents in the republic have not seen such materials for the last two years.

The villagers' responses vary greatly. Thus, the Prigorodny District residents have participated, seen, heard about such events more than others (80.6%). The least activity is shown by the respondents from Alagirsky District (26.9%) and Ardonsky District (18.5%) *(tab. 5)*.

Table 5. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Thematic programs and films on TV; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	46.3	46.9	26.9	18.5	53.3	43.3	46.7	45.2	80.6	45.2
I have learned about it from friends, acquaintances, read about it	25.1	19.7	30.8	74.1	3.3	36.7	40.0	22.6	12.9	29.0
For the last 2 years I have not come across them	28.6	33.5	42.3	7.4	43.3	20.0	13.3	32.3	6.5	25.8
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

More than half of the population in Digorsky District (53.3%), Kirovsky District (46.7%), Irafsky District (43.3%), Mozdoksky District and Prigorodny District (45.2%) have participated, seen, heard about the measures. The Ardonsky District residents have learned about it from friends, acquaintances or have read about them more than others (74.1%). The proportion of responses from other districts is as follows: 40.0% of the answers are given by the respondents from Kirovsky District, 36.7% – from Irafsky District, 30.8% – Alagirsky District, 29.0% – Prigorodny District and 22.6% – Mozdoksky District. The respondents of Digorsky District are least informed about the ongoing promotions on TV (3.3%). Their most frequent answer variant is "For the last 2 years I have not come across them" (43.3%).

The same answer is given by 42.3% of the respondents from Alagirsky District, 32.3% – from Mozdoksky District, 25.8% – Prigorodny District and 13.3% – Kirovsky District. The share of such respondents in Ardonsky District and Pravoberezhny District is small (7.4% and 6.5%, respectively).

As for the question about the coverage of drug-related harm in the mass media, 38.6% of all respondents have not seen articles on the topic for the last two years. The numerical data of *Table 6* show that 34.8% of the respondents have answered "I have participated, seen, heard" and 26.5% of them have learned about it from friends, acquaintances or have read about it. 36.2% of the respondents from Vladikavkaz choose the answer option "I have participated, seen, heard" and 23.4% – "I have known about it from friends, acquaintances, and read about it". 40.4% of the respondents have not seen them for the last 2 years *(tab. 6)*.

The villagers' responses are very different. Thus, the residents of Pravoberezhny District and Prigorodny District have participated, seen, heard about the measures more than others (54.8 and 51.7%, respectively). The least activity is shown by the respondents from Alagirsky District

Table 6. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Articles in the press; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	34.8	36.2	19.2	33.3	12.9	40.0	22.6	32.3	54.8	51.7
I have learned about it from friends, acquaintances, read about it	26.5	23.4	26.9	44.4	16.1	33.3	29.0	35.5	22.6	31.0
For the last 2 years I have not come across them	38.6	40.4	53.8	22.2	71.0	26.7	48.4	32.3	22.6	17.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(12.9%) and Digorsky District (12.9%). A third of the respondents from Ardonsky District, 22.6% – from Kirovsky District, 40.0% – Irafsky District and 32.3% – Mozdoksky District have participated, saw, heard about the events. The respondents from Ardonsky District have learned about them from friends or have read about them (44.4%). The share of respondents from other districts is the following: 29.0% of the answers are given by the residents of Kirovsky District, exactly one third – of Irafsky District, 26.9% – Alagirsky District, 31.0% – Prigorodny District and 35.5% – Mozdoksky District. Digorsky District is the least informed about ongoing promotions on TV (16.1%). Its population prefers the answer option "For the last 2 years I have not come across them" (71.0%).

The same answer is given by 53.8% of the respondents from Alagirsky District, 48.4% – from Kirovsky District, 32.3% – Mozdoksky District and 22.6% – Pravoberezhny District. The share of such respondents in Ardonsky District and Prigorodny District is small (22.2 and 17.2%, respectively).

According to Table 6, the population of North Ossetia is not particularly interested in the articles on drug prevention, so only half of the respondents give positive answers.

35.9% of all the respondents have not seen publications on the Internet and specialized sites for the last two years. 39.5% of all respondents have participated, seen, heard about publications on the Internet, about a quarter (24.6%) have known about them from friends, acquaintances, read about them.

The answers of the respondents who live in the capital are similar to those of all respondents. 35.0% in the last two years have not come across this information, 43.9% have participated, seen, heard about it and 21.1% have learned from friends, acquaintances, read about it. The villagers' answers are different.

The majority of people in Digorsky District have not seen such publications on the Internet or on specialized sites for the last two years (90.0%). The answers of other districts' residents are presented in the descending order: 56.7% – Kirovsky District, 40.0% – Mozdoksky District, 25.9% – Ardonsky District, 23.1% – Alagirsky District, 20.7% –Irafsky District. The population of Pravo-berezhny District and Prigorodny District has negative responses least of all (19.4 and 16.1%, respectively*) (tab. 7)*.

The residents of Prigorodny District have seen publications on the Internet more often than others (64.5%). The answers of other districts' respondents are presented in the descending order: 58.1% of the residents of Pravoberezhny District, 43.3% of Mozdoksky District, exactly a third of Ardonsky District, 30.8% of Alagirsky District, 24.1% of Irafsky District, 16.7% of Kirovsky District have participated, seen, heard of Internet publications on such topics. The population in Digorsky District is least informed (6.7%).

The Irafsky District residents have known about such sites from friends, read about them more than other interviewees (55.2%). The answers of other districts' respondents are presented in the descending

Table 7. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Publications on the Internet, specialized sites; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	39.5	43.9	30.8	33.3	6.7	24.1	16.7	43.3	58.1	64.5
I have learned about it from friends, acquaintances, read about it	24.6	21.1	46.2	40.7	3.3	55.2	26.7	16.7	22.6	19.4
For the last 2 years I have not come across them	35.9	35.0	23.1	25.9	90.0	20.7	56.7	40.0	19.4	16.1
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

order: 46.2% of the residents of Alagirsky District, 40.7% – of Ardonsky District, 26.7% – of Kirovsky District, 22.6% – of Pravoberezhny District, 19.4% – of Prigorodny District and 16.7% – of Mozdoksky District have learned from friends, acquaintances, read this information. The respondents of Digorsky District are least informed (3.3%).

More than a third of the respondents from villages have seen web-sites on drug prevention. About a quarter of the respondents have known from friends, acquaintances, read about it.

The most informed respondents are Prigorodny District residents (over 60%), the least informed – Digorsky District residents (90% of them have no idea about it). On average, about 40% of the villagers have not seen web-sites on this topic for the last two years.

As for the famous people's speeches on drug-related harm, about half of the respondents in the republic (48.1%) have not heard them for the last two years *(tab. 8)*.

The rest survey answers can be divided into two groups: "I have participated, seen, heard" (26.9%) and "I have learned about it from friends, acquaintances, read about it" (25.0%). The responses of residents of Vladikavkaz are similar to those of the general survey. So, 50.4% of the population in Vladikavkaz has not come across them for the last 2 years. The rest of the respondents almost evenly divide their votes between two variants of answers: "I have participated, seen, heard" (28.3%) and "I have learned about it from friends, acquaintances, read about it" (21.3%). The villagers' responses vary greatly. So, the respondents from Digorsky District (67.7%) and Kirovsky District (58.1%) have not heard such speeches. The same answer is given by 51.6% of the residents of Pravoberezhny District, 46.2% of Alagirsky District, 41.9% of Prigorodny District, 37.9% of Irafsky District and 30.0% of Mozdoksky District. The Ardonsky District residents choose the answer option "For the last 2 years I have not come across them" least of all (29.6%).

Table 8. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Speeches of famous people in the field of politics and art in the media; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	26.9	28.3	7.7	14.8	22.6	20.7	19.4	50.0	35.5	29.0
I have learned about it from friends, acquaintances, read about it	25.0	21.3	46.2	55.6	9.7	41.4	22.6	20.0	12.9	29.0
For the last 2 years I have not come across them	48.1	50.4	46.2	29.6	67.7	37.9	58.1	30.0	51.6	41.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The answer variant "I have participated, seen, heard" is preferred by exactly half of the respondents from Mozdoksky District, 35.5% – from Pravoberezhny District, 29.0% – Prigorodny District, 20.7% – Irafsky District, 19.4% – Kirovsky District and 14.8% – Ardonsky District. The fewest responses "I have participated, seen, heard" are given by the respondents from Alagirsky District (7.7%).

The answer variant "I have learned about it from friends, acquaintances, read about it" is preferred by 55.6% of the respondents from Ardonsky District, 46.2% – from Alagirsky District, 41.4% – Irafsky District, 29.0% – Prigorodny District, 22.6% – Kirovsky District and 20.0% – Mozdoksky District. The fewest responses "I have learned about it from friends, acquaintances, read about it" are given by the respondents from Digorsky District (9.7%).

As for the reports of physicians, policemen, drug enforcement officers presented in the media, about one-third of the surveyed (34.2%) mention that they have not come with them for the last two years. Other participants divide their votes between two variants of answers: "I have participated, seen, heard" (40.1%) and "I have learned about it from friends, acquaintances, read about it" (25.7%). The responses of the Vladikavkaz residents are similar to those in the general survey.

So, 32.4% of the Vladikavkaz respondents have not come across them for the last two years. The rest divide their votes between two variants of answers: "I have participated, seen, heard" (45.6%) and "I have known about it from friends, acquaintances, read about it" (22.0%) *(tab. 9)*.

The residents of Digorsky District (71.0%) and Kirovsky District (48.1% have not come across them for the last two years. The same answer option is chosen by the 41.9% of the respondents from Pravoberezhny District, 38.5% – from Alagirsky District, 22.6% – Prigorodny District and 29.0% – Mozdoksky District.

Table 9. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Speeches of physicians, policemen, drug enforcement officers; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	40.1	45.6	23.1	28.6	25.8	48.3	22.6	45.2	38.7	41.9
I have learned about it from friends, acquaintances, read about it	25.7	22.0	38.5	53.6	3.2	34.5	29.0	25.8	19.4	35.5
For the last 2 years I have not come across them	34.2	32.4	38.5	17.9	71.0	17.2	48.4	29.0	41.9	22.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The respondents from Irafsky District prefer the answer variant "For the last 2 years I have not come across them" least of all (17.2%).

The response "I have participated, seen, heard" is given by 48.3% of the respondents from Irafsky District, 45.2% – from Mozdoksky District, 38.7% – Pravoberezhny District, 41.9% – Prigorodny District and 28.6% – Ardonsky District, 25.8% – Digorsky District and 23.1% – Alagirsky District. The population of Kirovsky District has have participated, seen, heard about such reports least of all (22.6%). The answer option "I have learned about it from friends, acquaintances, read about it" is preferred by 53.6% of the respondents from Ardonsky District, 38.5% – from Alagirsky District, 34.5% – Irafsky District, 35.5% – Prigorodny District, 29.0% – Kirovsky Distric and 25.8% – Mozdoksky District. The Digorsky District residents have learned about it from friends, acquaintances, read about it least of all (3.2%).

The representatives of Irafsky District are informed about the reports of physicians, policemen, drug enforcement officers to a greater extent (48.3%). Digorsky District (71.0% of the respondents) and Kirovsky District (48.1%) have not come across such statements more than others.

As for the drug prevention lectures and seminars carried out in schools, 40.3% of the respondents hav e not come across them for the last two years.

Other participants of the survey divide their votes between two variants of answers: "I have participated, seen, heard" (35.7%) and "I have learned about it from friends, acquaintances, read about it" (24.1%). The responses of the Vladikavkaz residents are similar to those in the general survey. So, 38.2% of the Vladikavkaz respondents have not come across such seminars for the last two years. The rest divide their votes almost evenly between two variants of answers: "I have participated, seen, heard" (37.0%) and "I have learned about it from friends, acquaintances, read about it" (24.8%). The answers of the respondents living in the region are different. So, the residents of Digorsky District (74.2%) and Kirovsky

District (58.1%) have not come across such events more than others. The same answer is given by 57.7% of the residents of Alagirsky District, 45.2% – of Pravoberezhny District, 34.5% – Mozdoksky District, 32.3% – Prigorodny District and exactly a quarter – Ardonsky District. The respondents from Irafsky District answer "For the last 2 years I have not come across them" least of all (10.3%) *(tab. 10)*.

The answer variant "I have participated, seen, heard" is preferred by 44.8% of the respondents of Mozdoksky District, 45.2% – of Pravoberezhny District, 32.3% – Prigorodny District, 58.6% – Irafsky District, 19.4% – Kirovsky District and 32.1% – Ardonsky District. The respondents from Alagirsky District choose such a variant least of all (15.4%).

The answer option "I have learned about it from friends, acquaintances, read about it" is preferred by 42.9% of the residents of Ardonsky District, 26.9% – of Alagirsky District, 31.0% – Irafsky District, 35.5% – Prigorodny District, 22.6% – Kirovsky District and 20.7% – Mozdoksky District.

The Digorsky District residents do not give such an answer.

According to Table 10, from one-third to half of the respondents regardless of place of residence admit that they have not heard about seminars on drug-related harm conducted in educational institutions for the last 2 years. The Digorsky District residents are especially uninformed on this issue (74.2%); nobody among them has known about the measures from friends or read about it. On average, about one-third of the respondent-villagers have participated in such events, up to 30% have known about them from friends and acquaintances.

As for the measures to talk with parents about drug abuse and its consequences, 58.9% of the surveyed have not participated in such events for the last two years *(tab. 11)*.

Other participants of the survey divide their votes were between two variants of answers: "I have participated, seen, heard" (20.3%) and "I have learned about it from friends, acquaintances, read about it" (20.8%).

Table 10. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Lectures, seminars in an educational institution; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	35.7	37.0	15.4	32.1	25.8	58.6	19.4	44.8	45.2	32.3
I have known about it from friends, acquaintances, read about it	24.1	24.8	26.9	42.9		31.0	22.6	20.7	9.7	35.5
For the last 2 years I have not come across them	40.3	38.2	57.7	25.0	74.2	10.3	58.1	34.5	45.2	32.3
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 11. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Conversations with pupils' parents; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	20.3	16.9	11.5	20.0	9.7	50.0	12.9	40.0	22.6	22.6
I have learned about it from friends, acquaintances, read about it	20.8	18.6	23.1	48.0	3.2	33.3	22.6	13.3	19.4	25.8
For the last 2 years I have not come across them	58.9	64.6	65.4	32.0	87.1	16.7	64.5	46.7	58.1	51.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The responses of the Vladikavkaz residents are similar to those in the general survey. So, 64.6% of the Vladikavkaz residents have not come across them for the last 2 years. The rest divide almost evenly their votes between two variants of answers: "I have participated, seen, heard" (16.9%) and "I have learned about it from friends, acquaintances, read about it" (18.6%).

The answers of the respondents living in the region vary greatly. So, the respondents from Digorsky District (87.1%), Kirovsky District (64.5%) and Alagirsky District (64.4%) have not had such conversations with parents for the last two years more than others. The same answer option is chosen by 58.1% of the residents of Pravoberezhny District, 46.7% – of Mozdoksky District, 51.6% – Prigorodny District and 32.0% – Ardonsky District. The respondents from Irafsky District have given the answer "For the last 2 years I have not come across them" least of all (16.7%).

The response "I have participated, seen, heard" is preferred by exactly half of the respondents from Irafsky District, 40.0% – from Mozdoksky District, 22.6% – Pravoberezhny District and Prigorodny District, 20.0% – Ardonsky District, 12.9% – Kirovsky District and 11.5% – Alagirsky District. The respondents from Digorsky District answer "I have participated, seen, heard" least of all (9.7%).

The answer variant "I have learned about it from friends, acquaintances, read about it" is chosen by 48.0% of the respondents from Ardonsky District, 23.1% – from Alagirsky District, exactly one third of the respondents from Irafsky District, 25.8% – from Prigorodny District, 22.6% – Kirovsky District and 13.3% – Mozdoksky District. The Digorsky District residents give such answer least of all (3.2%).

According to Table 11, the vast majority of the respondents irrespective of place of residence admit that they have not come across the talks with parents about the dangers of drug abuse for the last two years. The Digorsky District residents are especially uninformed (87.1%). They have not also known about it from friends or read about it (3.2%). On average, about a quarter

of the respondents-villagers have participated in such events and known about them from friends and acquaintances.

For the last two years more than half of the respondents (53.1%) have not heard about such a measure as speeches of former drug addicts. Other survey participants divide their votes were between two variants of answers: "I have participated, seen, heard" (32.2%), and "I have learned about it from friends, acquaintances, read about it" (14.7%). The responses of the Vladikavkaz residents are similar to those in the general survey. So, 56.1% of the respondents from Vladikavkaz give an answer "For the last 2 years I have not come across them". The rest respondents divide almost evenly their votes between two variants of answers: "I have participated, seen, heard" (31.2%), and "I have learned about it from friends, acquaintances, read about it" (12.7%) *(tab. 12)*.

The residents of Digorsky District (64.5%), Alagirsky District (61.5%) and Prigorodny District (61.3%) have not heard such speeches for the last two years more than others. The same is answer is given by 48.4% of the respondents of Pravoberezhny District, 43.3% – of Mozdoksky District, 53.6% – Ardonsky District and 38.7% – Kirovsky Districts. The respondents from Irafsky District have come across these measures least of all (30.0%).

The response "I have participated, seen, heard" is preferred by 53.3% of the respondents of Mozdoksky District, 46.7% – of Irafsky District, 41.9% – Pravoberezhny District, 35.5% – Kirovsky District, 29.0% – Digorsky District and 25.8% – Prigorodny District. The residents of Ardonsky District and Alagirsky District give the answer "I have participated, seen, heard" least of all (14.3% and 15.4%, respectively).

The answer option "I have learned about it from friends, acquaintances, read about it" is preferred by 32.1% of the respondents of Ardonsky District, 23.1% – of Alagirsky District, 23.3% – Irafsky District, 12.9% – Prigorodny District, 25.8% – Kirovsky District and 6.5% – Digorsky District. The Mozdoksky District residents choose this answer option least of all (3.3%).

Table 12. What drug prevention measures have you come across for the last two years, and how much have you been interested? (Speeches of former drug addicts; %)

	All respondents	Place of survey								
		Vladikavkaz	Alagirsky District	Ardonsky District	Digorsky District	Irafsky District	Kirovsky District	Mozdoksky District	Pravoberezhny District	Prigorodny District
I have participated, seen, heard	32.2	31.2	15.4	14.3	29.0	46.7	35.5	53.3	41.9	25.8
I have learned about it from friends, acquaintances, read about it	14.7	12.7	23.1	32.1	6.5	23.3	25.8	3.3	9.7	12.9
For the last 2 years I have not come across them	53.1	56.1	61.5	53.6	64.5	30.0	38.7	43.3	48.4	61.3
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

According to Table 12, most respondents, regardless of place of residence, claim that for the last two years they have not come across such events, as speeches of former drug addicts. The residents of Digorsky District and Alagirsky District are especially uninformed on this issue (64.5% and 53.6%, respectively). Also about 25% of the respondents have participated in such events and as many have learned about them from friends and acquaintances.

Half of the experts assess the measures to combat drug abuse positively. The Ministry of Youth Affairs, Physical Culture and Sports and the Youth Parliament are working in this direction. Many events are held by the Government of the republic; recently the mass concerts have been mainly devoted to this issue. The number of published products is sufficient.

Twenty percent of the experts agree that the conditions of keeping patients at the drug abuse department of the republic hospital have been improved in recent years. On the initiative of one of the deputies the drug abuse clinic with good conditions and anonymous treatment is opened.

According to other experts (40%), the above mentioned measures are insufficient due to a lack of the global national program on combating drug trafficking. The conducted events are is only half-measures. Other experts (12.0%) complain that the measures propaganda is inadequate to inform every citizen of the republic. There are those who give a negative assessment of the work the Committee for Combat the Illicit Trafficking and the feedback from the population (12.0%). Only small distributors are wanted, while the root of the problem remains untouched.

The analysis of the respondents' attitudes to the effectiveness of drug prevention measures allows us to draw the following conclusion: only about half of the respondents have expressed their opinions on this subject actively. The rest has preferred the negative answer "For the last 2 years I have not come across them".

The respondents from rural areas are poorly informed about the concerts and festivals dedicated to the fight against drugs. On average, about 70% of the respondents give an answer "For the last 2 years I have not come across them". The percentage of those who have participated, seen, heard about it does not exceed 40% and on average amounts to 25%. Especially a lot of negative answers are given by the respondents of Digorsky District: more than 70% have no idea about current events; the participation is significantly lower than among residents of other regions in the republic. It is noteworthy that teenagers, pupils and students of secondary specialized educational establishments are least aware of such events (about half); less than a third of the university students know about them.

Most respondents of North Ossetia give a negative assessment of the quality of drug prevention posters and postcards; only the well-to-do give positive and negative responses equally. About a third of the respondents-villagers have seen posters and postcards on the theme of drug-related harm. The respondents of Pravoberezhny District are most active in this respect. On average, about half of the villagers have not known about such measures.

The population of North Ossetia gives many positive assessments of programs and films on TV, dedicated to the fight against

drug addiction. The survey suggests that the population of North Ossetia is not interested in the drug prevention articles in the press, as only half of the respondents give positive estimates.

More than a third of respondents from villages have seen web-sites on the drug-related harm. About a quarter has known from friends, read about this information. Prigorodny District is most active in this sense (over 60%) and Digorsky District is least informed – 90% of them have no idea about it. On average, about 40% of the villagers have seen websites on this topic for the last two years.

The representatives of rural areas are informed about the statements of physicians, policemen, drug enforcement officers to a greater extent (48.3%). The respondents of Irafsky District (48.3%), Digorsky District (71.0%) and Kirovsky District (48.1%) have not heard about such speeches more than others.

According to the survey, from a third to a half of the respondent, irrespective of place of residence, admit that for the last two years they have not heard about the lectures, talks about the dangers of drug abuse in educational institutions of the republic. The residents of Digorsky District are especially uninformed on this issue (74.2%), nobody among them has learned about it from friends or has read about it. On average, about one-third of the respondents-villagers have participated in such events, and up to 30% have known about them from friends and acquaintances.

The survey discloses that the vast majority of respondents, irrespective of place of residence, have not come across the conversations about drug-related harm with the students' parents for the last two years. The residents of Digorsky District are especially uninformed on this issue (87.1%), among them only 3.2% of the respondents have known about it from friends or have read. On average, about a quarter of the respondents-villagers have participated in such events, and as many have known about them from friends and acquaintances.

The overwhelming majority of the respondents, regardless of place of residence, have not come across such events, as speeches of former drug addicts, for the last two years. Digorsky District and Alagirsky District are especially uninformed on this issue (64.5% and 53.6% of the respondents, respectively). Also there is a small average percentage of the respondents from villages (about 25%) who have participated in such events and as many have known about them from friends and acquaintances.

The study of the respondents' attitude to anti-drug activities results in the following conclusions:

1. About half of the population is not aware of the carried out measures in the republic. The situation is especially bad in the rural areas, where the share of positive responses reduces to a third. In Digorsky District the number of positive responses is significantly lower than the national average.

2. The printed materials get the lowest estimates of the respondents. Published posters, postcards, booklets, brochures about the dangers of drug abuse are not popular among the population. It is obvious that their content is interesting to the public.

References

1. Vystuplenie predsedatelya Gosudarstvennogo antinarkoticheskogo komiteta, direktora FSKN Rossii V.P. Ivanova na Vsemirnom forume protiv narkotikov [Speech of Chairman of the State Anti-Narcotics Committee, Director of the FSKN V.P. Ivanov at the World Forum against Drugs]. *Narkologiya* [Narcology], 2012, no. 7, pp. 12-14.
2. Dzutsev Kh.V. *Narkosituatsiya v respublike Severnaya Osetiya-Alaniya Severo-Kavkazskogo federal'nogo okruga Rossiiskoi Federatsii* [Drug Abuse Situation in the Republic of North Ossetia-Alania in the North Caucasian Federal District of the Russian Federation]. Moscow: ISPI RAN, 2013.
3. Dmitrieva T.B., Klimenko T.V. Formy gosudarstvennogo kontrolya za oborotom narkotikov (zarubezhnyi i natsional'nyi opyt) [Forms of the State Control over Drugs Circulation (Foreign and National Experience)]. *Narkologiya* [Narcology], 2011, no. 7, pp. 50-56.
4. Dorogin V.G., Fomin Yu.V. *Pravovoe regulirovanie oborota narkoticheskikh sredstv i prsikhotropnykh veshchestv v Rossiiskoi Federatsii* [Legal Regulation of the Narcotic and Psychotropic Substances Traffic in the Russian Federation]. Saratov: SYuI MVD Rossii, Mezhdunarodnyi institut rynka, 2004. 183 p.
5. *Zakon Shvetsii o molodezhi* [The Law of Sweden on the Youth]. Available at: www.fadm.gov.ru/information/16/124/. Antropov V.V. Shvedskaya model' sotsial'noi zashchity [Swedish Model of Social Protection]. *Narodonaselenie* [Population], 2005, no. 4, pp. 122-130.
6. Zinov'ev S.V. Problema "dvoinogo diagnoza" v otechestvennoi narkologii [Problem of "Dual Diagnosis" in Russian Narcology]. *Narkologiya* [Narcology], no. 10, pp. 95-98.
7. Interv'yu s nachal'nikom Upravleniya Federal'noi sluzhby Rossiiskoi Federatsii po kontrolyu za oborotom narkotikov po Respublike Dagestan general-maiorom politsii A.U. Cherkesovym "O narkosituatsii v Dagestane" [Interview with Head of the Federal Service of the Russian Federation for Control over Drug Trafficking in the Republic of Dagestan, Major General of the Police A. U. Cherkesov "On the Drug Abuse Situation in Dagestan"]. *Dagestanskaya Pravda* [Dagestan Truth], 2010, no. 3, pp. 1-2.
8. Kucherov Yu.N., Lenkov P.G., Gubanov S.G. Obzor antinarkoticheskikh resursov Runeta [Review of Anti-Drug Resources of Runet]. *Narkologiya* [Narcology], 2011, no. 8, pp. 92-100.
9. Osina O.N. *Narkomaniya v Rossii: sotsiologicheskii aspekt* [Drug Addiction in Russia: Sociological Aspect]. Saratov: Saratovskii gosudarstvennyi universitet, 2010. 32 p.

Cited works

1. Speech of Chairman of the State Anti-Narcotics Committee, Director of the FSKN V.P. Ivanov at the World Forum against Drugs. *Narcology*, 2012, no. 7, pp. 12-14.
2. Dzutsev Kh.V. *Drug Abuse Situation in the Republic of North Ossetia-Alania in the North Caucasian Federal District of the Russian Federation*. Moscow: ISPI RAN, 2013.
3. Dmitrieva T.B., Klimenko T.V. Forms of the State Control over Drugs Circulation (Foreign and National Experience). *Narcology*, 2011, no. 7, pp. 50-56.
4. Dorogin V.G., Fomin Yu.V. *Legal Regulation of the Narcotic and Psychotropic Substances Traffic in the Russian Federation*. Saratov: SYuI MVD Rossii, Mezhdunarodnyi institut rynka, 2004. 183 p.
5. *The law of Sweden on the youth*. Available at: www.fadm.gov.ru/information/16/124/. Antropov V.V. Swedish Model of Social Protection]. *Population*, 2005, no. 4, pp. 122-130.
6. Zinov'ev S.V. Problem of "Dual Diagnosis" in Russian Narcology. *Narcology*, no. 10, pp. 95-98.
7. Interview with Head of the Federal Service of the Russian Federation for Control over Drug Trafficking in the Republic of Dagestan, Major General of the Police A. U. Cherkesov "On the Drug Abuse Situation in Dagestan". *Dagestan Truth*, 2010, no. 3, pp. 1-2.
8. Kucherov Yu.N., Lenkov P.G., Gubanov S.G. Review of Anti-Drug Resources of Runet. *Narcology*, 2011, no. 8, pp. 92-100.
9. Osina O.N. *Drug Addiction in Russia: Sociological Aspect*. Saratov: Saratovskii gosudarstvennyi universitet, 2010. 32 p.

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Critical issues of alcohol safety in the region

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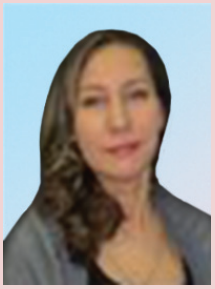

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Abstract. The paper presents results of the research into the economic and socio-demographic indicators associated with the production and consumption of alcoholic beverages. It discloses the analysis of the alcoholic beverage market structure in the Vologda Oblast. The authors have identified the threshold of the safe alcohol production volume in the region taking into account the World Health Organization standards of alcohol consumption and the share of illegally produced goods.

The article states that the increased alcohol production contributes to the rise in tax revenues, but the state fiscal policy to regulate the alcoholic beverage market leads to an increase in the share of shadow turnover. The authors have calculated the economic loss connected with the illegal production of alcoholic beverages in the Vologda Oblast. The alcohol consumption is a destructive socio-demographic process and one of the threats to the health of the nation. Excessive alcohol consumption leads to alcohol dependence, regression of the society and increases the threat to national and economic security. The study reveals a direct correlation between the consumption of alcoholic beverages per capita and mortality rates in men and women of working age from the causes related to the consumption of alcoholic beverages. The study of the international experience to regulate alcohol consumption has showed the need to tighten state

control in the sphere of production and turnover of alcoholic products. The conduct of the unified state alcohol policy substantiates the selection of the alcohol industry in the all-Russian classifier of economic activity types. The authors have elaborated the concept and conditions of alcoholic security from the point of view of economic growth and social development. The article substantiates the necessity to monitor alcohol safety indicators when considering the regional development. It presents the complex system of socio-economic and demographic indicators for its evaluation in dynamics.

Key words: alcohol policy, alcoholic beverage market, state regulation, alcohol safety, performance indicators, threats and indicators of alcohol safety.

Alcoholization of the society in modern Russia poses a threat to the state, society and individual. It should be noted that the inconsistency of the state policy with the society's basic needs contributes to the deterioration of socio-demographic and economic indicators [3]. Losses from alcohol abuse, such as increased mortality, reduced productivity, injuries, expenses on treatment of the diseases associated with alcoholic beverages consumption, social benefits for the disabled and orphans, public expenditures on crime control, are extremely hazardous for social and economic development of the country.

In Tsarist Russia (1914–1917) there was the lowest level of alcohol consumption in Europe – 0.83 liter of absolute alcohol (anhydrous alcohol) per capita, the significant increase in alcohol consumption was observed in the mid-1970s. In 2012 in the Vologda Oblast consumption amounted to 12.95 liters of absolute alcohol per year, which was 1.4 times higher than the national average and 1.6 times higher than the limit. Despite the state alcohol concept to reduce alcoholic beverages consumption, the steady 15% upward trend in alcohol consumption had been measured in the region by 2012 (*fig. 1*) [2].

With the prohibited alcohol-containing products and home-made alcoholic beverages being taken into consideration, actual consumption of alcoholic beverages per capita reaches 18–19 liters per year, although only 8 liters are permitted by the World Health Organization. It is obvious that alcohol consumption beyond the established standards is extremely dangerous for the health of the nation.

Accordingly, the issues to regulate alcohol consumption and prevent its abuse are topical. In order to improve the alcohol security management mechanism in the region one should carry out a continuous monitoring of all elements of the alcohol policy (production, sale, consumption of alcohol, change in the socio-demographic indicators associated with alcoholic beverages consumption). This study tries to assess the level of alcohol security in the region.

There is no unambiguous interpretation of alcohol security in modern literature. For example, some authors propose to consider alcohol security as economic security in the sphere of alcohol production in terms of industrial and trade policy and offer the interpretation of economic security in the alcohol industry as the state of

the country's economy, which ensures Russia's independence in this sphere, effective public regulation of the alcoholic beverage market, guarantees availability and safety of products and controls alcohol consumption within the rational norms required for citizens' healthy and dynamic lifestyle. In this case the tasks to provide economic security in the alcohol industry are the following: regular analysis and forecasting to identify, eliminate and prevent internal and external threats to economic security; timely elimination of negative factors consequences; sustainable development of domestic production of alcoholic beverages and raw materials needed for its production, sufficient to preserve the country's independence in the alcohol industry; provision of the quality and safety of alcohol products; achievement and maintenance of the alcohol consumption levels that do not to exceed acceptable limits, cause harm to health or have an adverse influence on the social development.

Thus, Russia's independence in the alcohol industry can be achieved through sustainable domestic production of alcohol in volume, which share in commodity resources of the internal market is not smaller than the set threshold [8, 12].

The alcohol safety issues can be also considered in the system to ensure the national security, as alcohol is a major destructive factor in the socio-demographic development of Russia. The reduction of

Figure 1. Dynamics of alcoholic beverages consumption in absolute alcohol per capita in the Vologda Oblast in 2000–2012

Source: authors' calculations on the basis of the Federal State Statistics Service data [13].

mortality, morbidity and social problems connected with alcohol consumption is an avowed goal of the state alcohol policy [6, 7, 9, 11, 15].

As, on the one hand, alcohol consumption poses a threat to socio-demographic development of the society and, on the other hand, contributes to implementation of the government's fiscal function, it is necessary to keep balance of socio-economic interests in terms of alcohol security.

In our opinion, the state of alcohol security is determined by two conditions:

– the combination of alcoholic products presented on the market and current alcohol requirements, which should be not below the level of vital interests of an individual;

– the current level of alcoholic requirements, which should not exceed the evidence-based standards of alcohol consumption.

– The threats to security can occur in the following cases:

– the level of alcohol requirements is below the level of vital interests of the individual, i.e., for example, the quality of alcoholic beverages does not correspond to the level (quality) of life that can be hazardous for human health (food safety hazard);

– the quantity of alcohol beverages on the market is below the current level of alcoholic requirements; from the economic point of view it reduces budget receipts in the region (economic hazard);

– the current level of alcohol requirements is above scientifically grounded norms of alcohol consumption, which leads to alcoholism and, consequently, to an absolute decrease in the standard of living (social and national hazards).

Alcohol security of the region can be considered as its socio-economic state provided that the combination of alcoholic products on the market and current alcohol requirements is not below the level of vital interests of the individual and the current level of alcoholic requirements does not exceed the evidence-based standards of alcohol consumption, ensuring favorable trends in demographic indicators, regardless of internal and external threats (conditions).

The problem to develop a system of continuous monitoring, analysis and assessment of the alcohol security threat level becomes acute as well. In modern economy the role of regular, comprehensive, objective monitoring is especially great, as there is high mobility, instability of socio-economic indicators, presence of numerous imbalances that require constant attention. If monitoring is not of high quality, then the dynamics of negative economic and social trends, their emergence and development can get out from the state control and become unmanageable and irreversible to some extent [5].

Monitoring is aimed at providing continuous information-statistical observation of alcohol security indicators. The assessment and analysis of the ratio of their current values to threshold values of the relevant indicators are carried out to identify the negative trends weakening alcohol security.

World experience of territorial administration demonstrates the necessity to use not a single index, but an aggregate of complex indicators for monitoring, analysis and estimation of the alcohol security threat level in the region. In this case, the identification of the system of economic, social and demographic indicators becomes one of the main tasks of alcohol security assessment.

The reliability of the system is known to be determined by the reliability of its elements. The region's interests lie in the stable reproduction and enhancement of economic, social and demographic potentials.

In our opinion, to develop the system of indicators it is necessary to follow the requirements, such as: the system approach to major hazards of alcohol safety; integration of economic, social and demographic indicators that are focused on the alcohol security level; ease of interpretation, minimality and availability.

It should be noted that some indicators can have a critical value of indicators. Relying on them, the authorities can help the system recover from the crisis.

The first group of indicators consists of economic indicators that show the condition of the alcohol industry (according to the WHO standards on alcoholic beverages consumption):

a) Absolute values:

– volume of alcoholic beverages production in absolute alcohol, thousand decaliters;

– volume of alcoholic beverages production in physical terms by types, thousand decaliters;

– sale of alcoholic beverages in absolute alcohol, thousand decaliters;

– sale of alcoholic beverages in physical terms, thousand decaliters;

– import of alcoholic beverages in physical terms, thousand decaliters;

– import of alcoholic beverages in absolute alcohol, thousand decaliters;

– export of alcoholic beverages in physical terms, thousand decaliters;

– export of alcoholic beverages in absolute alcohol, thousand decaliters;

– rate of excise tax on alcoholic beverages, rubles;

– regional budget's revenues from excise tax on alcoholic beverages, million rubles

b) Relative values revealing a downward trend in the dynamics:

– ratio of alcohol dependence in the region (ratio of production volume to sale volume);

– share of alcoholic beverages import of all products in the region in physical terms, %;

– share of illegally produced alcohol, %.

c) Relative values revealing an upward trend in the dynamics:

– share of alcoholic beverages export in manufactured products in the region in physical terms, %;

– share of alcoholic beverages supplies on the regional market by local producers, %;

– coefficient of the used production facilities of distilleries, %;

– ratio of the excise tax growth rate to the growth rate of the budget's excise tax revenues (less than 1).

The second group consists of social indicators of alcohol security in the region.

a) Absolute values (a downward trend in the dynamics):

– consumption of alcoholic beverages in absolute alcohol per capita, liters;

– consumption of alcoholic beverages in absolute alcohol per capita by product types, liters;

– consumption of alcoholic beverages in physical terms per capita products, liters;

– number of registered crimes, units;

– number of registered crimes committed under the influence of alcohol, units

b) Relative values (a downward trend in the dynamics):

– structure of alcoholic beverages consumption in absolute alcohol, %;

– structure of consumer expenditures of the population (according to the sample survey of household budgets), %;

– share of crimes committed under the influence of alcohol of all registered crimes, %;

– number of children taken from parents, deprived of parental rights, people;

– number of children without parental care, people.

The third group is demographic indicators of alcohol security in the region.

a) Absolute values, revealing a downward trend:

– mortality from causes related to alcohol consumption, people;

– number of patients registered in medical institutions with a diagnosis of alcoholism and alcoholic psychosis, people;

– number of patients registered in medical institutions with a diagnosis of alcoholism and alcohol psychoses per 100,000 population, people;

– number of patients under observation for the first time having a diagnosis of alcoholism and alcoholic psychosis, people;

– number of patients under observation for the first time having a diagnosis of alcoholism and alcoholic psychosis per 100,000 population, people

b) Relative values:

– share of mortality from the causes related to alcohol consumption in the overall mortality rate;

– share of patients registered in medical institutions with a diagnosis of alcoholism and alcohol psychoses in the total population size;

– share of patients under observation for the first time having a diagnosis of alcoholism and alcoholic psychosis in the total population size.

The proposed system of values to monitor alcohol security in the region is quite simple and the information base for the indicators calculation is available. Thus, it is possible to evaluate not only the socio-demographic and economic situation, but also to identify the reserves for an optimal balance of alcoholic beverages production and consumption in order to maintain the alcoholic beverage industry, ensure its effective operation, enhance products quality, meet medical standards and boost regional budget revenues.

The analysis of alcohol production in the Vologda Oblast indicates a steady downward trend in the production of

alcoholic beverages; the distilleries specialize in the production of vodka and other liqueurs and spirits (*tab. 1*). The coefficient of alcohol dependence of the region (the ratio of the production volume in the region to the sales volume) is high enough, in 2012 the region's provision with own alcoholic beverages amounted to 28.6%. The growth of external suppliers' interventions radically changes the structure of the alcoholic beverage market. For example, the share of domestic production of vodka and other liqueurs and spirits has reduced from 93.7 to 52.1%.

Undoubtedly, the state of the regional market was affected by unstable work of the Vologda distilleries, monopoly of some supermarket chains, which promote alcohol imported from other areas, and the inefficient regulation system in this sphere.

To estimate the critical value of alcoholic beverages production in the region we use WHO standards of safety (8 liters of absolute alcohol per capita).

This figure is a threshold for alcohol consumption, i.e. this is a maximum allowable amount on the regional alcohol beverage market. Its excess can lead to the

Table 1. Dynamics of alcoholic beverages production and sale in absolute alcohol in the Vologda Oblast in 2000–2012

Year	Alcoholic beverages production in absolute alcohol, thousand decaliters								Alcoholic beverages sale in absolute alcohol, thousand decaliters
	Vodka, liqueurs and spirits	Brandy	Grape wine	Fruit wine	Wine with alcohol content more than 20%	Wine with alcohol content less than 20%	Low-alcohol drinks with alcohol content not more than 9%	Total	
2000	763.56	-	0.43	7.70	12.77	5.66	-	790.12	1247.2
2001	811.31	0.48	0.31	5.29	5.10	1.10	2.35	825.94	1596.4
2002	884.03	-	15.87	4.43	25.48	0.88	5.51	936.2	1625.7
2003	1215.99	0.63	75.26	4.44	27.38	-	4.90	1328.6	1902.2
2004	1255.44	0.90	69.16	4.45	31.12	-	2.27	1363.34	2039.4
2005	1169.70	0.93	3.00	20.17	25.77	-	4.8	1224.37	1744.4
2006	911.10	0.46	-	22.73	3.67	-	0.46	938.42	1439.9
2007	854.29	1.66	-	21.22	-	-	-	877.17	1395.1
2008	666.25	2.78	-	17.32	-	-	-	686.35	1490.8
2009	550.81	2.69	-	16.17	-	-	-	569.67	1416.1
2010	528.66	2.37	-	18.72	-	-	-	549.75	1241.1
2011	364.22	0.58	-	-	-	-	-	364.8	1413.9
2012	432.17	-	-	-	-	-	-	432.17	1551.1

Compiled by: the Federal State Statistics Service data.

deterioration of alcohol security in the region. What is more, the amount of safe consumption should be adjusted taking into account the share of imported alcoholic beverages in the region, as the structure of the alcohol beverage market includes imported products.

The safe amount of alcohol production for intra-regional consumption is the volume to be produced by local businesses with regard to import and safe consumption.

To identify the actual production volume for domestic consumption it is necessary to exclude the share of exported alcohol, produced within the region, from the actual output and adjust it for the share of illegal production.

To calculate the deviation of the actual production from the threshold value it is required to compare the safe amount of alcohol production for intra-regional consumption with the actual production for domestic consumption. The positive value of this index presupposes safe production, the negative one – overproduction.

Calculated safe production of alcoholic beverages for intra-regional consumption for 2012 is presented in *table 2*.

The actual amount of alcohol production for domestic consumption does not exceed the threshold value (a safe amount of alcohol production for intra-regional consumption) and amounts to 269.46 thousand decaliters, thus it does not pose a threat to alcohol security in the region. The reserves of additional production alcoholic beverages total 141.01 thousand decaliters. However, if we take into account the illegal sale of alcohol, we can get different data.

Table 2. Calculation of safe production of alcoholic beverages for intra-regional consumption in 2012

Indicator	Value
Population, thousand people	1196.2
Consumption of alcoholic beverages per capita in absolute alcohol according to the WHO standards, liters	8
Safe amount of alcohol consumption, thousand decaliters	956.6
Volume of alcoholic beverages import, thousand decaliters	546.49
Safe amount of alcohol production for intra-regional consumption (threshold value), thousand decaliters	410.47
Share of legally production	0.534
Safe amount of intra-regional alcoholic beverages production, adjusted for the share of illegal production, thousand decaliters	219.19
Actual amount of alcohol production, thousand decaliters	432.17
Volume of alcoholic beverages exports, thousand decaliters	162.71
Actual amount of alcohol production for domestic consumption (local manufacturers supplies), thousand decaliters	269.46
Deviation of the actual volume of alcoholic beverages production for domestic consumption from the threshold value (overproduction), thousand decaliters	- 50.27
Compiled by: authors' calculations on the basis of the Federal State Statistics Service data.	

According to the assessment, the actual amount of alcohol production for consumption exceeds the safe amount of alcohol production for intra-regional consumption by 50.27 thousand decaliters.

The analysis of alcoholic beverages consumption shows a shift of consumer requirements from strong alcoholic beverages to a cheaper product – beer. At the beginning of the study period strong alcoholic beverages (vodka, liquors, spirits and brandy) amounted to 82.3% of all drinks in the consumption structure, in 2012 – 49.5%. The volume of beer consumption increases almost threefold (*tab. 3*).

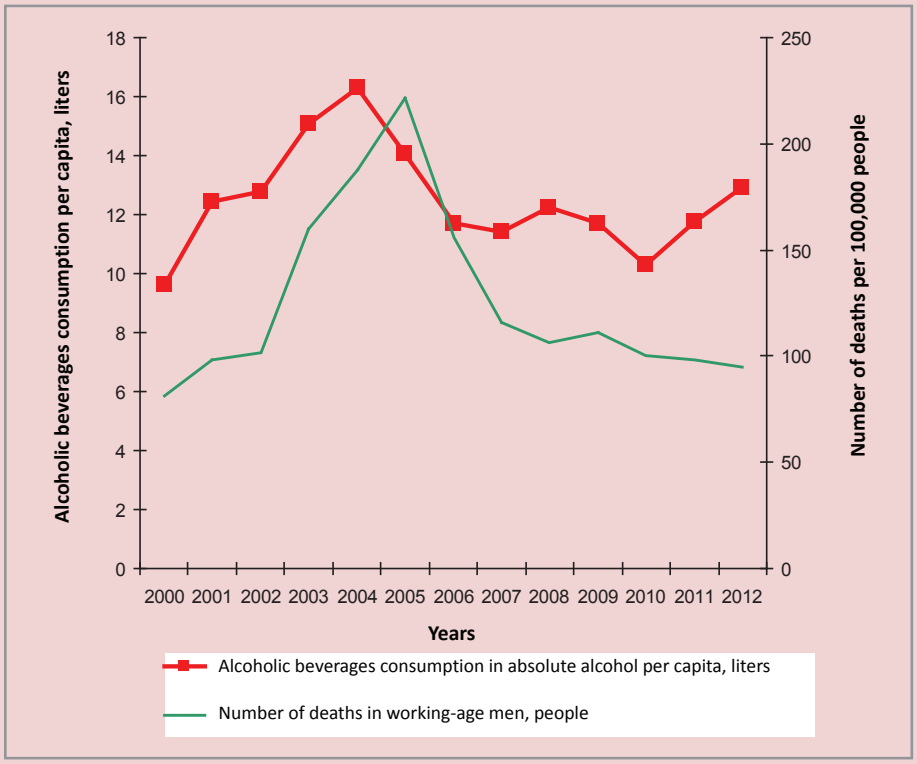
The increase in alcoholic beverages consumption leads to the demographic indicators worsening; for the analyzed period 78.2% of men and 21.8% of women have died from the causes related to alcohol consumption. The direct correlation between alcoholic beverages consumption per capita and mortality rates of men and women of working age from the causes related to alcohol consumption is reflected in *figures 2 and 3*.

Table 3. Consumption structure by types of alcoholic beverages in absolute alcohol in the Vologda Oblast in 2000–2012,

Year	Consumption per capita in absolute alcohol in the region													
	Vodka, liquors and spirits		Wine		Brandy		Champagne and sparkling wine		Low-alcohol beverage		Beer		Total	
	liters	%	liters	%	liters	%	liters	%	liters	%	liters	%	liters	%
2000	7.72	80.2	0.42	4.4	0.2	2.1	0.02	0.2	-	-	1.27	13.2	9.63	100.0
2001	9.24	74.3	1.05	8.4	0.2	1.6	0.03	0.2	-	-	1.91	15.4	12.43	100.0
2002	8.92	69.9	1.51	11.8	0.20	1.6	0.04	0.3	-	-	2.10	16.4	12.77	100.0
2003	9.85	65.3	2.28	15.1	0.21	1.4	0.04	0.3	-	-	2.70	17.9	15.08	100.0
2004	10.72	65.8	1.84	11.3	0.26	1.6	0.06	0.4	-	-	3.42	21.0	16.30	100.0
2005	8.8	62.6	1.36	9.7	0.26	1.8	0.06	0.4	-	-	3.58	25.5	14.06	100.0
2006	6.96	59.5	1.04	8.9	0.24	2.1	0.06	0.5	-	-	3.40	29.1	11.70	100.0
2007	6.48	56.8	1.31	11.5	0.15	1.3	0.07	0.6	-	-	3.40	29.8	11.41	100.0
2008	6.96	56.8	1.39	11.3	0.22	1.8	0.11	0.9	-	-	3.57	29.1	12.25	100.0
2009	6.08	52.0	1.85	15.8	0.21	1.8	0.14	1.2	-	-	3.41	29.2	11.69	100.0
2010	5.16	50.0	1.29	12.5	0.20	1.9	0.09	0.9	0.13	1.3	3.44	33.4	10.31	100.0
2011	6.16	52.3	1.50	12.7	0.24	2.0	0.13	1.1	0.15	1.3	3.60	30.6	11.78	100.0
2012	5.96	46.0	1.44	11.1	0.45	3.5	0.13	1.0	0.14	1.1	4.83	37.3	12.95	100.0

Compiled by: Official website of the Federal State Statistics Service. Available at: http://vologdastat.gks.ru/ [13].

Figure 2. Correlation between the mortality rate in men of working age from the causes related to alcohol consumption and alcoholic beverages consumption per capita in the Vologda Oblast



The alcohol industry while improving economic performance has a negative impact on the socio-demographic situation in the society. The improvement of people's health reduces alcoholic beverages consumption, thus decreasing the demand for alcohol and tax revenues to the state budget.

There is a trend of raising excise taxes to reduce the availability of alcohol. The main danger, associated with the rapid and high increase in excise tax, is a growth of illegally produced alcoholic beverages.

In 2010–2012 excise tax on vodka, liquor and spirits grew by 42.2%, but the revenues declined by 17.1%.

The revenues from alcohol production and turnover in the Vologda Oblast in 2012 amounted to about 0.8% of the regional budget revenues *(tab. 4)*.

The policy aimed at increasing excise taxes encourages shadow economy. During the sampling inspection to detect illegal production and turnover of ethyl alcohol and alcoholic beverages produced in 2012 in the

Figure 3. Correlation between the mortality rate in women of working age from the causes related to alcohol consumption and alcoholic beverages consumption per capita in the Vologda Oblast

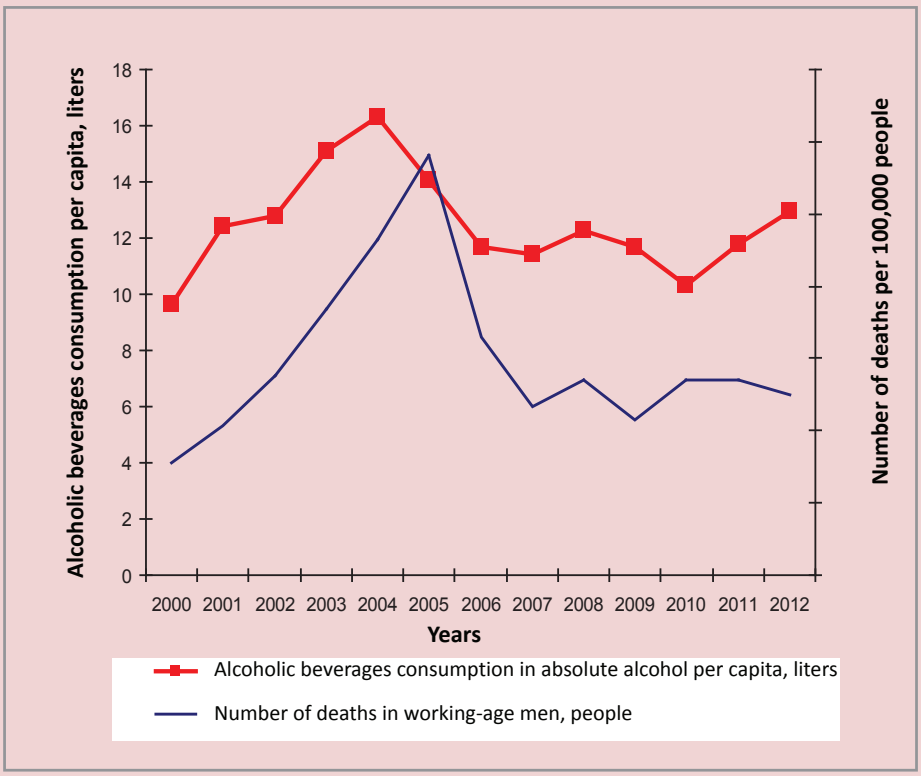


Table 4. Dynamics of regional budget revenues for 2010–2012

Indicator	Cash receipts, thousand rubles		
	2010	2011	2012
Regional budget revenues, total	36,057,172.7	39,342,345.0	42,391,989.1
including tax revenues	23,022,109.5	25,207,213.6	26,966,202.8
including excise tax	392,311.5	415,509.4	342,187.3
Compiled by: Official website of the Federal State Statistics Service. Available at: http://vologdastat.gks.ru/ [13].			

Vologda Oblast 9 gallons of ethyl alcohol and 138 gallons of alcoholic beverages, including 19 deciliters of vodka were confiscated. The share of illegally produced alcoholic beverages amounted to 46.6% of the amount of inspected products, the share of illegally produced vodka – 13%; it reveals the reserves of additional budget revenues *(tab. 5)*.

Table 5. Assessment of the economic losses associated with the illegal production of alcoholic beverages in the Vologda Oblast in 2012

Indicator	Low limit of the indicator	Point estimate of the indicator	Upper limit of the indicator
Actual amount of alcohol production in absolute alcohol, thousand decaliters	-	432.17	-
Share of illegally produced alcoholic beverages	0.4092	0.466	0.5228
Given the sample estimate of the share			
Volume of illegally produced alcoholic beverages in absolute alcohol, thousand decaliters	176,84	201,39	225,94
Given the average annual rate of excise tax (277 rubles)			
Loss amount of excise revenue , total, thousand rubles	489,846.8	557,850.3	625,853.8
Given the structure of excise revenue			
Of them: excise revenues to the federal budget, thousand rubles	293,908.08	334,710.18	375,512.28
Excise revenues to the regional budget, thousand rubles	195,938.7	223,140.1	250,341.5

The mean error of the share of alcoholic beverages which have been produced and sold illegally equals to 0.029, the maximum error of the share of illegally produced alcoholic beverages with the given probability α=0.05 – 0.0568, the confidence interval – 0.4092; 0.5228.

Therefore, it is necessary to take strict measures to prevent activities related to the illegal production and turnover of alcoholic products. There are effective state measures to combat alcohol abuse, which is considered as the main factor of Russia's demographic and social crisis and the national threat at the level of the individual, society and state. However, there are no uniform approaches to the regulation of production and turnover of alcoholic products. For many years we have observed a shift of priorities in the sphere of economic interests, which is hazardous for human health. We believe the state should be a monopolist in the ethyl alcohol production. In this case, alcohol is an object to levy excise tax and the public enterprise that creates preconditions to curb illegal production and turnover of alcoholic beverages and replenish the state treasury is a payer.

Obviously, there is still an unresolved question concerning the regulation of alcoholic beverages production and consumption (in terms of the safe value both for the population and for the state), followed by a lack of economic losses from the illegal sale of alcohol.

The evaluation of mechanisms to control the alcohol industry abroad has showed the presence of the balanced concept to develop and regulate the alcoholic beverage market, taking into account the interests of the state, producers and society. Professional unions and associations of alcohol business have a significant impact on the solution of alcohol industry problems. They cooperate with the authorities and have a possibility to shape the national alcohol policy [10, 16].

In foreign practice the restricted alcohol availability is one of the methods to promote alcohol security.

First, this is connected with the procedure of licensing and taxation of the production and sale of alcoholic beverages. In many countries (Canada, Sweden, Finland, Norway, etc.) in any part of the production cycle (production, wholesale or retail sale) there is either a state sector to strengthen control or an alcohol production and sale monopoly (full, partial). It enhances control over the ethyl alcohol circulation.

Second, we should note the Nordic countries' experience in the fight against alcoholism through physical and economic means to restrict the alcohol availability (shops located far from the places of mass gatherings, their limited work time, the decreased number of shops selling alcohol, increased cost of alcoholic beverages at the expense of higher excise taxes, increased penalties for alcohol falsification, disfranchisement for home-made alcohol, etc.).

Alcohol security should be managed within a single industry. If we consider the economic sector as a number of enterprises manufacturing and distributing similar products that compete on the same consumer market, the enterprises producing distilled alcoholic beverages, grape wine, beer, cider and other fruit wines, other undistilled beverages from fermented materials and the enterprises producing ethyl alcohol from fermented materials, food alcohol, denatured alcohol (methylated spirits) from food alcohol waste should be merged into one branch, because their products contain alcohol (the alcohol content is more than 1.5%) and refer to the alcohol beverage market.

Today, the administrative branch has enterprises producing methylated spirits, alcohol and soft drinks [4]. However, ethyl nondrinking alcohol (methylated spirits) in its content cannot be attributed to food industry products, as it contains denaturing additives in the concentration, which can not be used for the production of alcoholic beverages and other food products. According to the federal law, beer and beer-like beverages are alcoholic; however, the activities of their production and turnover are not subject to licensing. So, it is difficult to control its production and implementation [14].

Obviously, the state alcohol policy should be improved within the legal framework of alcohol production and turnover. It is advisable to single out a subsection "Production of ethyl alcohol, alcoholic and alcohol-containing products" in the subsection "Production of food, including beverages" in the section "Food industry" of the Russian National Classifier of Economic Activities. The proposed OKVED classification is presented in *Figure 4*.

Summing it up we can note that the government regulates the alcohol beverage market actively nowadays; in the sphere of alcohol products procurement and distribution there is a state structure, aimed at planning and monitoring production and

Figure 4. Recommended classification of economic activities

Source: the Russian National Classifier of Economic Activities. Available at: http://www.okvad.ru/razdel_da.html

adjusting ethyl alcohol consumption on terms of social responsibility and creative motivation, as the alcoholic beverage market is one of traditional and significant consumer markets. So, it is possible to use the proposed indicators system to monitor alcohol security and assess the dynamics of safety indicators in terms of economic growth and stability of the demographic situation.

References

1. *Zloupotreblenie alkogolem v Rossiiskoi Federatsii: sotsial'no-ekonomicheskie posledstviya i mery protivodeistviya: doklad Obshchestvennoi palaty Rossiiskoi Federatsii* [Alcohol Abuse in the Russian Federation: Socio-Economic Consequences and Countermeasures: Report of the Public Chamber of the Russian Federation]. Available at: https://www.oprf.ru/files/dokladalko.pdf.
2. *Kontseptsiya gosudarstvennoi politiki po snizheniyu masshtabov zloupotrebleniya alkogolem i profilaktike alkogolizma sredi naseleniya Rossiiskoi Federatsii na period do 2020 goda* [Concept of the Public Policy to Reduce Alcohol Abuse and Prevent Alcoholism among the RF Population for the Period up to 2020]. Available at: http://www.rb.ru/inform/128937.html
3. Morev M.V., Kaminskii V.S. Problemy vzaimodeistviya gosudarstva i obshchestva [Issues of State-Society Relations]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2013, no. 6 (30), pp. 207-224.
4. *Obshcherossiiskii klassifikator vidov ekonomicheskoi deyatel'nosti* [All-Russian Classifier of Economic Activity Types]. Available at: http://www.okvad.ru/razdel_da.html
5. Ovsyankina N.M., Shikhova O.A. Analiz i prognozirovanie sotsial'no-demograficheskikh pokazatelei alkogol'noi bezopasnosti v Vologodskoi oblasti [Analysis and Forecasting of Socio-Demographic Indicators of Alcohol Safety in the Vologda]. *Molochnokhozyaistvennyi vestnik* [Diary Farming Reporter], 2013, no. 3 (11), pp. 69-75.
6. Pavlichenko N.V., Samodelkin A.S. Kriminologicheskii analiz izmenenii zakonodatel'stva v sfere realizatsii gosudarstvennoi politiki po snizheniyu masshtabov zloupotrebleniya alkogol'noi produktsiei i profilaktike alkogolizma sredi naseleniya [Criminology Analysis of the Changes in the Legislation in the Sphere of Implementation of the State Policy to Reduce Alcohol Abuse and Prevent Alcoholism among the Population]. *Kriminologicheskii zhurnal Baikal'skogo gosudarstvennogo universiteta ekonomiki i prava* [Criminology Journal of Baikal National University of Economics and Law], 2014, no. 2, pp. 125-132.
7. Prokopchik N.I., Razvodovskii Yu.E., Zubritskii M.G., Gavra A.M., Solodukha D.V. Zloupotreblenie alkogolem kak prichina smerti [Alcohol Abuse as a Cause of Death]. *Zhurnal Grodnenskogo gosudarstvennogo meditsinskogo universiteta* [Journal of the Grodno State Medical University], 2009, no. 3 (27), pp. 57-58.
8. Pkhitikov A.Yu., Luk'yanov Yu.K. Razvitie alkogol'noi politiki v Rossiiskoi Federatsii kak prioritetnaya zadacha v obespechenii ekonomicheskoi bezopasnosti [Elaboration of Alcohol Policy in the Russian Federation as a Priority to Ensure Economic Security]. *Rossiiskii sledovatel'* [Russian Prosecutor], 2007, no. 2, pp. 31-33.
9. Simonov S.N., Simonova D.L., Simonov M.S. Demograficheskie posledstviya zloupotrebleniya alkogolem v Rossii [Demographic Consequences of Alcohol Abuse in Russia]. *Vestnik Tambovskogo universiteta. Seriya: Estestvennye i tekhnicheskie nauki* [Tambov University Review. Series: Natural and Technical Sciences], vol. 18, 2013, no. 1, pp. 321-323.
10. Timoshin, A.N. Analiz mezhdunarodnogo opyta regulirovaniya alkogol'nogo rynka [Analysis of the International Experience to Regulate the Alcoholic Beverage Market]. *Vestnik Bryanskogo gosudarstvennogo universiteta* [The Bryansk State University Herald], 2011, no.3, pp. 308-311.

11. Tolkacheva, O.P., Krupenina A.S. Gosudarstvennoe regulirovanie rynka alkogol'noi produktsii v sisteme obespecheniya natsional'noi bezopasnosti strany [State Regulation of the Alcoholic Beverage Market in the System to Ensure National Security of the Country]. *Vestnik Sankt-Peterburgskogo universiteta MVD Rossii* [Bulletin of Saint Petersburg University of the Ministry of Internal Affairs of Russia], 2011, no. 4, pp. 142-145.
12. Usova K.O. Formirovanie sbalansirovannoi promyshlennoi i torgovoi politiki v tselyakh obespecheniya ekonomicheskoi bezopasnosti proizvodstva i oborota alkogol'noi produktsii [Formation of Balanced Industrial and Trade Policies in Order to Ensure Economic Security of Production and Turnover of Alcoholic Products]. *Vestnik YuRGTU (NPI)* [Vestnik of URGTU(NPI)], 2012, no. 3, pp. 173-176.
13. *Federal'naya sluzhba gosudarstvennoi statistiki* [Federal State Statistics Service]. Available at: http://vologdastat.gks.ru/
14. *Federal'nyi zakon "O gosudarstvennom regulirovanii proizvodstva i oborota etilovogo spirta, alkogol'noi i spirtosoderzhashchei produktsii i ob ogranichenii potrebleniya (raspitiya) alkogol'noi produktsii" ot 22.11.1995 № 171-FZ* [Federal Law "On State Regulation of Production and Turnover of Ethyl Alcohol, Alcoholic and Alcohol-Containing Products and on Restriction of Consumption (Drinking) of Alcoholic Products" of November 22, 1995 No. 171-FZ]. Available at: http://www.consultant.ru/document/cons_doc_LAW_154020/
15. Shukshina Yu.A. Sovershenstvovanie regional'noi politiki v oblasti regulirovaniya rynka alkogol'noi produktsii [Improvement of the Regional Policy in the Field of Alcoholic Beverage Market Regulation]. *Vestnik Samarskogo gosudarstvennogo ekonomicheskogo universiteta* [Vestnik of Samara State University of Economics], 2008, no. 9, pp 113-117.
16. Österberg E. What are the Most Effective and Costeffective Interventions in Alcohol Control? Copenhagen, WHO Regional Office for Europe. *Health Evidence Network Report*. Available at: http://www.euro.who.int/document/E82969.pdf.

Cited works

1. *Alcohol Abuse in the Russian Federation: Socio-Economic Consequences and Countermeasures: Report of the Public Chamber of the Russian Federation*. Available at: https://www.oprf.ru/files/dokladalko.pdf.
2. *Concept of the Public Policy to Reduce Alcohol Abuse and Prevent Alcoholism among the RF Population for the Period up to 2020*. Available at: http://www.rb.ru/inform/128937.html
3. Morev M.V., Kaminskii V.S. Issues of State-Society Relations. *Economic and Social Changes: Facts, Trends, Forecast*, 2013, no. 6 (30), pp. 207-224.
4. *All-Russian Classifier of Economic Activity T*ypes. Available at: http://www.okvad.ru/razdel_da.html
5. Ovsyankina N.M., Shikhova O.A. Analysis and Forecasting of Socio-Demographic Indicators of Alcohol Safety in the Vologda. *Diary Farming Reporter*, 2013, no. 3 (11), pp. 69-75.
6. Pavlichenko N.V., Samodelkin A.S. Criminology Analysis of the Changes in the Legislation in the Sphere of Implementation of the State Policy to Reduce Alcohol Abuse and Prevent Alcoholism among the Population. *Criminology Journal of Baikal National University of Economics and Law*, 2014, no. 2, pp. 125-132.
7. Prokopchik N.I., Razvodovskii Yu.E., Zubritskii M.G., Gavra A.M., Solodukha D.V. Alcohol Abuse as a Cause of Death. *Journal of the Grodno State Medical University*, 2009, no. 3 (27), pp. 57-58.
8. Pkhitikov A.Yu., Luk'yanov Yu.K. Elaboration of Alcohol Policy in the Russian Federation as a Priority to Ensure Economic Security. *Russian Prosecutor*, 2007, no. 2, pp. 31-33.
9. Simonov S.N., Simonova D.L., Simonov M.S. Demographic Consequences of Alcohol Abuse in Russia. *Tambov University Review. Series: Natural and Technical Sciences*, vol. 18, 2013, no. 1, pp. 321-323.

10. Timoshin, A.N. Analysis of the International Experience to Regulate the Alcoholic Beverage Market. *The Bryansk State University Herald*, 2011, no.3, pp. 308-311.
11. Tolkacheva, O.P., Krupenina A.S. State Regulation of the Alcoholic Beverage Market in the System to Ensure National Security of the Country. *Bulletin of Saint Petersburg University of the Ministry of Internal Affairs of Russi*a, 2011, no. 4, pp. 142-145.
12. Usova K.O. Formation of Balanced Industrial and Trade Policies in Order to Ensure Economic Security of Production and Turnover of Alcoholic Products. *Vestnik of URGTU(NPI)*, 2012, no. 3, pp. 173-176.
13. *Federal State Statistics Service*. Available at: http://vologdastat.gks.ru/
14. *Federal Law "On State Regulation of Production and Turnover of Ethyl Alcohol, Alcoholic and Alcohol-Containing Products and on Restriction of Consumption (Drinking) of Alcoholic Products" of November 22, 1995 No. 171-FZ*. Available at: http://www.consultant.ru/document/cons_doc_LAW_154020/
15. Shukshina Yu.A. Improvement of the Regional Policy in the Field of Alcoholic Beverage Market Regulation. *Vestnik of Samara State University of Economics*, 2008, no. 9, pp 113-117.
16. Österberg E. What are the Most Effective and Costeffective Interventions in Alcohol Control? Copenhagen, WHO Regional Office for Europe. *Health Evidence Network Report*. Available at: http://www.euro.who.int/document/E82969.pdf.

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Causes and factors promoting the expansion of cardiovascular diseases in the Vologda Oblast (according to the research in epidemiology of cardiovascular disease)

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Abstract. The article focuses on the analysis of risk factors for cardiovascular diseases. The data of the research in epidemiology of cardiovascular disease (ESSE-2013), carried out in the Vologda Oblast, and the materials of the state statistics service comprise an information base. The ESSE-2013 questionnaire included several thematic blocks corresponding to the main factors influencing the development of cardiovascular diseases. The distribution of respondents' answers reveals that there is a connection between cardiovascular diseases and effects of such factors as gender, age, heredity, and the body mass index.

Of all the respondents who had infarction, 40% mention that their close relatives suffer from this disease as well. Of those who had a stroke, 30% have relatives with such a disease. The comparison of the respondents' age and gender characteristics by the presence of cardiovascular diseases shows that men and women over 60 belong to the risk groups of such diseases as stroke, stenocardia and cardiac arrhythmia; the risk of heart attack is very high for men over 60; heart rhythm disorders – for women under 60.

The study has not indicated a clear correlation between negative characteristics of lifestyles and risks for cardiovascular diseases.

Thus, the research confirms the high importance of heredity and age and gender characteristics as risk factors for cardiovascular disease. At the same time, the impact of the lifestyle is not vivid. In this regard, it can be promising to monitor the impact of individual behavioral practices on risks for cardiovascular disease.

Key words: cardiovascular disease, risk groups, risk factors, health.

Public health is one of the main factors in successful functioning of the society. Creation of the conditions to preserve and improve public health is a priority of any state. The Long-Term Program for Development of Healthcare of the Russian Federation contains 6 targets of public health[1], the similar program for the Vologda Oblast[2] – 12. The negative trends in the mentioned targets actualize the development and adoption of effective measures in healthcare, aimed primarily at disease prevention.

In the Russian Federation cardiovascular diseases are the key cause of mortality[3], despite its 13 percent decrease in 2000–2012. In the same period the morbidity rate for this cause increased by 55% and amounted to 2663 cases per 100 thousand population; the primary disability rate decreased by 29% (*tab. 1*).

The situation is similar at the regional level: morbidity, disability and mortality from cardiovascular diseases are very high. In the Vologda Oblast diseases of the cardiovascular system continue to maintain the leading position among most frequent causes of death and disability of the adult population (*tab. 2*). In 2012 the morbidity rate was by 32% higher that in 2000

The state of people's health is affected by different factors, such as living conditions, lifestyle and hereditary. The conditions, circumstances and causes, increasing the probability of health problems, are defined as risk factors and combined into two groups: endogenous and exogenous. Health risk is considered as the possibility of development of harmful effects for a person (a group of people) in the presence of any danger[4].

Depending on the source of origin all the risk factors are divided into four groups: lifestyle and socio-economic conditions, hereditary background, quality of the external environment and healthcare (according to the World Health Organization classification). The degree of their impact

[1] *Razvitie zdravookhraneniya: gosudarstvennaya programma RF* [Development of Healthcare: the State Program]. Available at: http://www.rosminzdrav.ru/news/2014/01/30/1686-gosudarstvennaya-programma-razvitiya-zdravoohraneniya-rossiyskoy-federatsii

[2] *Razvitie zdravookhraneniya Vologodskoi oblasti: gosudarstvennaya programma* [Development of Healthcare of the Vologda Oblast: the State Program]. Available at: // vologda-oblast.ru/special/dokumenty/18329/

[3] As of 2012 mortality from cardiovascular system diseases amounted to 737 people per 100 thousand population and from cancer – 203 people per 100 thousand population, from external causes – 135.3 people per 100 thousand population (Healthcare in Russia 2013. Available at: http://www.gks.ru/bgd/regl/b13_34/Main.htm).

[4] Shabunova A.A., Kalashnikov K.N., Morev M.V., Kalachikova O.N., Kondakova N.A. *Zdorov'e i zdravookhranenie: uchebnoe posobie dlya vuzov* [Health and Healthcare: Textbook for Universities]. Under editorship of A.A. Shabunova. Vologda: ISERT RAN, 2014. 154 p.

Table 1. Morbidity, disability and mortality from cardiovascular diseases in the Russian Federation

Indicator	Territory	Year					2012 to 2000, %
		2000	2003	2006	2009	2012	
Mortality from cardiovascular diseases	RF	846.1	927.5	864.7	801.0	737.1	87
	EU	310.39	295.25	252.2	226.37	–	
Number of people firstly recognized as disable aged 18 and over, cardiovascular diseases (per 10,000 population)	RF	35.4	35.9	53	33.3	25.1	71
	EU	No data	No data	No data	No data	No data	No data
Incidence of cardiovascular diseases, per 100,000 population	RF	1718	2058.3	2647.1	2634.3	2663.1	155
	EU	2390.09	2473.38	2415.26	2416.09	–	–

Sources: *Rossiiskii statisticheskii ezhegodnik 2010, 2013* [Russian Statistical Yearbook 2010, 2013]. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1135087342078; *Tsentral'naya baza statisticheskikh dannykh* [Central Statistics Database]. Available at: http://www.gks.ru/dbscripts/cbsd/; *Evropeiskaya baza dannykh "Zdorov'e dlya vsekh"* [European Health for All Database]. Available at: http://data.euro.who.int/hfadb/shell_ru.html

Table 2. Morbidity, disability and mortality from cardiovascular diseases in the Vologda Oblast

Indicator	Year					2012 to 2000, %
	2000	2003	2006	2009	2012	
Mortality from cardiovascular diseases (per 100,000 population)	895.9	1094.2	963.2	937.9	896.0	100
Number of people firstly recognized as disable aged 18 and over, cardiovascular diseases (per 10,000 population)	72	181	60	39	30	42
Incidence of cardiovascular diseases (per 1,000 population)	18.4	18.7	25.6	27.4	24.3	132

Sources: *Statisticheskii ezhegodnik Vologodskoi oblasti 2013: stat. sb*. [Statistical Yearbook of the Vologda Oblast 2013: Statistics Digest]. Vologdastat [Vologda Statistics Sevice]. Vologda, 2013. 371 p.; *Statisticheskii ezhegodnik Vologodskoi oblasti 2007: stat. sb. [*Statistical Yearbook of the Vologda Oblast 2007: Statistics Digest]. Vologdastat [Vologda Statistics Sevice]. Vologda, 2007. 363 p.

on health varies: according to the data presented in the work of Yu. P. Lisitsyn, the lifestyle factors and socio-economic conditions make the greatest contribution to health formation (49–53%; *tab. 3*).

The factors' impact on health can be assessed by comparing the person' susceptibility to certain diseases, taking into account the *presence of risk factors* for their development.

The causes of cardiovascular diseases are often the following: poor diet (the body mass index (BMI) is higher a normal range), smoking, alcohol abuse, sedentary lifestyle, genetic predisposition. At the present time, there are more than 200 different risk factors for cardiovascular diseases [11].

The epidemiological study of cardiovascular diseases was conducted by ISEDT

Table 3. Grouping of risk factors affecting the health of the population

Factor groups	Share, %	Components
1. Lifestyle and socio-economic conditions	49 – 53	Smoking, poor diet, excessive alcohol consumption, harmful working conditions, stress, physical inactivity, poor living conditions, drug abuse, fragility of families, loneliness, low educational and cultural levels, excessive urbanization
2. Hereditary background	18 – 22	Hereditary predisposition to diseases
3. Quality of the external environment	17 – 20	Environmental pollution, hazardous working conditions, sudden change of weather; elevated levels of radiation, solar and magnetic radiation
4. Healthcare	8 – 10	Ineffectiveness of preventive measures, low quality of medical care and time-lag in its provision
Source: Lisitsyn Yu.P. *Obshchestvennoe zdorov'e i zdravookhranenie: uchebnik* [Public Health and Healthcare: Textbook]. Moscow: GEOTAR-Media, 2009. p. 45.		

RAS in 2013 in the Vologda Oblast under contract with the Federal State Institution the National Research Center for Preventive Medicine of the Ministry of Healthcare of the Russian Federation.

The region participated in the all-Russian project "Epidemiology of cardiovascular disease" ("ESSE – RF"). The work was aimed at carrying out a screening survey of the Vologda Oblast and forming a database to evaluate the epidemiological situation of cardiovascular diseases (CVD) and its risk factors in the RF subject.

The survey was conducted at the field stage of the research. The research questionnaire included 12 thematic blocks to assess the main factors influencing the person's health. The sample size was 1650 urban and rural people. The respondents were aged 25–64. It provided an objective view of the epidemiology of cardiovascular diseases among the adult population. The gender structure of the sample corresponded to the gender structure of the adult population.

The next research stage included the measurement of blood pressure and the blood draw to identify biochemical markers that accompany the development of pathologies of the cardiovascular system. The database was formed at the final stage of the laboratory research and the questionnaires processing [7].

This paper considers correlation of several factors with cardiovascular diseases. The results of the "ESSE – RF" project is an empirical basis for the analysis. As it was shown above (see tab. 3), the human health is primarily influenced by lifestyle and only then by hereditary factors.

The impact of the latter can be demonstrated by comparing the incidence of cardiovascular diseases in several generations of the same family. It is difficult to identify the correlation between the presence of negative lifestyle factors and the development of certain diseases. Sociological information is characterized by subjectivity, thus it is possible to consider just potential relationship between the studied phenomena.

Therefore, to clarify the nature of the relationship between the risk factor and disease, we calculated corresponding correlation coefficients (the Pearson criterion χ^2, allowing us to identify the presence or absence of correlation and the criterion φ, revealing the constraint force of variables)[5].

The analytical stage of the study included the comparison of the data on people's self-assessment of their health and their lifestyle with the objective characteristics of the state of their health, the type of professional activity and the level of education and income to identify the importance of social conditions and behavioral practices in forming the health of individuals.

Self-assessed health is a recognized method to identify the respondents' state of health. The works of A.A. Shabunova, O.N. Kalachikova, K.N. Kalashnikov, N.A. Kondakova show the correlation of people's behavior regarding their own health and self-esteem [1, 5]. People, highly estimating their own health, seek medical advice in time, follow the treatment regimen, and are aware of ways to prevent diseases. As a consequence, self-reported health can be considered as indicator and regulator of self-preservation behavior.

The distribution of the participants' responses in the sample is a quantitative measurement of assessed health of the studied group. At the individual level, self-reported health is determined according to the scale, which can have a different gradation. In the "ESSE – 2013" questionnaire the respondents were given two scales. The first scale consisted of five levels: excellent, very good, good, satisfactory and bad. The second scale was graded from 0 to 100 (EuroQooL method, 1990); zero points corresponded to the worst possible health conditions, 100 points – the best.

The distribution of the respondents' answers, according to both methods, has revealed a significant difference in self-reported health when using 5-point and 100-point grading scales. The study participants tended to give more positive, perhaps inflated, assessment of their health when using the 100-point grading scale and more pessimistic assessment when using the conventional 5-point scale. In the latter case, more than half of the respondents rated their health as satisfactory (51.6%) and 8% as poor (*fig. 1*).

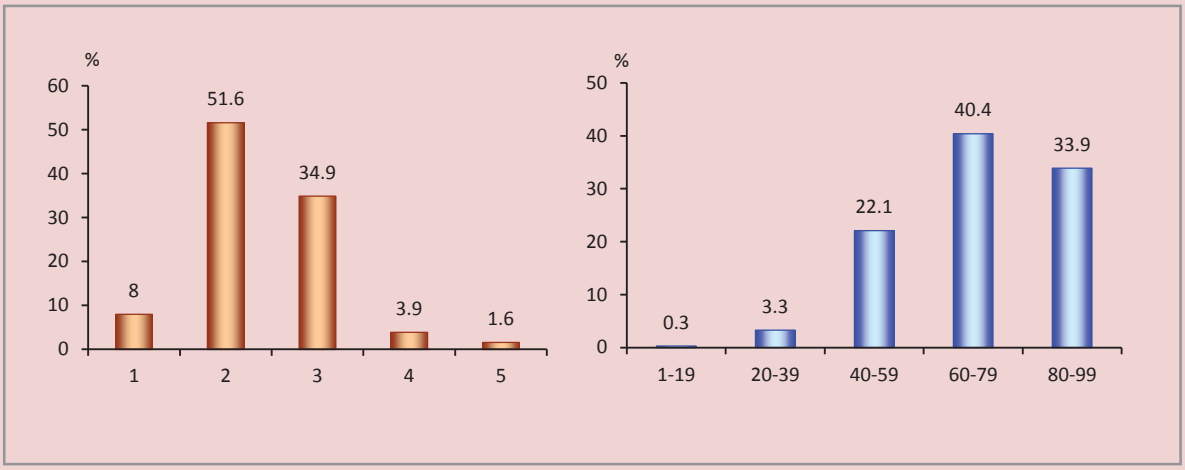
Perhaps, the differences are caused by various visual representations of the answer choices: the scale of the EuroQooL method was presented graphically in the form of a "thermometer", where the respondent was supposed to put a mark, the five-point scale was presented verbally.

The consideration of endogenous uncontrollable factors includes the evaluation of the impact of *gender, age* and *genetic predisposition* on the development of cardiovascular diseases.

These studies demonstrate the existence of some correlation between cardiovascular diseases and age and gender characteristics of the respondents.

[5] The calculation was performed in accordance with the method described in the article by A.M Grzhibovskii. Analiz nominal'nykh dannykh (nezavisimye nablyudeniya) [Analysis of Nominal Data (Independent Monitoring)] *Ekologiya cheloveka* [Human Ecology], 2008, no. 6, pp.58-68.

Figure 1. Distribution of the respondents' assessments of their health according to the 5- and 100 point systems (in % of respondents number)



Note. Nomenclature on the left: 1 – poor state of health, 2 – satisfactory; 3 – good; 4 – very good; 5 – excellent.

Among men aged 60 and over the incidence of heart attack is by 10% higher than among women of the same age category (*fig. 2*).

In the category of people aged 60 and over there are widespread diseases of the cardiovascular system, such as angina, stroke and heart rhythm disorder. Men of this age group are more prone to strokes (see fig. 2) and coronary heart disease (*fig. 3*). The prevalence of cardiac arrhythmias in the group of people under 60 is higher among women; in the group of people aged 60 and over, the difference is smoothed.

The distribution illustrates diseases that prevail in the older age group. Cardiovascular diseases are less widespread among women of this age group due to the fact that within 10 years after the end of the fertile period they maintain resistance to the disease.

It is important to consider the presence of genetic predisposition, since this factor reduces the effectiveness of preventive measures against cardiovascular diseases significantly. So, 40% of the patients with myocardial infarction noted that their closest relatives had suffered from the disease. The situation is similar with strokes – 30% of the patients mentioned closest relatives that had suffered from this disease (*fig. 4*).

To identify the correlation between hereditary, demographic characteristics and the likelihood of developing cardiovascular diseases with the help of the standard software package SPSS we calculated the Pearson criterion χ^2. The critical value is 3.841 at the 0.05 significance level. Table 4 is used to calculate the actual number of observations.

Figure 2. Prevalence of heart attacks and strokes among the population (in % of respondents number)

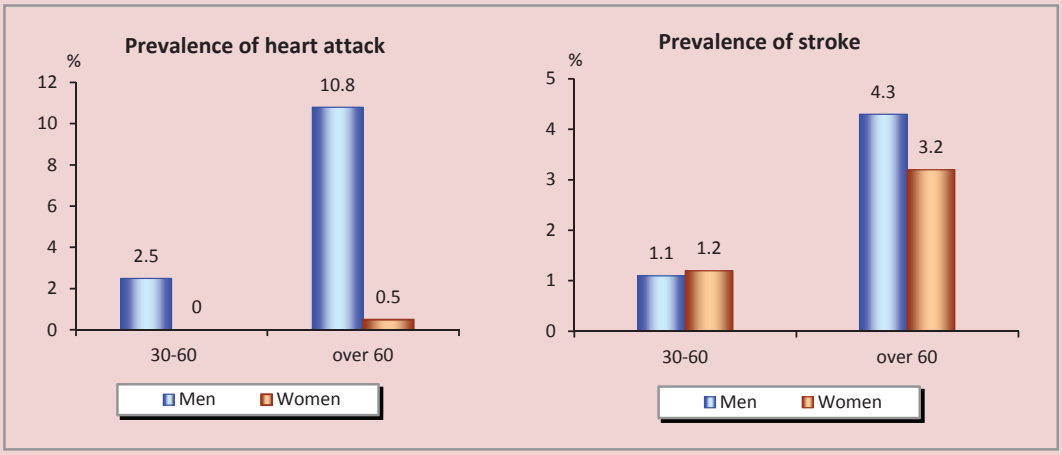


Figure 3. Prevalence of angina and cardiac arrhythmias among the population (in % of the number of respondents)

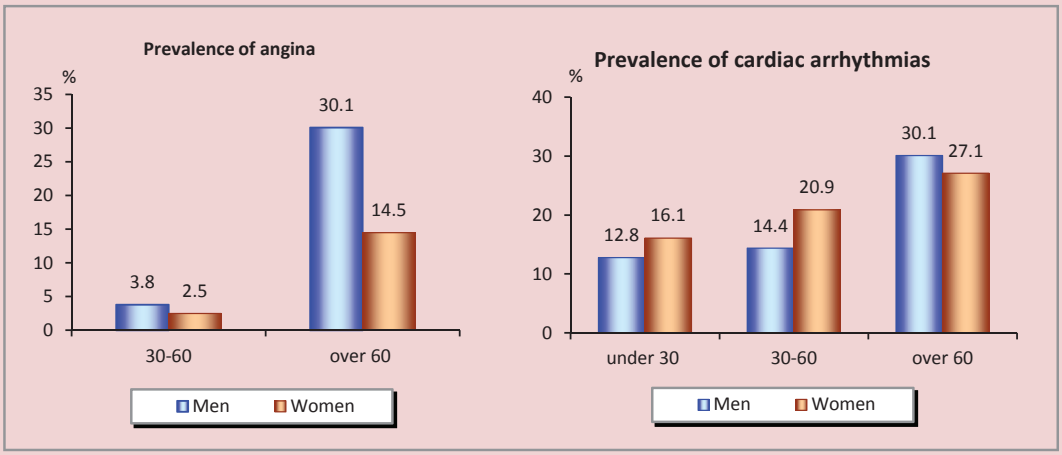


Figure 4. Distribution of answers to the question: "Did/Does your mother, sisters (under 65), father, brothers (under 55) suffer from the following diseases: myocardial infarction, stroke? (in % of the number of respondents suffering from a relevant disease)

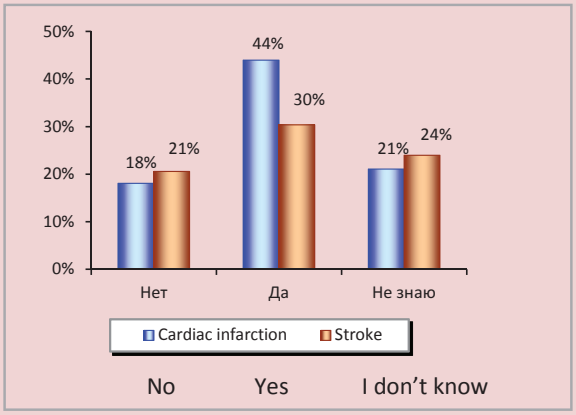


Table 4. Observed occurrence

Risk factors		Outcome									
		stroke		heart attack		CHD		heart rhythm disorder		other heart diseases	
		yes	no	yes	no	yes	no	yes	no	yes	no
Hereditary background of myocardial infarction	yes	2	293	11	284	31	255	70	212	53	229
	no	21	1125	9	1140	51	1068	204	903	122	976
Hereditary background of cerebral stroke	yes	7	325	3	332	32	294	76	242	41	274
	no	16	1094	18	1094	52	1031	201	873	130	934
Hereditary background of arterial hypertension	yes	20	885	15	893	66	807	217	648	123	734
	no	3	544	7	542	18	523	66	468	56	475
Eldery age (retirement age)	yes	11	302	11	302	60	239	88	202	39	257
	no	13	1298	14	1302	37	1246	229	1041	155	1100
Men aged 60 and over	yes	4	88	10	82	28	61	28	61	11	78
	no	20	1512	15	1522	69	1424	289	1182	183	1279
Women aged 55 and over	yes	7	214	1	220	32	178	60	141	28	179
	no	17	1386	24	1384	65	1307	257	1102	166	1178

Table 5. Value of the criterion φ for the risk factors of cardiovascular diseases

Risk factors	Stroke	Other heart diseases	Heart attack	Heart rhythm disturbance	CHD
Eldery age (border - retirement age)	$\varphi = 0.082$, $p \le 0.001$	No correlation	$\varphi = 0.079$, $p = 0.002$	$\varphi = 0.119$, $p \le 0.001$	$\varphi = 0.280$, $p \le 0.001$
Men aged 60 and over	No correlation	No correlation	$\varphi = 0.186$, $p \le 0.001$	$\varphi = 0.068$, $p = 0.007$	$\varphi = 0.258$, $p \le 0.001$
Women aged 55 and over	No correlation	No correlation	No correlation	$\varphi = 0.091$, $p \le 0.001$	$\varphi = 0.149$, $p \le 0.001$
Hereditary background of myocardial infarction	No correlation	$\varphi = 0.093$, $p \le 0.001$	$\varphi = 0.102$, $p \le 0.001$	$\varphi = 0.065$, $p = 0.016$	$\varphi = 0.108$, $p \le 0.001$
Hereditary background of arterial hypertension	$\varphi = 0.064$, $p = 0.014$	$\varphi = 0.055$, $p = 0.040$	No correlation	$\varphi = 0.154$, $p \le 0.001$	$\varphi = 0.087$, $p \le 0.001$
Hereditary background of cerebral stroke	No correlation	No correlation	No correlation	$\varphi = 0.055$, $p = 0.042$	$\varphi = 0.089$, $p \le 0.001$

The table presents the values of the criterion φ and the value of the significance level p.

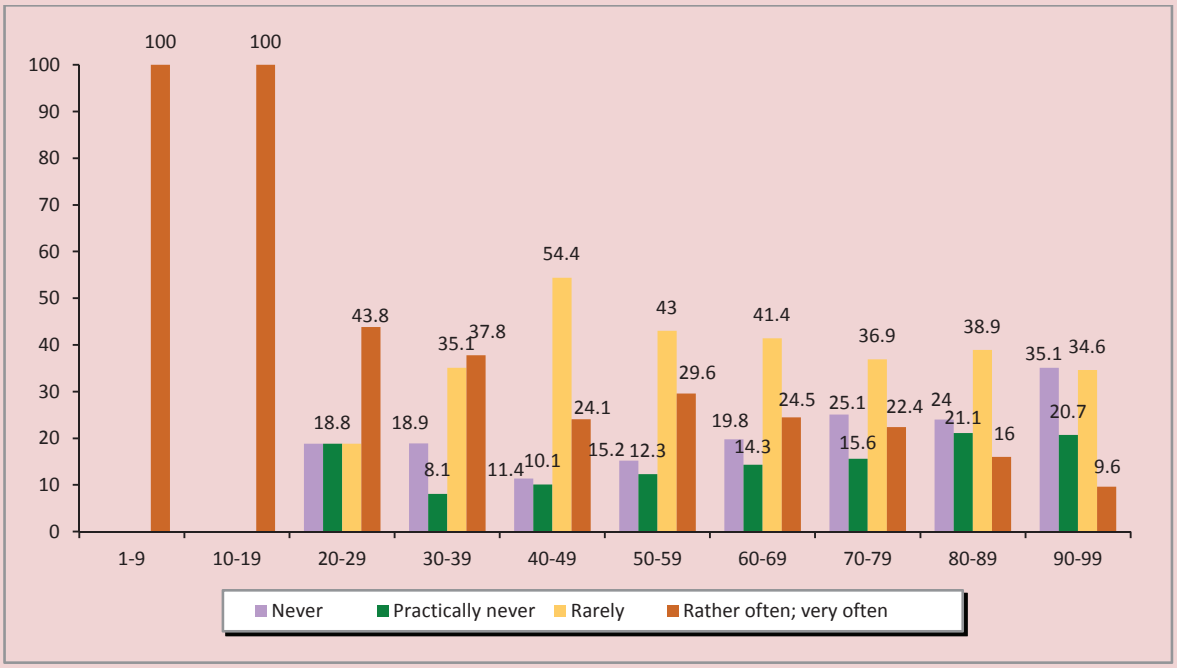
For indicators, which relationship was confirmed by the Pearson criterion χ^2, we determined constraint force by means of the criterion φ calculation. So, as for the hereditary factor, there is a weak correlation between the following diseases: the respondent who suffered from heart attack or coronary heart disease had relatives who had had heart attack, as well as the respondent who suffered from cardiac arrhythmias had relatives who had had arterial hypertension. As for the impact of gender and age characteristics, the relationship of the mean length is recorded

between the factor "men aged 60 and over" and the outcome "coronary heart disease". There is a weak correlation between the factor "women aged 55 and over" and the presence of coronary heart disease and cardiac arrhythmias (*tab. 5*). The mathematical analysis of the data has not revealed strong correlation between the risk factors and the presence of cardiovascular disease. The maximum constraint force is observed between the factor "retirement age" and the outcome "coronary heart disease". The weaker impact of other causes can be caused by the fact that the joint effect of factors was not taken into account.

Lifestyle is an exogenous controllable factor. If we change it appropriately, we can reduce the risk of cardiovascular diseases significantly. Several blocks of the ESSE – RF questionnaires was devoted to this issue. We studied the following aspects: *nutrition, physical activity, exposure to stressful situations and presence of harmful habits*.

To characterize the impact of stress on the population's health we compared the self-assessments of health and the degree of the respondents' exposure to stress. Among those who assessed their own health above 90 points on the 100 point scale there was the highest proportion of those who never experienced stress (35%). The

Figure 5. Distribution of answers to the question: "How often were you nervous or how often did you experience stress during last month?" (in % of the number of respondents by groups of self-assessed health on the scale from 0 to 100 points)



Note. According to the questionnaire rules, the choice of 0 or 100 points was not allowed to assess the state of health.

majority of the respondents who assessed their own health in the range from 40 to 89 points, experienced stress only sometimes (43%). When self-reported health is below 40 points there is a high exposure to stressful situations – from 37% (self-reported health between 30 and 39 points) to 100% (self-reported health less than 20 points) of the respondents often or very often felt stress (*fig. 5*).

The dependence of the respondents' state of health on the presence of harmful habits is weak. At the same time, the respondents are inclined to self-destructive behavior, such as alcohol consumption, though they suffer from cardiovascular diseases. Only after heart attack people refuse fortified wines and strong liquors completely; however, 56% of the group can drink vodka or brandy. Among those who had stroke, 62% drink strong alcohol, 50% – dry wine or champagne, 29% – beer, 16% – fortified wine and 8% – strong tinctures. In general, the presence of cardiovascular diseases does not lead to the refusal of alcohol consumption (*fig. 6*).

Diet has an indirect effect on the development of cardiovascular diseases. The differences in the diet of people with normal weight and obese people relate only to certain food groups: cheese, cereals and pasta. The respondents with obesity (third degree) often eat meat, more rarely cheese, cereals and pasta. The respondents with underweight body do not eat pickles, rarely eat cheese, but more often sour

Figure 6. Distribution of positive answers to the question:
"Do you drink the following alcoholic beverages?"
(in % of the number of respondents that have a specified disease of the cardiovascular system)

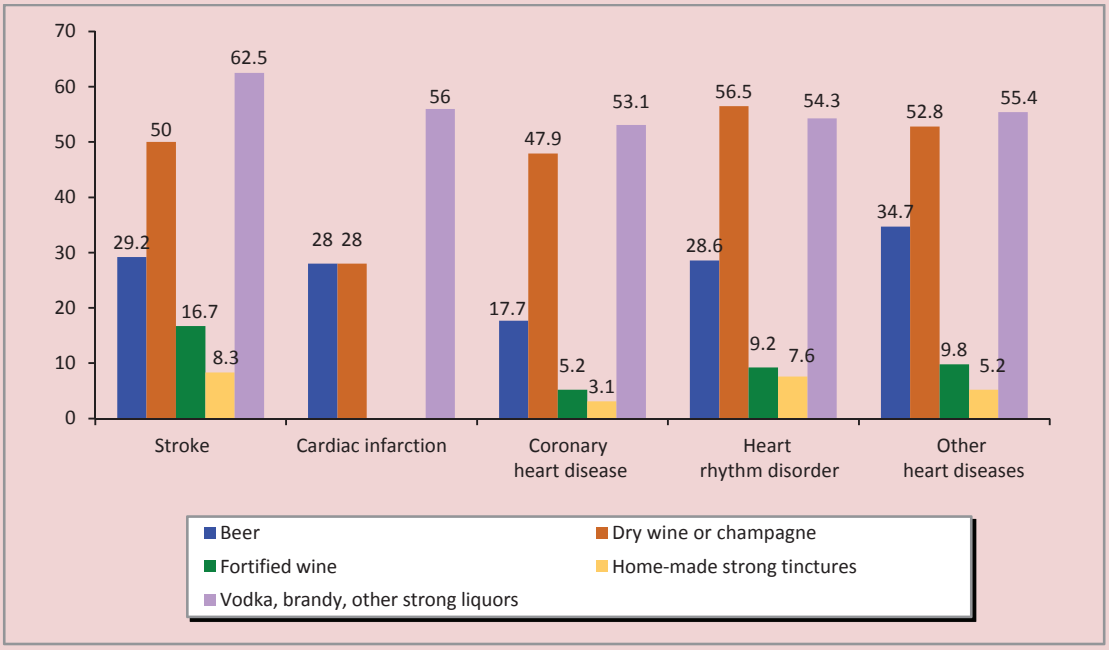


Table 6. Diet profiles

Food	Frequency of consumption		
	Underweight	Normal weight	Class II obesity
Meat – 150 gram. (beef, pork, lamb, etc.)	1 – 2 times a week	1 – 2 times a week	1 – 2 times a week
Fish and seafood - 200 gram	1 – 2 times a week	1 – 2 times a week	1 – 2 times a week
Bird – 150 gram (chicken, turkey, etc.)	1 – 2 times a week	1 – 2 times a week	1 – 2 times a week
Sausage, sausages, by-products (tongue, liver, heart, etc.)	1 – 2 times a week	1 – 2 times a week	1 – 2 times a week
Pickles and pickled products	Do not consume / rarely consume	1 – 2 times a week	1 – 2 times a week
Cereals, pasta (1 serving)	Daily / almost daily	Daily / almost daily	1 – 2 times a week
Fresh vegetables and fruits (3 pieces)	Daily / almost daily	Daily / almost daily	Daily / almost daily
Legumes (beans, lentils, peas, etc.)	1 – 2 times a month	Do not consume / rarely consume	Do not consume / rarely consume
Sweets and confectionery (candies, jam, biscuits, etc.)	Daily / almost daily	Daily / almost daily	Daily / almost daily
Milk, kefir, yogurt	Daily / almost daily	Daily / almost daily	Daily / almost daily
Sour cream, cream	Daily / almost daily	1 – 2 times a week	1 – 2 times a week
Cheese	1 – 2 times a week	1 – 2 times a week	1 – 2 times a week
Cottage cheese	1 – 2 times a week	Daily / almost daily	1 – 2 times a week

Source: data of the research "ESSE-2013".

cream, cream and beans. In general, the respondents having a typical daily diet prefer dairy products and products containing a large proportion of carbohydrates. The diet profiles depending on the body mass index are presented in *Table 6* (the profiles are constructed according to the most frequent answers of respondents with different body mass indices).

The ratio of the body mass index and the presence of cardiovascular diseases is different. Thus, among the respondents with class II obesity 13% suffered from angina and 24% – heart rhythm disorder. The largest share of those who had myocardial infarction was recorded among the respondents with class I obesity – 2.9%. The lower values among the respondents with class II and III obesity can be caused by the scarcity of data in the sample. Stroke prevails in the group of respondents with class II obesity and underweight. The highest share of those who suffered from heart rhythm disorders (27%) or had other heart diseases besides heart attack, stroke and angina is recorded among the respondents with class I obesity (14%; *fig. 7*).

According to the data presented in the work of Yu. P. Lisitsyn (2009), the adverse lifestyle factors contribute to the development of coronary heart disease by 60%,

Figure 7. Distribution of positive answers to the question: "Has a doctor ever told you that you have the following diseases?" (in % of the number of the respondents who have the appropriate body mass index)

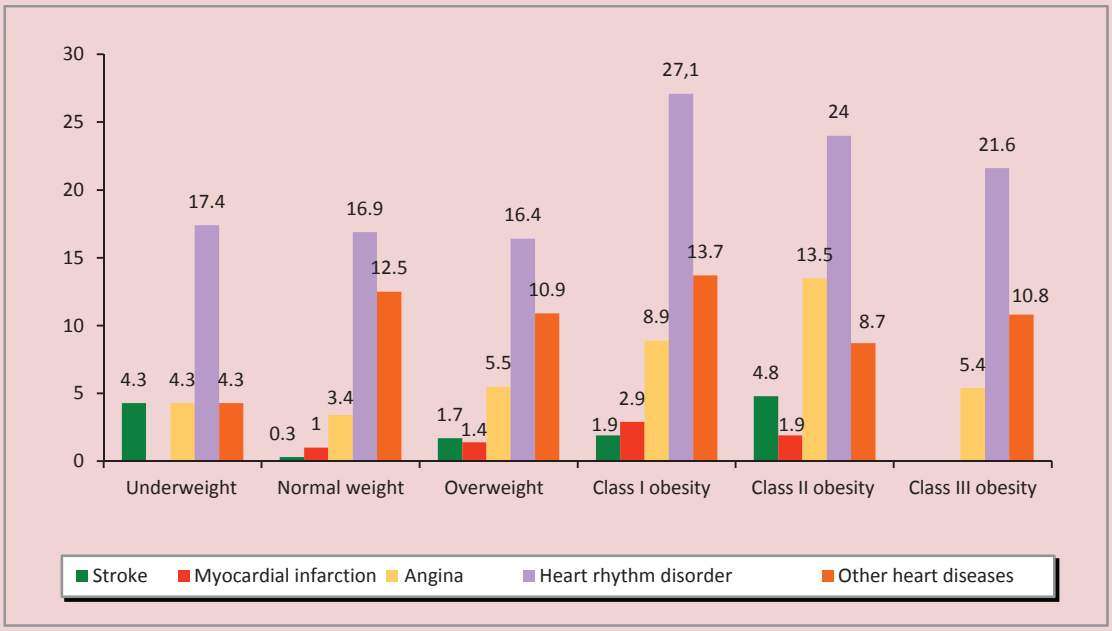


Table 7. Distribution of risk factors for various chronic diseases (% of the effect)

Disease	Adverse lifestyle factors	Genetic risk	Pollution of the external environment	Shortfalls in healthcare
Coronary heart disease	60	18	12	10
Vascular cerebral affection	65	17	13	5
Other cardiovascular diseases	40	35	17	8

Source: Lisitsyn Yu.P. *Obshchestvennoe zdorov'e i zdravookhranenie: uchebnik* [Public Health and Healthcare: Textbook]. Moscow: GEOTAR-Media, 2009, p.46.

vascular cerebral affection – by 65%, the development of other cardiovascular diseases – by 40% (*tab. 7*).

The municipal healthcare institutions manage lifestyle factors in terms of preventive work with the population: educational, preventive, sport events. These measures can reduce the incidence of cardiovascular disease, prevent the development of complications.

The achievement of objectives to promote healthy lifestyles and reduce mortality in the region is characterized by the target indicators stipulated in the state program of the Russian Federation "Development of Healthcare" for the

period up to 2020, and in the program "Development of Healthcare of the Vologda Oblast" for the period up to 2020[6]. In accordance with these state programs in the Russian Federation the mortality rate from circulatory diseases should be reduced to 622.4 cases per 100 thousand population (by 16% compared to 2012) by 2020, in the Vologda Oblast – to 649.4 cases per 100 thousand population (by 28% compared to 2012).

Thus, the study has confirmed the significance of hereditary background and gender characteristics as risk factors of cardiovascular system. It has also revealed that the impact of the body mass index on the development of cardiovascular diseases is different. Thus, among the respondents with class II obesity 13% suffered from angina, 24% – heart rhythm disorders. The largest share of myocardial infarction was recorded among the respondents with class I obesity (2.9%), among them there was the largest share of those suffering from heart rhythm disorders (27%) and other heart disease besides heart attack, stroke and angina (14%). Stroke prevails in the groups of the respondents with class II obesity and underweight. The comparison of the lifestyle factors and the presence of cardiovascular diseases have not led to the identification of significant correlations. The reason can be the following: the study was one-time and did not assume the in-depth analysis of self-preservation behavior of people. To obtain more representative data on the impact of behavioral factors on the risk of cardiovascular diseases development it is necessary to conduct prospective studies. However, the respondents who assess their state of health as low are more often exposed to stress. Everyone who rates their health by 20 points and below (on the 100 point scale) often or very often experiences stress.

The spread of values and practices of a healthy lifestyle is the priority in combating cardiovascular diseases. Such culture should be created by the state, its competent bodies in the sphere of healthcare, the media, the society, employers and citizens. The state facilitates and regulates the actions to strengthen the population's health. It develops strategies and programs in healthcare, distributes financial flows, determines common attitudes to health through media channels, controls and monitors the subordinate agencies' performance. In general, the state has 2 options. In the first case the investment is directed in preventive measures, early diagnosis of diseases, strengthening the material and technological base of healthcare institutions, propaganda of a healthy lifestyle, control of working conditions in enterprises, monitoring of management effectiveness in the respective spheres. The consistent implementation of these actions leads to the minimization of GDP loss associated with poor health. The second option does not promote preventive medicine and a healthy lifestyle. In this case,

[6] *Razvitie zdravookhraneniya: gosudarstvennaya programma RF* [Development of Healthcare: the State Program]. Available at: http://www.rosminzdrav.ru/news/2014/01/30/1686-gosudarstvennaya-programma-razvitiya-zdravoohraneniya-rossiyskoy-federatsii; *Razvitie zdravookhraneniya Vologodskoi oblasti: gosudarstvennaya programma* [Development of Healthcare of the Vologda Oblast: the State Program]. Available at: // vologda-oblast.ru/special/dokumenty/18329/

the funds are supposed to compensate the negative changes in the population's health; there are also additional costs from GDP underproduction. Obviously, the long-term effect requires the implementation of the first option.

References

1. Kalachikova O.N., Kalashnikov K.N. *Analiz smertnosti naseleniya Vologodskoi oblasti ot serdechnososudistykh zabolevanii: otchet o NIR* [Analysis of Population's Mortality from Cardiovascular Diseases: Research Report]. Vologda: ISERT RAN, 2014. 59 p.
2. Vvedenskaya I.I., Vvedenskaya E.S., Shilova L.S. Samootsenka zdorov'ya kak pokazatel' samosokhranitel'nogo povedeniya pozhilykh [Self-Assessment of Health as an Indicator of Self-Preservation Behavior of the Elder]. *Problemy sotsial'noi gigieny, zdravookhranenie i istoriya meditsiny* [Problems of Social Hygiene, Health Care and History of Medicine], no .5, 1999, pp. 12-15.
3. Grzhibovskii A.M. Analiz nominal'nykh dannykh (nezavisimye nablyudeniya) [Analysis of Nominal Data (Independent Monitoring)]. *Ekologiya cheloveka* [Human Ecology], 2008, no. 6, pp.58-68.
4. Zhuravleva I.V. *Otnoshenie naseleniya k zdorov'yu* [The Population's Attitude to Health]. Moscow, 1993, p. 97.
5. Shabunova A.A., Kalashnikov K.N., Morev M.V., Kalachikova O.N., Kondakova N.A. *Zdorov'e i zdravookhranenie: uchebnoe posobie dlya vuzov* [Health and Health Care: Textbook for Universities]. Under editorship of A.A. Shabunova. Vologda: ISERT RAN, 2014. 154 p.
6. Lisitsyn Yu.P. *Obshchestvennoe zdorov'e i zdravookhranenie: uchebnik* [Public Health and Health Care: Textbook]. Moscow: GEOTAR-Media, 2009. 512 p.
7. Boitsov S.A., Chazov E.I., Shlyakhto E.V., Shal'nova S.A., Konradi A.O., Karpov Yu.A., Muromtseva G.A., Zhernakova Yu.V., Oshchepkova E.V., Rotar' O.P., Balanova Yu.A., Balakhonova T.V., Baranova E.I., Gomyranova N.V., Deev A.D., Dobrovol'skii A.B., Dotsenko A.N., Evstifeeva S.E., REganyan.A., Kapustina A.V., Kontsevaya A.V., Kostareva A.A., MMamedov.N., Masenko V.P., Metel'skaya V.A., Meshkov A.N., Panchenko E.P., Postnov A.Yu., Potemkina R.A., Pustelenin A.V., Rogoza A.N., Ryabykina G.V., Skripnikova I.A., Titov V.N., Tkacheva O.N., Khudyakov M.B., Gutnova S.K., Toguzova Z.A., Tolparov G.V., Nevzorova V.A., Kulakova N.V., Nedogoda S.V., Chumachek E.V., Ilyin V.A., Kasimov R.A., Shabunova A.A., Furmenko G.I., Minakov E.V., Nazarova O.A., Romanchuk S.V., Belova O.A., Grinshtein Yu.I., Petrova M.M., Libis R.A., Isaeva E.N., Duplyakov D.V., Gudkova S.A., Karpov R.S., Trubacheva I.A., Medvedeva I.V., Shava V.P., Efanov A.Yu. Nauchno-organizatsionnyi komitet proekta ESSE-RF. Epidemiologiya serdechno-sosudistykh zabolevanii v razlichnykh regionakh Rossii (ESSE-RF). Obosnovanie i dizain issledovaniya [Epidemiology of Cardiovascular Diseases in Different Regions of Russia (Esse-Rf). The rationale for and Design of the study]. *Profilakticheskaya meditsina* [Preventive Medicine], 2013, no. 6, pp. 25-34.
8. Yakushin S.S., Shal'nova S.A., Potemkina R.A., Filippov E.V., Balanova Yu.A., Boitsov S.A. Opyt organizatsii epidemiologicheskogo issledovaniya faktorov riska neinfektsionnykh zabolevanii v Ryazanskoi oblasti (po rezul'tatam pilotnogo proekta MERIDIAN-RO) [Experience to Carry Out an Epidemiological Study of Risk Factors for Noncommunicable Diseases in the Ryazan Oblast: Results of the MERIDIAN-RO Pilot Project)]. *Profilakticheskaya meditsina* [Preventive Medicine], 2012, no.6, pp. 20-24.
9. *Razvitie zdravookhraneniya: gosudarstvennaya programma RF* [Development of Health Care: the State Program]. Available at: http://www.rosminzdrav.ru/news/2014/01/30/1686-gosudarstvennaya-programma-razvitiya-zdravoohraneniya-rossiyskoy-federatsii
10. *Razvitie zdravookhraneniya Vologodskoi oblasti: gosudarstvennaya programma* [Development of Health Care of the Vologda Oblast: the State Program]. Available at: //vologda-oblast.ru/special/dokumenty/18329/

11. Evstifeeva S.E., Shal'nova S.A., Deev A.D., Gatagonova T.M., Efanov A.Yu., Zhernakova Yu.V., Ilyin V.A., Konradi A.O., Metel'skaya V.A., Oshchepkova E.V., Romanchuk S.V., Rotar' O.P., Trubacheva I.A., Shlyakhto E.V., Boitsov S.A. Rasprostranennost' povyshennogo urovnya S-reaktivnogo belka i ego assotsiatsii s traditsionnymi faktorami riska i zabolevaemost'yu u zhitelei Rossiiskoi Federatsii (Po dannym issledovaniya ESSE-RF) [Prevalence of Elevated Levels of C-Reactive Protein and its Association with Traditional Risk Factors and Morbidity among Residents of the Russian Federation (According to the ESSAY-RF Research)]. *Ratsional'naya farmakoterapiya v kardiologii* [Rational Pharmacotherapy in Cardiology], 2014, no. 10 (6), pp. 597-605
12. *Rossiiskii statisticheskii ezhegodnik 2010, 2013* [Russian Statistical Yearbook 2010, 2013]. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1135087342078
13. Shabunova A.A., Kalashnikov K.N., Kalachikova O.N. *Obshchestvennoe zdorov'e i zdravookhranenie territorii* [Public Health and Health Care of Territories]. Under editorship of A.A. Shabunova. Vologda: ISERT RAN, 2010. 284 p.
14. Shal'nova S.A., Kontsevaya A.V., Karpov Yu.A., Meshkov A.N., Boitsov S.A. Epidemiologicheskii monitoring kak instrument planirovaniya programm profilaktiki khronicheskikh neinfektsionnykh zabolevanii i ikh faktorov riska [Epidemiological Monitoring as a Tool to Plan Programs for Prevention of Chronic Noncommunicable Diseases and their Risk Factors]. *Profilakticheskaya meditsina* [Preventive Medicine], 2012, no. 6, pp. 64-68.
15. Lakatta E.G. Age-Associated Cardiovascular Changes in Health: Impact on Cardiovascular Disease in Older Persons. *Heart Failure Reviews*, 2002, no.1, pp. 29-49.

Cited works

1. Kalachikova O.N., Kalashnikov K.N. *Analysis of Population's Mortality from Cardiovascular Diseases: Research Report*. Vologda: ISERT RAN, 2014. 59 p.
2. Vvedenskaya I.I., Vvedenskaya E.S., Shilova L.S. Self-Assessment of Health as an Indicator of Self-Preservation Behavior of the Elder. *Problems of Social Hygiene, Health Care and History of Medicine*, no.5, 1999, pp. 12-15.
3. Grzhibovskii A.M. Analysis of Nominal Data (Independent Monitoring). *Human Ecology,* 2008, no. 6, pp.58-68.
4. Zhuravleva I.V. *The Population's Attitude to Health*. Moscow, 1993, p. 97.
5. Shabunova A.A., Kalashnikov K.N., Morev M.V., Kalachikova O.N., Kondakova N.A. *Health and Health Care: Textbook for Universities*. Under editorship of A.A. Shabunova. Vologda: ISERT RAN, 2014. 154 p.
6. Lisitsyn Yu.P. *Public Health and Health Care: Textbook*. Moscow: GEOTAR-Media, 2009. 512 p.
7. Boitsov S.A., Chazov E.I., Shlyakhto E.V., Shal'nova S.A., Konradi A.O., Karpov Yu.A., Muromtseva G.A., Zhernakova Yu.V., Oshchepkova E.V., Rotar' O.P., Balanova Yu.A., Balakhonova T.V., Baranova E.I., Gomyranova N.V., Deev A.D., Dobrovol'skii A.B., Dotsenko A.N., Evstifeeva S.E., REganyan.A., Kapustina A.V., Kontsevaya A.V., Kostareva A.A., MMamedov.N., Masenko V.P., Metel'skaya V.A., Meshkov A.N., Panchenko E.P., Postnov A.Yu., Potemkina R.A., Pustelenin A.V., Rogoza A.N., Ryabykina G.V., Skripnikova I.A., Titov V.N., Tkacheva O.N., Khudyakov M.B., Gutnova S.K., Toguzova Z.A., Tolparov G.V., Nevzorova V.A., Kulakova N.V., Nedogoda S.V., Chumachek E.V., Ilyin V.A., Kasimov R.A., Shabunova A.A., Furmenko G.I., Minakov E.V., Nazarova O.A., Romanchuk S.V., Belova O.A., Grinshtein Yu.I., Petrova M.M., Libis R.A., Isaeva E.N., Duplyakov D.V., Gudkova S.A., Karpov R.S., Trubacheva I.A., Medvedeva I.V., Shava V.P., Efanov A.Yu. Epidemiology of Cardiovascular Diseases in Different Regions of Russia (Esse-Rf). The rationale for and Design of the study. *Preventive Medicine*, 2013, no. 6, pp. 25-34.

8. Yakushin S.S., Shal'nova S.A., Potemkina R.A., Filippov E.V., Balanova Yu.A., Boitsov S.A. Experience to Carry Out an Epidemiological Study of Risk Factors for Noncommunicable Diseases in the Ryazan Oblast: Results of the MERIDIAN-RO Pilot Project). *Preventive Medicine*, 2012, no.6, pp. 20-24.
9. *Development of Health Care: the State Program*. Available at: http://www.rosminzdrav.ru/news/2014/01/30/1686-gosudarstvennaya-programma-razvitiya-zdravoohraneniya-rossiyskoy-federatsii
10. *Development of Health Care of the Vologda Oblast: the State Program*. Available at: //vologda-oblast.ru/special/dokumenty/18329/
11. Evstifeeva S.E., Shal'nova S.A., Deev A.D., Gatagonova T.M., Efanov A.Yu., Zhernakova Yu.V., Ilyin V.A., Konradi A.O., Metel'skaya V.A., Oshchepkova E.V., Romanchuk S.V., Rotar' O.P., Trubacheva I.A., Shlyakhto E.V., Boitsov S.A. Prevalence of Elevated Levels of C-Reactive Protein and its Association with Traditional Risk Factors and Morbidity among Residents of the Russian Federation (According to the ESSAY-RF Research). *Rational Pharmacotherapy in Cardiology*, 2014, no. 10 (6), pp. 597-605
12. *Russian Statistical Yearbook 2010, 2013*. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1135087342078
13. Shabunova A.A., Kalashnikov K.N., Kalachikova O.N. *Public Health and Health Care of Territories*. Under editorship of A.A. Shabunova. Vologda: ISERT RAN, 2010. 284 p.
14. Shal'nova S.A., Kontsevaya A.V., Karpov Yu.A., Meshkov A.N., Boitsov S.A. Epidemiological Monitoring as a Tool to Plan Programs for Prevention of Chronic Noncommunicable Diseases and their Risk Factors. *Preventive Medicine*, 2012, no. 6, pp. 64-68.
15. Lakatta E.G. Age-Associated Cardiovascular Changes in Health: Impact on Cardiovascular Disease in Older Persons. *Heart Failure Reviews*, 2002, no.1, pp. 29-49.

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Regional budget for 2015–2017: doing away with deficit or doing away with development?

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Abstract. Regional budget in the Vologda Oblast for 2015–2017 was formed under difficult socio-economic conditions caused not only by a longstanding dependence of Russia's economy and its budget system on the external economic environment, but also by a number of new factors associated with the aggravation of geopolitical tensions and the application of sectoral sanctions by Western countries.

Despite an uncertainty in economic development trends, the new budget is announced to be deficit-free. It would seem that the balance of revenues and expenditures, a fundamental principle of the budget system, has been achieved. However, an analysis of the expenditure part of the budget shows that the balance is achieved at the expense of introducing the austerity regime followed by the restriction of all directions of funding. For 2015–2017 the share of the regional budget expenditures in GRP will decrease to 9.8% vs. 13.6% in 2014. If macroeconomic dynamics maintains its downward trend, such fiscal policy in the long term will suppress the economy even more significantly and will ultimately lead to the taxable capacity reduction.

Under the conditions of economic activity slowdown, even if the budget is balanced, it will not be possible to neutralize the cyclical risks connected with the receipt of profit tax from the metallurgical and chemical industries that are integrated into the world economy and act as the major budget revenue generating industries in the region. Simple calculations prove that at the current high level of debt load it will be extremely difficult for the government to overcome the dependence on borrowed funds; therefore, it seems rather doubtful that the budget balance over the forecast period can be achieved.

The author analyzes several laws on the regional budget[1] and comes to a conclusion that the fiscal policy pursued by the federal government is flawed because it focuses on fiscal functions rather than on stimulating and regulating functions that promote economic growth.

The growing problems at the regional level will sooner or later require that the center make definite decisions. The article substantiates practical recommendations for stabilizing the regional and local budget systems; this stabilization should be accompanied by the adoption of measures to adjust fiscal policy.

Key words: regional budget, deficit, loans, debt load, fiscal policy adjustment.

The global economy, as well as Russia's economy, will retain its low growth rate in the coming years. At that, Russia's economy will be growing significantly lower compared to the global economy. The uncertainty of macroeconomic trends may increase due to the forecasted decrease in oil price[2], which is the key parameter in the formation of budget revenues *(fig. 1)*.

A forecast of economic and social development of the Vologda Oblast for 2015–2017 [9], reflecting national trends, is characterized by the stagnation of all macroeconomic indicators against the background of a dramatic decline in investment activity *(tab. 1)*.

GRP growth in 2015–2017 is expected to be achieved by boosting industrial production and consumer demand. However, in our opinion, there are risks of failure to achieve the forecast GRP values, which are not connected with the negative dynamics of investments in fixed capital. It is expected that in 2017 capital investment will be reduced by 23.2% compared to the level of 2014; this fact predetermines a slowdown in GRP growth.

No doubt, economic problems cannot but affect the state of the budget system in the region; although, at first glance, the main parameters of a new three-year budget [8] seem to be very optimistic.

It is forecast that both aggregate and own revenues will grow. But the absolute indicators themselves show little. A system error of budget planning at the regional level consists in the lack of correlation between the main parameters of the budget and GRP.

According to our estimates, the share of regional budget revenues in GRP will decline to 10.7% in 2017 vs. 12.5% in 2014, which indicates the long-term deficit of financial resources *(tab. 2)*.

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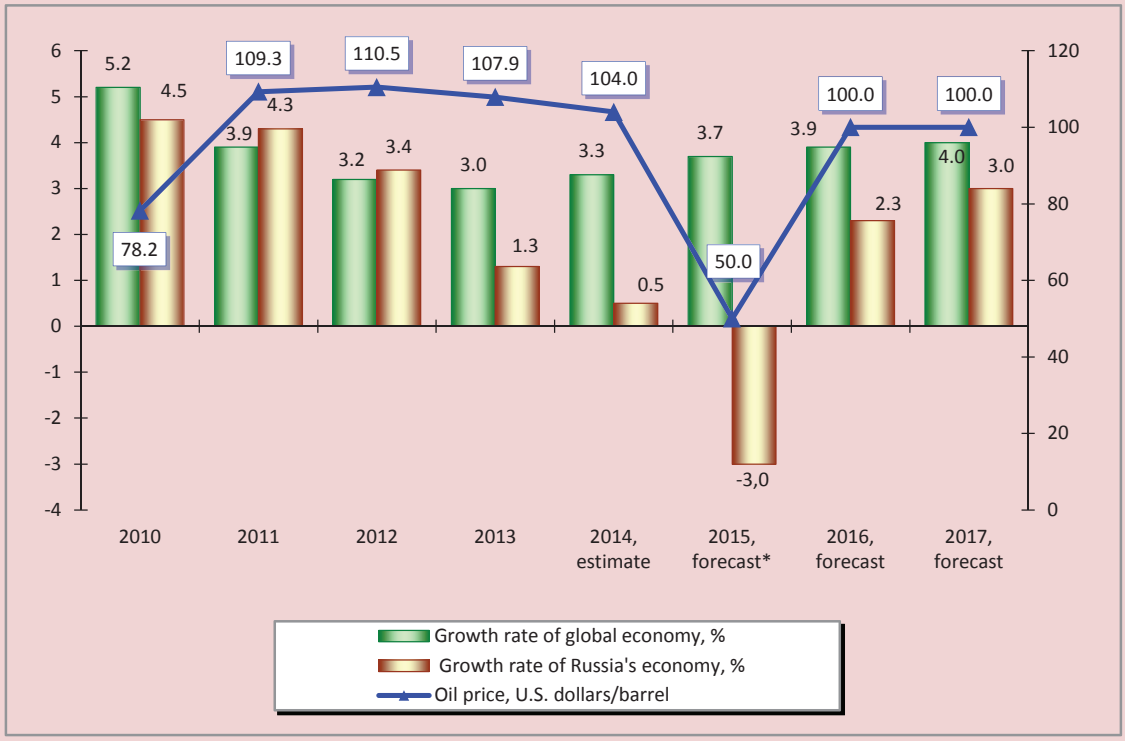
[1] Povarova A.I. Formirovanie regional'nogo byudzheta v usloviyakh krizisa [Formation of Regional Budget in Crisis]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Econoic and Social Changes: Facts, Trends, Forecast], 2010, no. 2, pp. 101-114; Povarova A.I. Trekhletnii byudzhet: zhdat' li stabil'nosti? [The Three-Year Budget: Should We Wait for Stability?]. *Ibidem*, 2011, no. 2, pp. 20-36; Povarova A.I. Regional'nyi byudzhet 2012–2014: stabil'nost' otkladyvaetsya [Regional Budget of 2012 – 2014: Stability is Delayed]. *Ibidem,* 2012, no. 3, pp. 39-58; Povarova A.I. Regional'nyi byudzhet 2013–2015: stabil'nost' ili vyzhivanie? [Regional Budget for 2013 – 2015: Stability or Survival?]. *Ibidem*, 2013, no. 1, pp. 36-55.

[2] In January 2015 the average world price of Urals crude oil amounted to 45 U.S. dollars per barrel, which is 2.2 times lower than the rates laid down in the federal budget for 2015. According to the information available at the RF Government website, Russia's Prime Minister D. A. Medvedev instructed the Ministry of Economic Development to prepare a new forecast of the country's socio-economic development for 2015.

The scenario forecast for 2015 developed at the Institute of Economic Forecasting of the Russian Academy of Sciences provides for the decrease of GRP by 4% in the stress option, by 2.5% –in the conservative option, and by 0.3% – in the optimistic option.

Figure 1. Global and Russian economic growth rates, oil price in 2010–2017



* The 2015 data include the new forecast introduced to the Government by the Ministry of Economic Development.

Source: Ministry of Economic Development [11].

Table 1. Main macroeconomic indicators for making the draft regional budget of the Vologda Oblast for 2015–2017, in comparable prices, % to the previous year

Indicators	Fact				2014, estimate	Forecast			2017 to 2014, %
	2010	2011	2012	2013		2015	2016	2017	
GRP	105.7	106.9	104.8	100.0	100.5	102.7	102.0	101.3	106.1
Industrial production index	111.1	105.6	101.3	102.3	101.3	102.6	101.7	102.7	107.2
Investments in fixed capital	116.1	149.4	121.2	46.2	77.7	118.0	94.7	68.7	76.8
Retail trade turnover	116.3	107.6	119.7	101.7	100.5	100.4	102.8	103.2	106.5
Real disposable money incomes of the population	109.3	100.1	106.9	105.4	100.0	102.1	102.5	103.0	107.8

Table 2. Main parameters of regional budget in the Vologda Oblast, billion rubles

Parameters	Fact							Forecast		
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Revenues, total	39.5	31.2	36.1	39.3	42.4	40.3	45.1	43.0	45.9	47.3
As a percentage of GRP	*13.4*	*14.6*	*13.7*	*12.2*	*11.9*	*11.3*	*12.5*	*10.8*	*10.8*	*10.7*
Tax and non-tax (own) revenues	34.4	19.0	25.8	28.8	31.5	30.3	34.9	35.9	40.6	41.9
Expenditures	39.1	37.7	43.1	46.5	45.2	44.2	49.0	43.0	38.0	43.5

A year ago the forecast for the 2014–2016 provided for GRP amounting to 402.9 billion rubles in 2015 and 437 billion rubles in 2016, the forecast for 2015–2017 reduced the amount of GRP reduced to 5.7 billion rubles in 2015 and to 13.7 billion rubles in 2016. Thus, in 2015–2016, if the planned level of regional budget revenues is 10.8% of GRP, then over 2 billion rubles will not be received.

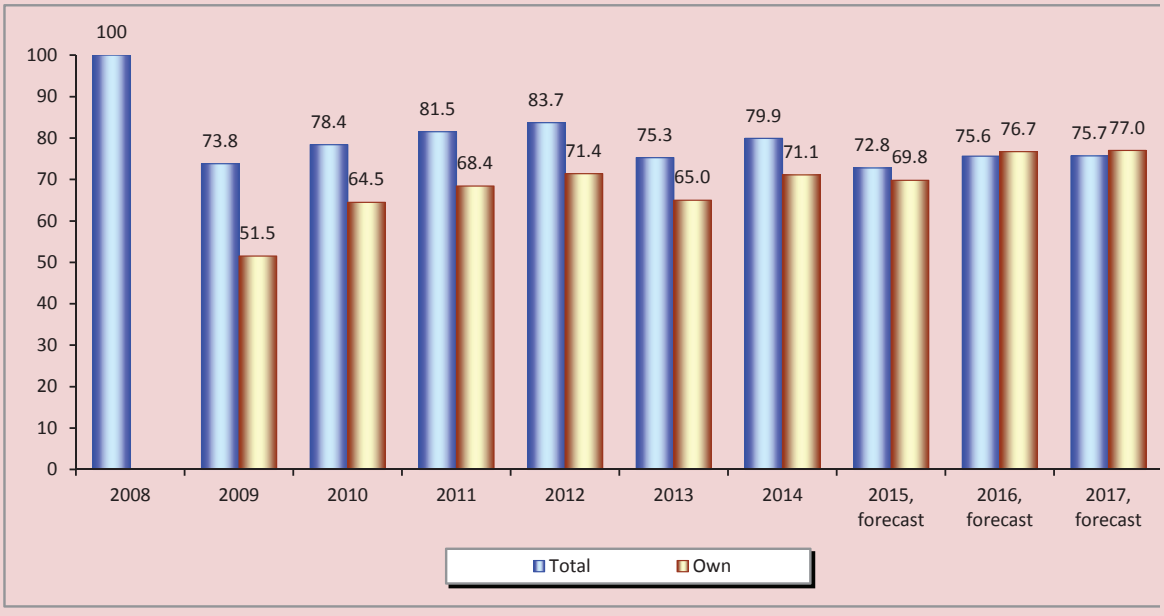
The problems that remain in the region's economy are aggravated by low recovery rate of budget revenues, which in real terms will not reach their pre-crisis level even in 2017 *(fig. 2)*.

Since 2009 the change in the structure of budget revenues has become a key factor in reducing self-sufficiency in the Vologda Oblast.

It is connected with a dramatic fall in the receipts of tax on the profit of the largest corporations of ferrous metallurgy – public joint stock company Severstal (PAO Severstal), which provided more than half of the payments from this revenue source up to 2009. In the course of the forecast period this company will never regain its status as the main catalyst of profit tax collection *(fig. 3)*.

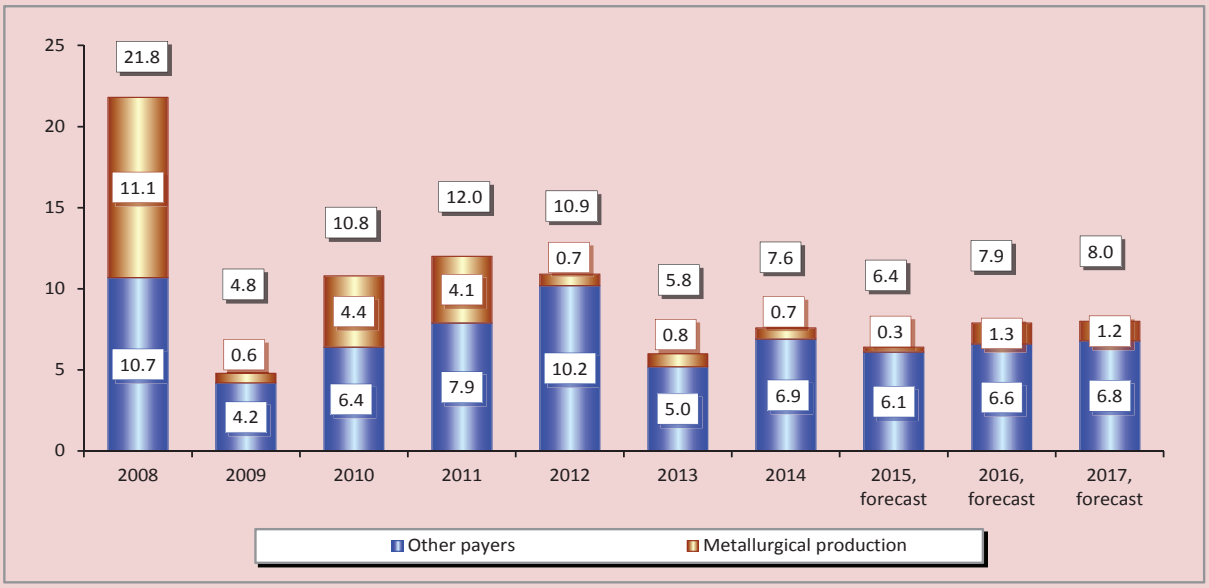
Moreover, it is noteworthy that the government does not consider metallurgical industry as a factor that influences revenues, because the revenue forecast for 2015–2017 does not include indicators for this industry. Meanwhile, metallurgy provided 36% of the total profit of business entities back in 2012 *(fig. 4)*.

Figure 2. Dynamics of actual revenues of the regional budget in the Vologda Oblast in 2008–2017, in % to 2008



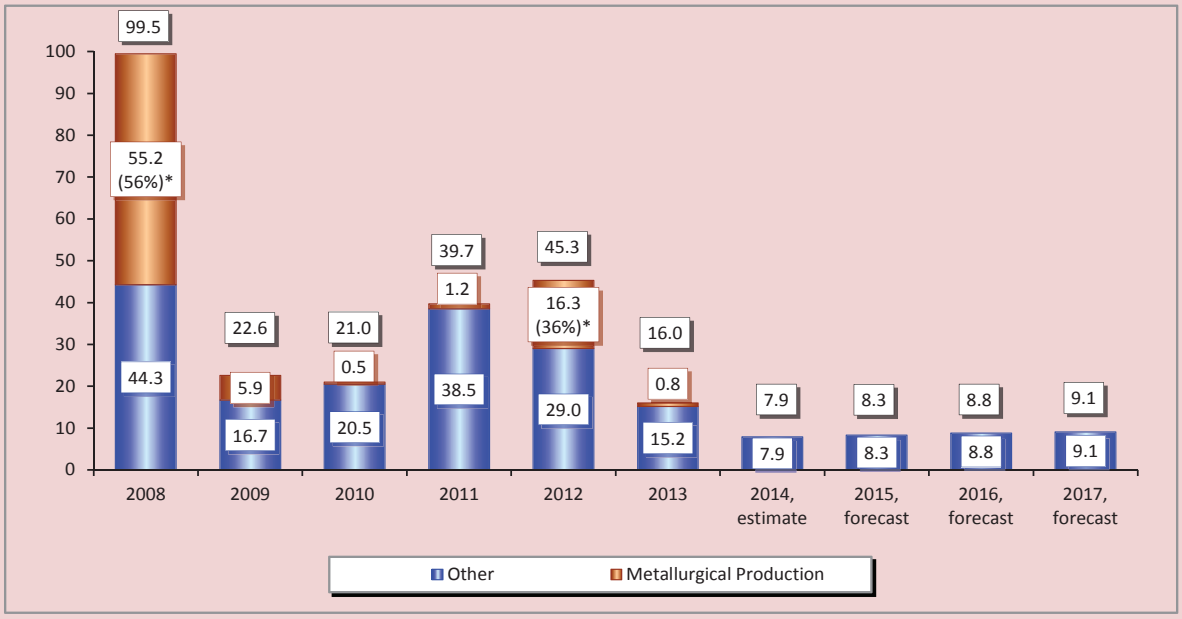
Sources: Federal Treasury [13]; Vologda Oblast Department of Finance [10]; author's calculations.

Figure 3. Dynamics of the inflow of profit tax revenues to the regional budget of the Vologda Oblast in 2008–2017, billion rubles



Sources: Federal Tax Service; [14]; Vologda Oblast Department of Finance; author's calculations.

Figure 4. Dynamics of profit before tax in the enterprises of the Vologda Oblast in 2008–2017, billion rubles



* The share of metallurgical production in the total amount of profit in the economy is given in parentheses.

Sources: Vologda Oblast Department of Finance; author's calculations.

It should be noted that the growth of profit in the economy of the Vologda Oblast in 2015–2017 will be 15% and it will outpace the growth of GRP (6%).

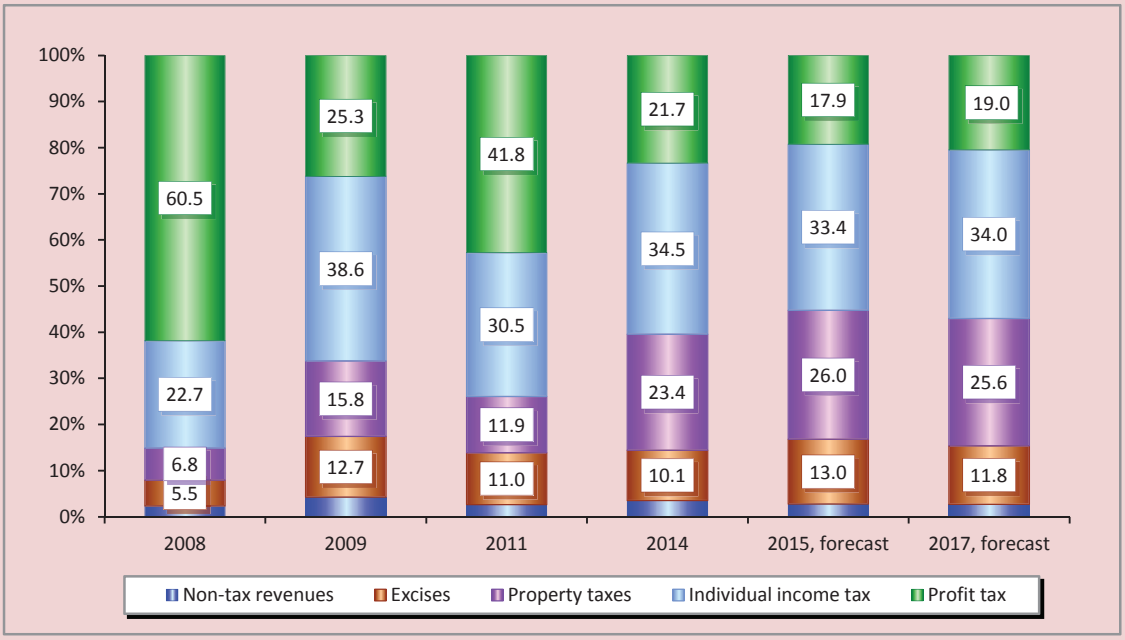
However, investments in fixed capital will decrease by 23%. This means that the profit of business entities is not considered in the programs for modernization of production, but it becomes a source of capital outflow[3].

The consequences of the crisis cardinally changed the structure of the regional budget's own revenues; this led to a significant decline in the proportion of profit tax. Moreover, the receipts of other taxes did not compensate for the loss of profit tax in the post-crisis period.

In the upcoming budget cycle the own revenues of the regional budgets will be formed mainly out of individual income tax and property taxes – their share will be 34 and 26% respectively. The proportion of profit tax will be at the level of 19%, which is lower than in the crisis year of 2009 *(fig. 5)*.

The slowdown in wage growth will not allow the amount of individual income tax receipts to be increased. In 2015–2017 it will grow annually by 0.5 billion rubles, which is two times lower than in 2012–2014 *(tab. 3)*.

Figure 5. Structure of the own revenues of the Vologda Oblast regional budget, %



Sources: Federal Treasury; Vologda Oblast Department of Finance; author's calculations.

[3] Unfortunately, banking statistics do not contain information on the export of capital in the regional context. According to the Central Bank, the total outflow of capital from Russia in 2014 was the largest and it reached 151.5 billion U.S. dollars (for comparison: it was 133.6 billion U.S. dollars in 2008 and 61 billion U.S. dollars in 2013).

Table 3. Individual income tax receipts to the regional budget of the Vologda Oblast and the wages in 2012–2017

Indicators	2012, fact	2013, fact	2014, fact	Average for 2012–2014	Forecast			Average for 2015–2017
					2015	2016	2017	
Individual income tax, billion rub.	9.6	10.5	12.0	10.7	12.0	13.4	14.3	13.2
To the previous year								
- billion rub.	0.8	0.9	1.5	1.1	-0.9	1.4	0.9	0.5
- %	109.5	109.3	114.7	111.2	92.8	111.5	106.8	103.7
Average monthly nominal accrued wage, rub.	22649	25127	26643	24806	27997	29703	31713	29804
Growth rate, %	111.8	110.9	106.0	109.6	105.1	106.1	106.8	106.0
Real wage, % to the previous year	106.9	104.4	98.7	103.3	98.5	101.6	102.4	100.8

Sources: Vologda Oblast Department of Finance; author's calculations.

Due to a serious reduction in self-sufficiency, the regional budget becomes more and more dependent on financial support from the federal budget in the form of inter-budget transfers and loans. For 2008–2014 the amount of this kind of support has increased in four times – from 5 to 19 billion rub. *(fig. 6)*.

According to the figure, inter-budget policy from 2014 onwards makes the substitution of transfer financing with debt financing its priority. In 2015–2017 the planned amount of budget loans will exceed the amount of transfer financing almost twice.

The significant reduction of inter-budget transfers in the Vologda Oblast will become one of the main factors reducing the real revenues of the regional budget in the upcoming three year period.

As a result, the gap in the provision of the population with budget revenues will increase compared with the national average level *(fig. 7)*.

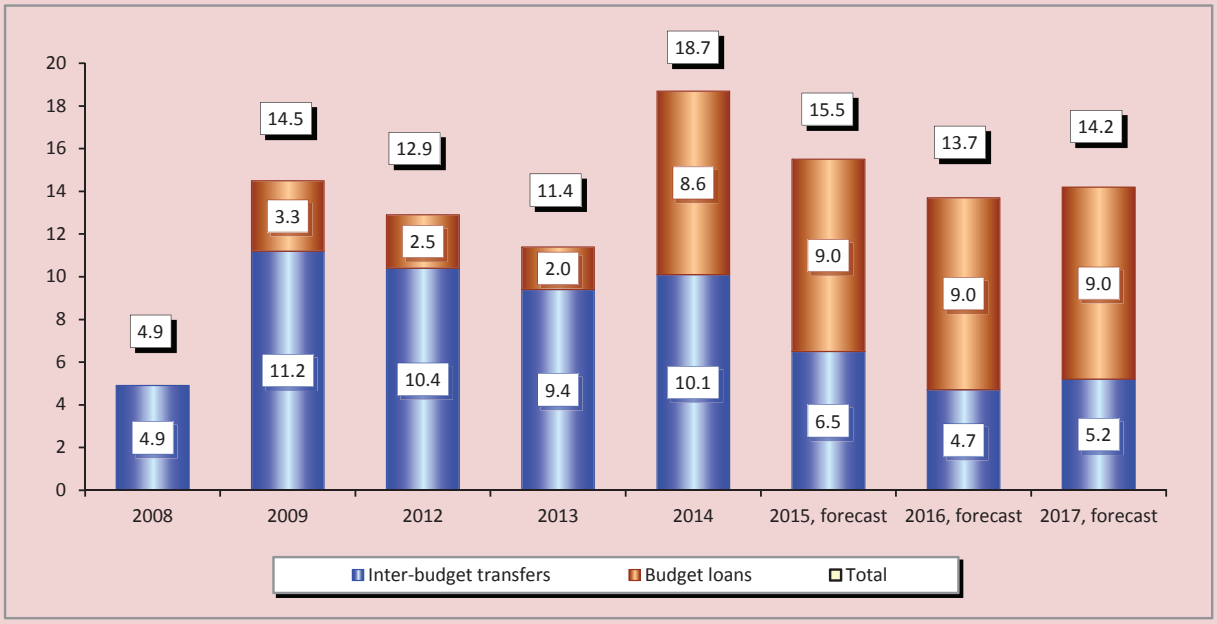
In 2015–2017 the Vologda Oblast Government has set an ambitious goal of achieving the regional budget balance[4] *(fig. 8)*.

This task will be handled by reducing costs on all the functional items in the budget. Budget spending in 2017 will decrease by 5.6 billion rubles in current prices, and after allowing for inflation – by 11.4 billion rubles, or by 23% to the level of 2014 *(tab. 4)*.

The most significant decrease of financial support is expected in the housing and utilities sector – 81%, which is determined by the decrease of expenditures on budget investments and on major repairs of objects of state and municipal property.

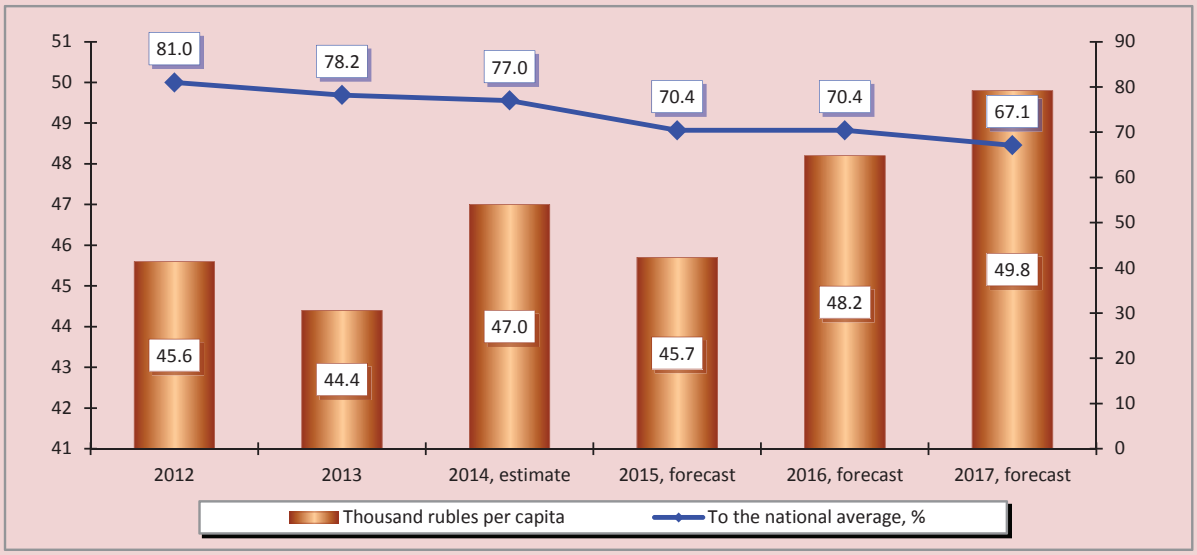
[4] It was based on the agreement between the Vologda Oblast and the Ministry of Finance of the Russian Federation on the provision of budget loan to repay commercial loans in the amount of 6 billion rubles In accordance with the terms of the agreement, the regional budget for 2015–2017 must be formed without deficit, and the amount of market loans must be reduced to 50% of the amount of the budget's own revenues by January 1, 2017.

Figure 6. Dynamics of financial support from the federal budget to the regional budget of the Vologda Oblast in 2008–2017, billion rubles



Sources: Federal Treasury; Vologda Oblast Department of Finance; author's calculations.

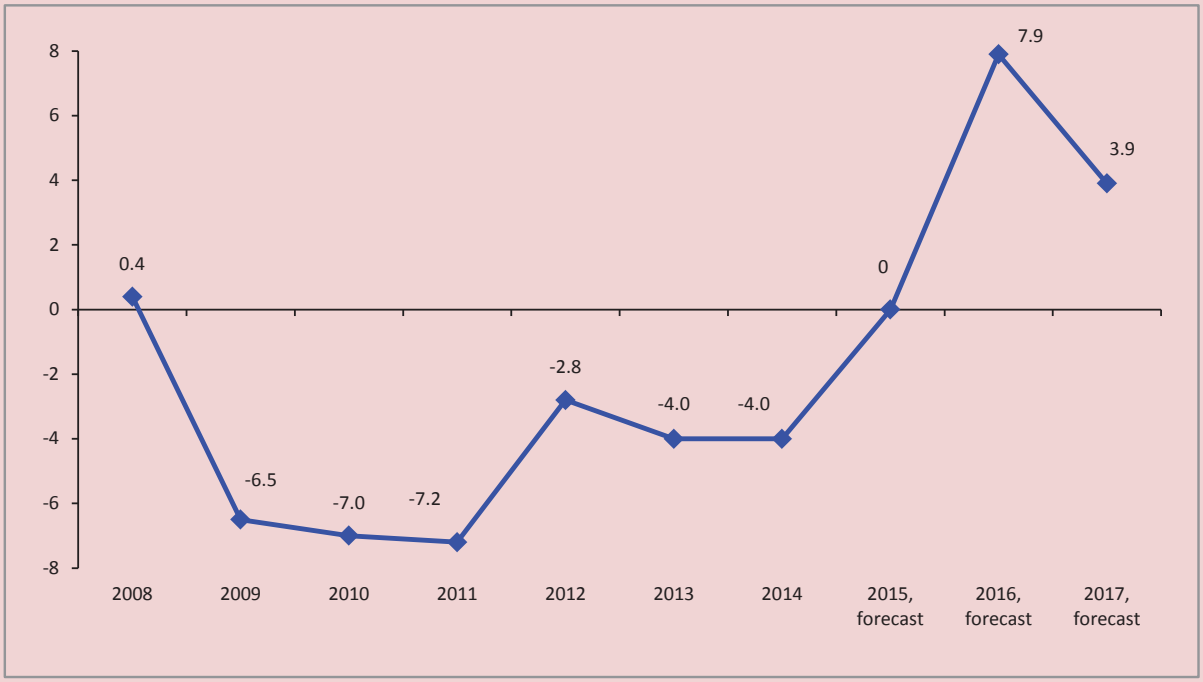
Figure 7. Provision of the Vologda Oblast population with budget revenues* in 2012–2017



* Data for the consolidated budget of the Vologda Oblast.

Source: author's calculations based on the data of the Federal Treasury; Rosstat; RF Ministry of Finance; the Vologda Oblast Department of Finance.

Figure 8. Dynamics of the results of execution of the regional budget in the Vologda Oblast in 2008–2017, billion rubles



Sources: Federal Treasury; Vologda Oblast Department of Finance.

Table 4. Dynamics the regional budget expenditures in the Vologda Oblast in 2014–2017, million rubles

Expenditures	2014	Forecast						2017 to 2014, %	
		2015		2016		2017			
	Nominal	Nominal	Real*	Nominal	Real*	Nominal	Real*	Nominal	*Real**
Expenditures, total	49046	43005	40305	38043	34242	43470	37669	88.6	*76.8*
National expenditures	2367	2396	2246	1845	1660	1892	1640	79.9	*69.3*
National economy	**9196**	**6437**	**6033**	**5540**	**4987**	**6549**	**5675**	**71.2**	***61.7***
- agriculture	2628	1232	1155	744	670	924	801	35.2	*30.5*
Housing and utilities	1825	863	809	762	685	404	350	22.1	*19.2*
Social sphere	**32789**	**29831**	**27957**	**26238**	**23617**	**29697**	**25734**	**90.6**	***78.5***
- education	13442	10716	10043	9945	8951	11353	9838	84.5	*73.2*
- culture	781	517	485	465	418	498	432	63.7	*55.3*
- healthcare	7735	7804	7314	6604	5945	7433	6441	96.5	*83.6*
- social policy	10700	10590	9925	9131	8219	10328	8949	96.5	*83.6*
- physical culture and sport	266	203	191	93	84	85	73	31.9	*27.6*

* In the prices of 2014.
Sources: Federal Treasury; Vologda Oblast Department of Finance; author's calculations.

National economy looses 40% of the support. In particular, expenditures on agriculture in 2017 will be just 30% from the level of 2014, which will limit the development of import substitution.

The prospects of allocating funds to the social sphere seem no less frustrating: expenditures on education are reduced by 27%, on healthcare and social policy – by 16%, on cultural events – by 45%, on physical education and sport – by 72%.

The need to achieve balance and the structure of budget expenditures that is oriented excessively toward the social sphere are a telling example of another problem of the regional budget, which is associated with a progressive decrease in capital investment. The amount of budget investment over three years will be reduced by 2.5 billion rubles, or about four times compared to the level of 2014 *(fig. 9)*. It seems as if the Vologda Oblast Government has made a choice in favor of the final optimization of capital expenditure[5].

Despite the unprecedented optimization, the achievement of a deficit-free regional budget seems unlikely, in our opinion.

First, the practice of forming budget surplus has been implemented for several years. The actual budget process turns out to be very different from the scenario and makes it necessary to introduce multiple adjustments into the budget execution results. For example, the budgets for 2014 and 2015 were originally declared to have surplus, but they became deficit-ridden after the formation of the main characteristics of the next budget cycle *(tab. 5)*.

Second, the implementation of activities under the presidential decrees of May 7, 2012 that have virtually become unfunded social instructions to the regions will require more than 16 billion rubles, while the real funds allocated for these purposes amount to 8.7 billion rubles, that is, half of the sum required. A particularly acute shortage of financial resources is expected in 2015 *(tab. 6)*.

If there is no adequate support from the federal government, then the Presidential decrees will be executed, as the practice of previous years has shown, by eliminating the budget institution network and reducing the number of employees[6].

Third, as a result of this imbalance in inter-budget relations, characterized by the increase in the number of federal powers[7] transferred to the regions and a simultaneous reduction of non-repayable financial assistance from the federal budget, the coverage of the regional budget expenses by the own revenues in 2015–2017 will be 88% on average.

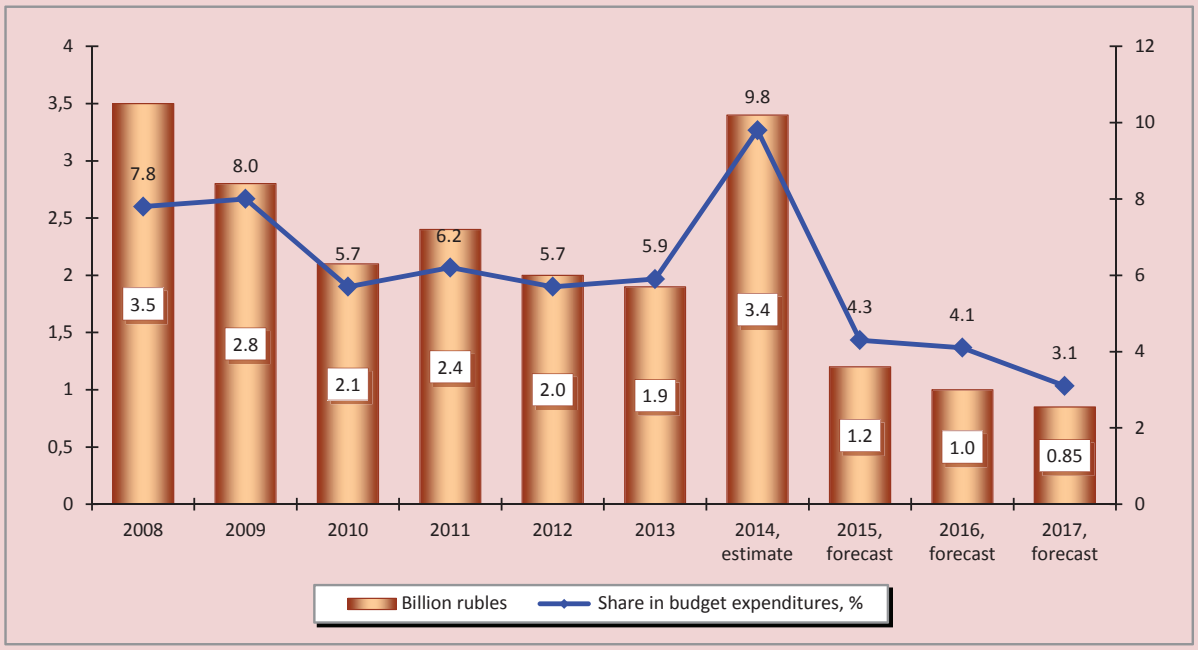
Fourth, local budgets still remain highly dependent on the transfers from the regional budget, which is one of the main causes of its deficit. After a new system of local government was introduced in 2006, the regional budget allocates over 40% of its expenses to inter-budget transfers to municipalities.

[5] The Vologda Oblast ranked 7th in the Northwestern Federal District in 2013 by the share of funds allocated to the formation of the budget of development. Given the fact that the average district level was 10.3%, the regional budget expenditures on the investment amounted to 5.9%. This figure amounted to 10.7 and 6.5% even in the "highly subsidized" Novgorod and Pskov oblasts, respectively.

[6] According to the Department of Finance, 98 educational and cultural institutions were closed down and 1607 people discharged in the Vologda Oblast in 2012–2013.

[7] From 2004 to 2013 the number of federal powers transferred to the regional level has increased almost in three times. Thus, the amount of taxes assigned to the budgets of the regions has reduced from seven to three.

Figure 9. Dynamics of capital investments of the regional budget of the Vologda Oblast in 2008–2017, in the prices of 2008



Sources: Federal Treasury; Vologda Oblast Department of Finance; author's calculations.

Table 5. Change in the forecast parameters of the results of execution of the regional budget in the Vologda Oblast, million rub.

Law	2014	2015	2016
Law on the budget for 2012–2014	5920.1		
Law on the budget for 2013–2015	3215.5	5345.4	-2014.8
Law on the budget for 2014–2016	-3212.1	-2014.8	-1486.0
Law on the budget for 2015–2017		0	+7898.3

Table 6. Forecast of the expenditures of the Vologda Oblast regional budget on the implementation of the RF President' decrees in 2015–2017, million rubles

Indicators	2015	2016	2017	Total
Demand for funds	5400.8	5304.1	5663.2	16368.1
Provided for in the budget	1730.3	3068.3	3913.7	8712.3
Lack of funds				
- million rub.	3670.5	2235.8	1749.5	7655.8
- %	32.0	57.8	69.1	53.2
Source: Vologda Oblast Department of Finance				

Fifth, in 2015–2017 the planned expenditures on the return of commercial and budget loans obtained in previous years to finance the budget deficit will reach 53.7 billion rubles, which will fundamentally change the actual results of budget execution[8] *(tab. 7)*.

According to our calculations, the actual deficit of the regional budget will reach 19 billion rubles in 2017; it will be necessary to direct almost half of the own revenue sources to its elimination. In conditions of a limited self-sufficiency of the budget the financing of the deficit is likely to cause the need for new loans or sequestration.

Sixth, the balance of the regional budget cannot be achieved under the conditions of high debt load.

When forming a balanced budget, the government expects to reduce the acute debt load. Indeed, the absolute amount of public debt over the forecast period will decrease from 35 billion rubles in 2014 to 23.6 billion rubles in 2017; but it will remain significant and correspond to 57% of the total amount of the own revenues of the regional budget *(tab. 8)*.

Table 7. Actual results of execution of the regional budget in the Vologda Oblast in 2014–2017, million rubles

Indicators	2014	Forecast		
		2015	2016	2017
Deficit (-), surplus without expenditures on loans repayment	-3973	0	7898	3856
To the budget's own revenues, %	-11.4	0	19.4	9.2
Expenditures on loans repayment*	24471	11563	19092	23019
Real deficit (-), surplus	-28444	-11563	-11194	-19163
To the budget's own revenues, %	-81.4	-32.2	-27.5	-45.7
* Approved by the law on the oblast budget for 2014–2016				

Table 8. Dynamics and structure of the public debt of the Vologda Oblast in 2014–2017, billion rubles

Indicators	2014, fact		2015, forecast		2016, forecast		2017, forecast		2017 to 2014, %
	Billion rub.	%	Billion rub.	%	Billion rub.	%	Billion rub.	%	
Public debt, total	34.9	100.0	35.2	100.0	27.3	100,0	23,6	100,0	67,6
Bank loans	*14.0*	*40.1*	*20.6*	*58.6*	*19.1*	*70,0*	*20,6*	*87,4*	*147,1*
Budget loans	12.6	36.1	8.5	24.2	4.2	15,4	0	0	0
State guarantees	3.4	9.6	3.3	9.4	3.1	11,4	3,0	12,6	88,2
Securities	4.9	14.1	2.8	7.8	0.9	3,2	0	0	0
Debt load, %*	99.8		99.3		68.3		57.2		-43.3
* Debt load is measured by the ratio of the amount of public debt to the budget's own revenues. Sources: Vologda Oblast Department of Finance; author's calculations.									

[8] Despite repeated appeals of heads of the Russian Federation subjects (in particular, the Vologda Oblast Governor O.A. Kuvshynnykov) to the Ministry of Finance of the Russian Federation with a request to introduce amendments in the accounting for expenditures on loans repayment, these expenditures are included not in the expenditure part of the budget, but in the sources of deficit funding, which leads to a distortion of its actual amount.

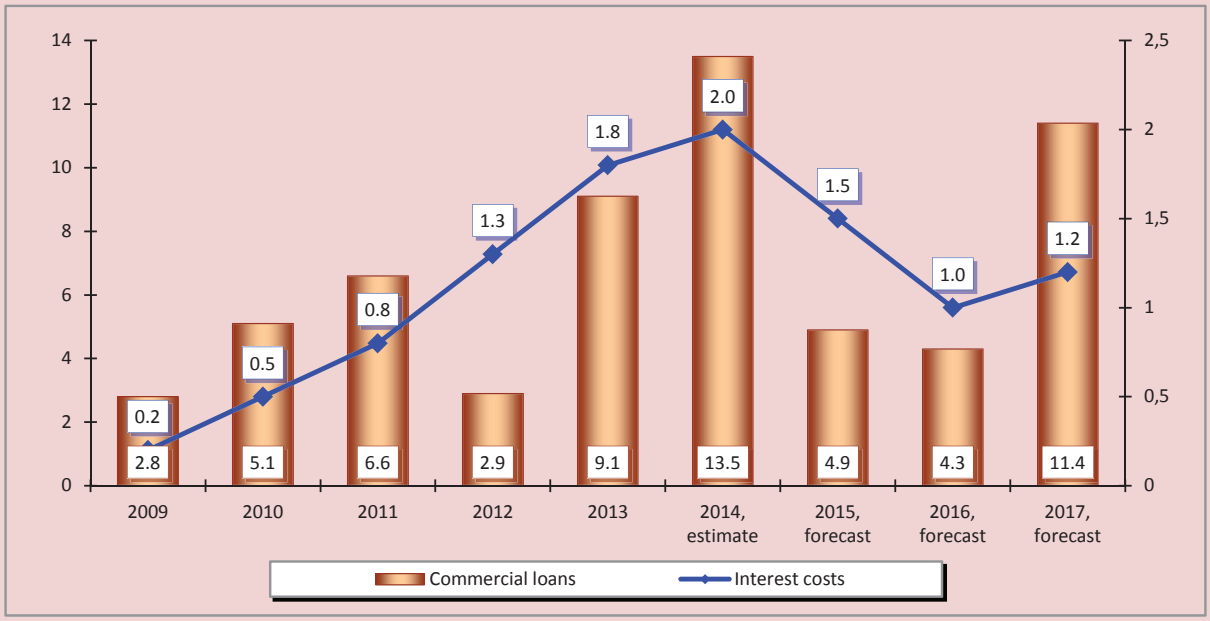
The level of commercial debt in the structure of debt obligations will continue to grow and will reach 87.4% at the end of the budget cycle, thereby creating additional risks to the budget's debt sustainability. Moreover, after the substantial decrease in the amount of attracted loans in 2015–2016, the oblast government is planning to attract new bank loans in 2017, which will lead to the growth of loan servicing *(fig. 10)*.

If we sum up the expenses on the repayment and servicing of loans, their amount will exceed other major areas of funding of the regional budget. In fact, these expenses have become a priority *(fig. 11)*.

It is obvious that in the near future the regional authorities will not be able to change the situation cardinally in the sphere of debt policy; and the diversion of budget funds to the repayment of loans and to interest payments will aggravate the risks concerning the execution of priority expenditure obligations.

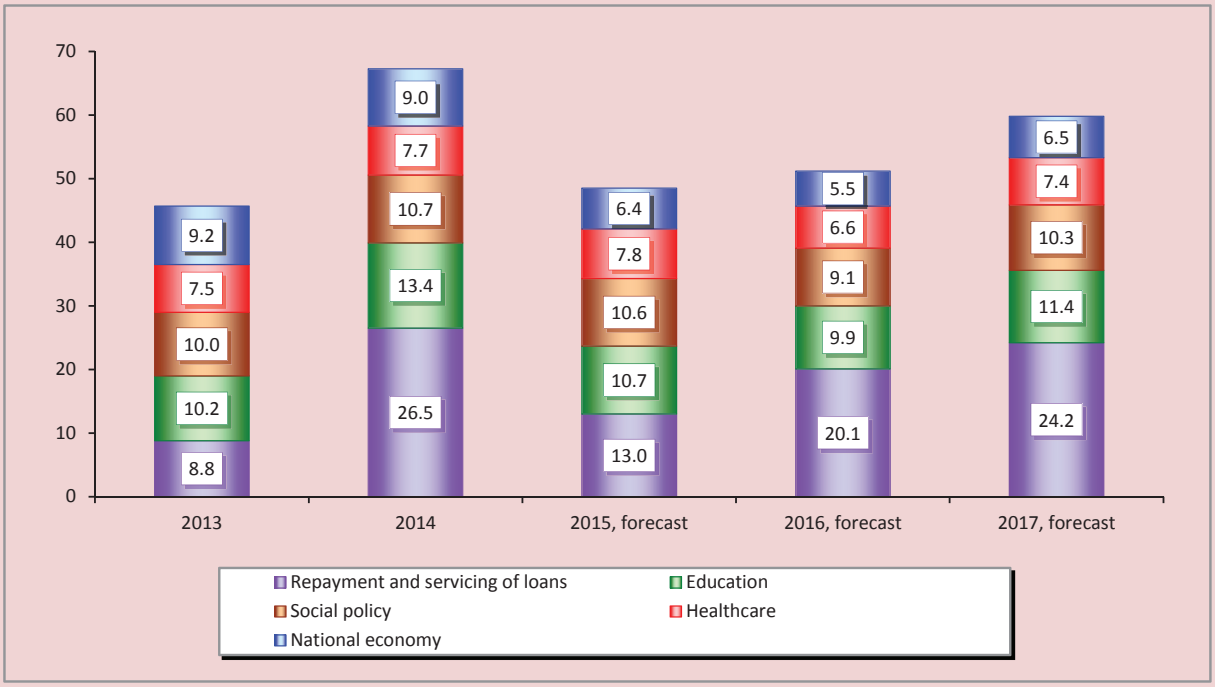
The list of flaws in the next three-year budget can be continued, but after all, in our opinion, they are predetermined by flaws in the fiscal policy pursued in the country; this policy does not serve as an essential tool in the territorial development management, but it plunges Russian regions deeper in the budget crisis.

Figure 10. Dynamics of attracted commercial loans and interest costs of the regional budget of the Vologda Oblast in 2009–2017, billion rubles



Sources: Federal Treasury; Vologda Oblast Department of Finance; author's calculations.

Figure 11. Main functional expenses and expenses related to the repayment of loans of the regional budget of the Vologda Oblast in 2013–2017, billion rubles



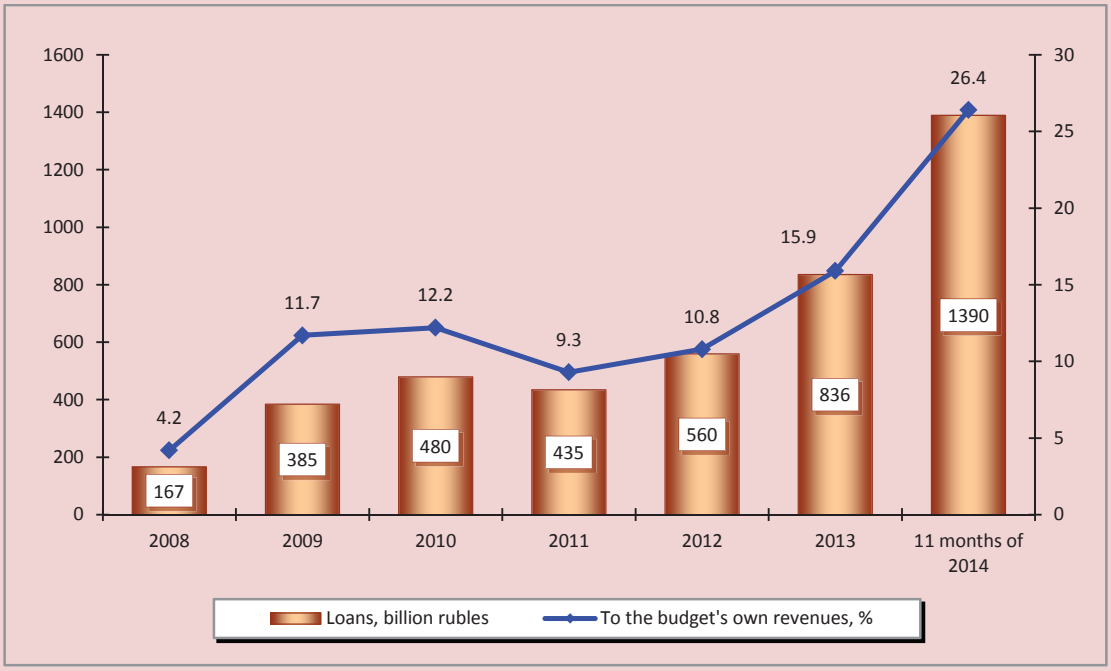
Source: author's calculation based on the data provided by the Vologda Oblast Department of Finance

What other reason can there be to explain that only ten RF subjects are self-sufficient (they do not receive subsidies for equalization of budget sufficiency), that the deficit of regional budgets for 2013–2014 has reached historic highs, exceeding the planned values by several times [5], and the majority of regions are on the brink of bankruptcy, continuing to borrow funds to be used for covering current expenses rather than for development? From January to November 2014 the debt load of Russia's constituent entities has increased by 75%, exceeding one trillion rubles for the first time *(fig. 12)*.

The amount of loans attracted is second only to the regional budget expenditures on education and social policy.

The standards for the transfer of revenues to local budgets established by the Budget Code of the Russian Federation do not ensure the implementation of the powers assigned to regions. Thus, handling the issue of federal budget deficit by shifting the government spending to lower levels, the central government forces regional authorities to form their budgets so that they initially had the limit values of debt obligations. For example, in 2015 the debt load of the Northwestern regions of

Figure 12. Dynamics of loans raised by the subjects of the Russian Federation in 2008–2014



Sources: Federal Treasury; author's calculations.

Table 9. Upper limit of public debt in the regional budgets of NWFD subjects in 2014–2015

Constituent entity	Approved for 2014		Approved for 2015	
	Billion rub.	To the budget's own revenues, %	Billion rub.	To the budget's own revenues, %
Saint Petersburg	14.6	3.8	79.6	20.0
Leningrad Oblast	22.0	33.8	22.9	32.2
Murmansk Oblast	20.3	54.8	25.2	63.7
Kaliningrad Oblast	21.2	79.4	19.9	74.1
Novgorod Oblast	17.2	90.7	16.0	81.0
Republic of Komi	28.7	52.1	51.5	89.5
Vologda Oblast	34.9	100.5	35.2	97.9
Arkhangelsk Oblast	35.6	80.2	40.7	98.1
Pskov Oblast	14.7	99.5	14.7	98.6
Republic of Karelia	19.0	102.4	20.1	107.3

Sources: laws of the RF constituent entities on the regional budget for 2014–2016 and 2015–2017; author's calculations.

the Russian Federation, except for Saint Petersburg and the Leningrad Oblast, will approach a critical level, it will exceed this level in the Republic of Karelia *(tab. 9)*.

The acute debt crisis in the majority of the Russian Federation subjects is caused in many respects by a delayed response of the central government to the growing risks. Only in July 2014 the RF Government adopted a decision on the transformation of commercial loans into budget loans issued at low interest rate[9].

Speaking at the expanded board meeting of the RF Ministry of Finance on April 8, 2013, V.I. Matvienko, Chairman of the Federation Council, asked its officials a fair question: "The Ministry of Finance should not stand on the sidelines. Why haven't we stopped the unrestrained borrowings of some regions, which are now virtually bankrupt?" [2].

Unfortunately, Russian Government still has not proposed any system-wide measures to solve the budget crisis in the regions. On the contrary, the "Program for improvement of public (state and municipal) finance management efficiency for the period up to 2018" states quite openly that "the majority of state powers should be assigned to the subjects of the Russian Federation as their own powers". It seems that the government intends to increase the efficiency of regional finance management through the gradual transfer of funding of its functions to the RF subjects; but it does not realize what can happen in case of the growth in the number of not-collateralized liabilities of the regional budgets, whose burden is already excessive [16].

Conceptual aspects of the actions necessary to correct the fiscal policy, have been substantiated in a large number of scientific works [1, 3, 4, 6, 7, 15, 17].

In our opinion, the priority measures to be implemented at the regional level should provide adequate legislative support to sub-national budget systems. An extended list of these measures can be represented in three blocks.

1. Transfer of additional tax revenues[10] to the regional level:

– assignment of the whole amount of income tax receipts to the budgets of the regions[11] on the grounds that the share of this payment does not exceed 3% in the formation of the federal budget revenues;

– increase of the standard VAT rate (for example, from 18 to 20%) or cancellation of VAT refund from the federal budget to exporters of natural resources, and the allocation of additionally collected VAT to the increase of alignment subsidies to the Russian Federation subjects or their distribution between the regions on a per capita basis, like, for example, in Germany;

[9] In 2014 the average rate on commercial loans obtained by the subjects of the Russian Federation were 10.8–13.5 percent, on budget loans – ¼ of the refinancing rate of the Central Bank (budget loans on the replacement of bank loans are issued at the rate of 0.1% per annum for financially weak regions like the Vologda Oblast).

[10] In accordance with the Law on the Federal Budget, 72.4% of the revenues of Russia's budget system will be centralized at the federal level in 2015–2017.

[11] In accordance with the Budget Code of the Russian Federation, 2% of income tax, calculated at the rate of 20%, goes to the federal budget and 18% – to the budget of the constituent entity of the Russian Federation.

– introduction of luxury tax – a measure, which the government still hesitates to take[12].

2. Increase in the amount of financial support from the federal budget. Priority in its allocation should be given to transfers rather than to budget loans, because the situation will repeat itself if new loans are provided to repay existing debt.

This situation can be handled by revising the current procedure of using targeted transfers. The uneven allocation of inter-budget transfers by the federal center in the course of the year[13] leads to the fact that Russia's constituent entities cannot dispose of them timely; as a result, the remaining funds are returned to the federal budget in accordance with the budget legislation. In the Vologda Oblast the amount of returns for 2008–2013 has increased by 8.4 times – from 56 to 476 million rubles.

The central government should pay more serious attention to the issues related to co-financing of investment programs of territories. According to the Federal Treasury data, the amount of subsidies allocated for capital expenditures to the RF subjects from the federal budget in 2012–2014 reduced from 199 to 56 billion rubles, or in 3.6 times (in the Vologda Oblast – from 825 to 184 million rubles, or in 4.5 times). Of course, such a drastic reduction of investment transfers will create long-term risks for sustainable growth in taxable capacity.

3. Inventory of expenditure powers with the subsequent transfer of part of them to the federal level.

According to the estimates by the Institute of Economics of the Ural Branch of RAS, no powers with the 100% provision with financial resources have been transferred from the federal level to the regions and municipalities since 2000 [18].

The social burden of regional budgets could be relieved considerably, if the expenditures on the payment of insurance contributions for compulsory health insurance of non-working population were transferred to the federal level. For example, these expenditures, prevail in the structure of regional budget expenditures on health care in the Vologda Oblast, and make up 56% (in Russia – 42%).

According to our estimates, the implementation of the above priority measures alone will increase the annual revenues of regional budgets on average by 1.2 trillion rubles *(tab. 10)*.

When implementing these measures it is necessary to make a profound revision of the Tax Code and Budget Code of the Russian Federation in order to change the approaches to the taxation of profit of big business, to establish foreign exchange control, to introduce a progressive individual income tax scale, to restore order in the subsurface management, to abolish tax privileges and preferences for highly profitable business entities, etc.

Of course, the practical implementation of these measures largely depends on the efforts undertaken by the federal center.

[12] The necessity to introduce luxury tax in the first half of 2013 was highlighted by the RF President in his address to the Federal Assembly on December 12, 2012.

[13] According to our calculations, in 2011–2013 more than 30% of federal transfers to the regional budget of the Vologda Oblast were made in the 4th quarter, which is comparable with the average indicator for the subjects of the Russian Federation.

Table 10. Additional revenue sources of regional budgets in the Russian Federation subjects, billion rubles per year

Source	Estimate
Transfer of the entire amount of profit tax collected in the region	350*
Increase in VAT rate or cancellation of VAT refund to commodity exporters	400–450*
Introduction of luxury tax	200–250**
Leaving the unused target inter-budget transfers in regional budgets	35–40*
Transfer of the authority to pay insurance contributions for compulsory medical insurance on non-working population to the federal level	500*
Total	1135–1240

* Estimated on the basis of the dynamics of the indicator for 2011–2013.
* According to the draft law elaborated by the RF State Duma Deputy, Doctor of Economics N. O. Dmitrieva in collaboration with representatives of the party "Just Russia", the real estate worth more than 30 million rubles and the vehicles worth over 3 million rubles are subject to luxury tax. It is about 200 thousand apartments and detached houses and about 100 thousand vehicles. And their owners do not belong to the middle class; they make up only about 0.01% of the population, and they are the super-rich Russians who own luxury objects. In their volume, the receipts from luxury tax paid by a small number of wealthy individuals will be comparable to tax revenues from all simplified regimes, paid by millions of small entrepreneurs and farmers.

However, this does not relieve the regional authorities from the responsibility to conduct a responsible fiscal policy. In relation to the Vologda Oblast the main directions of such a policy should include the following:

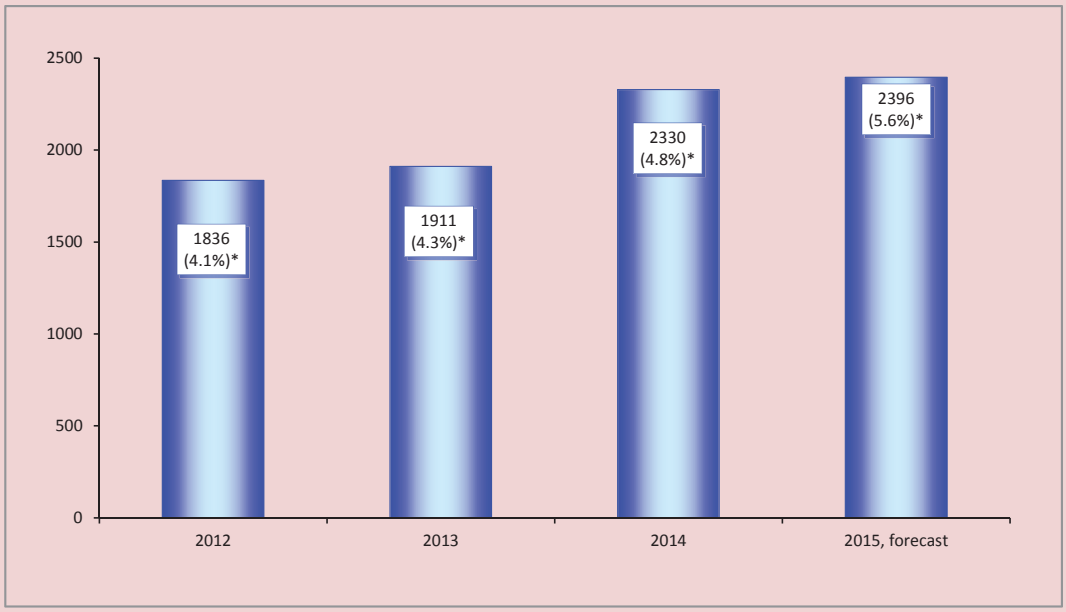
First, an active search for all possible sources of increase the collectability of tax revenues. According to the Vologda Oblast Department of Finance, at the end of 2014 the debt of the region's taxpayers on the payment of taxes to the budget system of the Russian Federation exceeded 2 billion rubles, and the budget lost 5 billion rubles due to the implementation of "off-the-books" labor remuneration schemes by employers. These funds would be quite enough not only to cover the current deficit, but also to implement the inaugural decrees of the President in 2015.

In order to enhance the mobilizing function of non-tax revenues it is necessary to implement a set of administrative measures, in particular: to revise the legislative framework; to index the rates of certain types of payments; to exclude the transfer of the oblast property to federal structures for its free use.

Second, further optimization of budget expenditures on management. Dynamic increase in state expenditures, unlike other expenditure items, indicates the potential for their reduction *(fig. 13)*.

According to the latest data provided by Vologdastat, in January – September 2014 the number of employees of state administration bodies in the oblast increased from 9.8 to 16.9 thousand people, i.e. by 1.7 times in comparison with the same period of the previous year. The average salary of an employee of aministrative staff, including the entire regular staff, was 41.7 thousand rubles, the average salary in economy being 25.7 thousand rubles. Salaries of the Vologda Oblast Government officials, holding public office, reached 301 thousand rubles and 12 times exceeded the regional average.

Figure 13. Expenses under the heading "federal issues" in the regional budget of the Vologda Oblast in 2012–2015, million rubles



* The share of expenditures in the total expenditure part of the regional budget is given in parentheses.

Sources: Vologda Oblast Department of Finance; author's calculations.

Third, strengthening the responsibility of administrators of budget funds for improper level of cash execution of expenditures. In the conditions of a chronic budget deficit about two billion rubles of approved regional budget allocations is not utilized every year. Budget accounts receivable, the amount of which at the beginning of 2014 reached 1.1 billion rubles, arouses serious concern. Almost the whole sum falls on advance payments on the contracts and on the payments on loans granted from the regional budget.

Strengthening the financial foundations of the regions should become a core aspect of increasing the efficiency of public administration.

If the policy of fiscal consolidation is continued, it will inevitably lead to a lingering debt crisis of territorial budgets, and, ultimately, to the default in the regions and economic destabilization. At the same time, it is necessary that Russia's regions consolidate their efforts aimed to change the policy of the federal center.

References

1. Bukina I.S. Paradoksy finansovoi politiki v RF [The Paradoxes of Financial Policy in the Russian Federation]. *Federalizm* [Federalism], 2014, no. 2, pp. 25-34.

2. Byudzhetnaya trekhletka 2015–2017: imperativ "reversirovaniya" sotsial'no-ekonomicheskogo kursa proignorirovan i na sei raz: redaktsionnaya stat'ya [The Three-Year Budget 2015–2017: the Imperative of "Reversing" the Socio-Economic Course Ignored Once Again: Editorial]. *Rossiiskii ekonomicheskii zhurnal* [Russian Economic Journal], 2014, no. 5, pp. 3-21.
3. *Vystuplenie Matvienko V.I. na rasshirennoi kollegii Minfina RF po voprosu "Ob itogakh ispolneniya federal'nogo byudzheta za 2012 god i zadachakh organov finansovoi sistemy RF na 2013 god" 8 aprelya 2013 g.* [The Speech of V.I. Matvienko at the Expanded Board of the Ministry of Finance of the Russian Federation "On the Results of Execution of the Federal Budget for 2012 and the Tasks of the Financial Authorities of the Russian Federation for 2013", April 8, 2013]. Available at: http://www.council.gov.ru/media/files/
4. Dmitrieva O.G. Ekonomicheskie krugooboroty i finansovye pylesosy [Economic Turnovers and Financial Vacuum Cleaners]. *Voprosy ekonomiki* [Issues of the Economy], 2013, no. 7, pp. 49-62.
5. Zyuganov G.A. Proekt degradatsii [Degradation Project]. *Sovetskaya Rossiya* [Soviet Russia], 2014, October 14.
6. Ilyin V.A., Povarova A.I. Byudzhetnyi krizis regionov v 2013–2015 godakh – ugroza bezopasnosti Rossii [Budget Crisis of the Regions in 2013 – 2015: a Threat to Russia's Security]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2012, no. 6, pp. 30-41.
7. Ilyin V.A., Povarova A.I. Problemy regional'nogo razvitiya kak otrazhenie effektivnosti gosudarstvennogo upravleniya [Problems of Regional Development as the Reflection of the Effectiveness of Public Administration]. *Ekonomika regiona* [Economy of the Region], 2014, no. 3, pp. 48-63.
8. Kashin V.A., Abramov M.D. *Nalogovaya sistema – ugroza natsional'noi bezopasnosti Rossii* [Tax System – a Threat to Russia's National Security]. Available at: http://www.modern-rf.ru/netcat_files/93/47/
9. Orekhovskii P.A. Rossiiskaya nalogovaya sistema i gryadushchii krizis regional'nykh finansov [Russian Fiscal System and the Coming Crises of Regional Finances]. *Federalizm* [Federalism], 2014, no. 1, pp. 141-150.
10. *Ob oblastnom byudzhete na 2015 god i planovyi period 2016 i 2017 godov: zakon Vologodskoi oblasti ot 22.12.2014 g. № 3532-FZ* [On the Oblast Budget for 2015 and for the Planned Period of 2016 and 2017: the Law of the Vologda Oblast of December 22, 2014 No. 3532-FZ].
11. *O prognoze sotsial'no-ekonomicheskogo razvitiya Vologodskoi oblasti na 2015–2017: postanovlenie Pravitel'stva Vologodskoi oblasti ot 27.10.2014 g. № 954* [On the Forecast of Socio-Economic Development of the Vologda Oblast in 2015–2017: Resolution of the Government of the Vologda Oblast of October 27, 2014 No. 954].
12. *Ofitsial'nyi sait Departamenta finansov Vologodskoi oblasti* [Official Website of the Vologda Oblast Department of Finance]. Available at: http://df35.ru/
13. *Ofitsial'nyi sait Ministerstva ekonomicheskogo razvitiya RF* [Official Website of the Ministry of Economic Development of the Russian Federation]. Available at: http://economy.gov.ru/minec/activity/sections/macro/prognoz/
14. *Ofitsial'nyi sait PAO "Severstal'"* [Official Website of PAO Severstal]. Available at: http://www.severstal.ru/
15. *Ofitsial'nyi sait Federal'nogo kaznacheistva Rossii* [Official Website of the Federal Treasury of Russia]. Available at: http://www.roskazna.ru/
16. *Ofitsial'nyi sait Federal'noi nalogovoi sluzhby Rossii* [Official Website of the Federal Tax Service of Russia]. Available at: http://www.nalog.ru/
17. Petrov Yu.A. K formirovaniyu novoi ekonomicheskoi modeli: restriktsiya byudzhetnykh raskhodov ili povyshenie sobiraemosti nalogov? [About Shaping a New Economic Model: Restriction of Budget Expenditures or Better Fiscal Performance?]. *Rossiiskii ekonomicheskii zhurnal* [Russian Economic Journal], 2013, no. 4, pp. 24-39.

18. Povarova A.I. Ob usloviyakh i merakh povysheniya effektivnosti obshchestvennykh finansov (kriticheskie zametki) [About the Conditions and Measures to Improve the Effectiveness of Public Finance (Critical Notes)]. *Ekonomist* [The Economist], 2014, no. 3, pp. 68-71.
19. Solyannikova S.P. Upravlenie gosudarstvennymi finansami: zayavlennye printsipy i real'nost' [Public Finance Management: Declared Principles and Reality]. *Ekonomist* [The Economist], 2014, no. 4, pp. 44-58.
20. Tatarkin A.I. Dialektika gosudarstvennogo i rynochnogo regulirovaniya sotsial'no-ekonomicheskogo razvitiya regionov i munitsipalitetov [Dialectics of Public and Market Regulation of a Region and Municipality Socioeconomic Development]. *Ekonomika regiona* [Economy of the Region], 2014, no. 1, pp. 9-30.

Cited works

1. Bukina I.S. The Paradoxes of Financial Policy in the Russian Federation. *Federalism*, 2014, no. 2, pp. 25-34.
2. The Three-Year Budget 2015–2017: the Imperative of "Reversing" the Socio-Economic Course Ignored Once Again: Editorial. *Russian Economic Journal*, 2014, no. 5, pp. 3-21.
3. *The Speech of V.I. Matvienko at the Expanded Board of the Ministry of Finance of the Russian Federation "On the Results of Execution of the Federal Budget for 2012 and the Tasks of the Financial Authorities of the Russian Federation for 2013", April 8, 2013.* Available at: http://www.council.gov.ru/media/files/
4. Dmitrieva O.G. Economic Turnovers and Financial Vacuum Cleaners. *Issues of the Economy*, 2013, no. 7, pp. 49-62.
5. Zyuganov G.A. Degradation Project. *Soviet Russia,* 2014, October 14.
6. Ilyin V.A., Povarova A.I. Budget Crisis of the Regions in 2013 – 2015: a Threat to Russia's Security. *Economic and Social Changes: Facts, Trends, Forecast*, 2012, no. 6, pp. 30-41.
7. Ilyin V.A., Povarova A.I. Problems of Regional Development as the Reflection of the Effectiveness of Public Administration. *Economy of the Region*, 2014, no. 3, pp. 48-63.
8. Kashin V.A., Abramov M.D. *Tax System – a Threat to Russia's National Security*. Available at: http://www.modern-rf.ru/netcat_files/93/47/
9. Orekhovskii P.A. Russian Fiscal System and the Coming Crises of Regional Finances. *Federalism,* 2014, no. 1, pp. 141-150.
10. *On the Oblast Budget for 2015 and for the Planned Period of 2016 and 2017: the Law of the Vologda Oblast of December 22, 2014 No. 3532-FZ.*
11. *On the Forecast of Socio-Economic Development of the Vologda Oblast in 2015–2017: Resolution of the Government of the Vologda Oblast of October 27, 2014 No. 954.*
12. *Official Website of the Vologda Oblast Department of Finance*. Available at: http://df35.ru/
13. *Official Website of the Ministry of Economic Development of the Russian Federation*. Available at: http://economy.gov.ru/minec/activity/sections/macro/prognoz/
14. *Official Website of PAO Severstal.* Available at: http://www.severstal.ru/
15. *Official Website of the Federal Treasury of Russia.* Available at: http://www.roskazna.ru/
16. *Official Website of the Federal Tax Service of Russia*. Available at: http://www.nalog.ru/
17. Petrov Yu.A. About Shaping a New Economic Model: Restriction of Budget Expenditures or Better Fiscal Performance? *Russian Economic Journal*, 2013, no. 4, pp. 24-39.
18. Povarova A.I. About the Conditions and Measures to Improve the Effectiveness of Public Finance (Critical Notes). *The Economist,* 2014, no. 3, pp. 68-71.
19. Solyannikova S.P. Public Finance Management: Declared Principles and Reality. *The Economist,* 2014, no. 4, pp. 44-58.
20. Tatarkin A.I. Dialectics of Public and Market Regulation of a Region and Municipality Socioeconomic Development. *Economy of the Region,* 2014, no. 1, pp. 9-30.

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Strategic relationship between innovation development and management of human resources potential in the region

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Abstract. The modern concept for modernization of Russia's economy, put forward by the federal executive authorities, provides for an innovation development model. It is believed that only innovation is able to solve many problems that the Russian economy faces, and first of all, the enhancement of its competitiveness.

One of the problems of Russia's innovation system consists in the lack of resources and in their inefficient use in certain directions of development of innovation activity: outdated production capacities and facilities and equipment at research organizations; ageing of staff; limited access to financial resources. The availability and condition of these resources, the opportunities for their usage – in other words, the choice of innovation development strategy, all these factors determine the effectiveness of innovation activity in the region. The article provides a classification of the region's innovation strategies. Due to the fact that

the most important factor in achieving innovation economic development is the improvement of the quality of human resources, the authors highlight the issue of strategic compliance between the innovation development of the region and human resources management.

The authors define the strategy for innovative development of Krasnoyarsk Krai on the basis of the proposed methodology according to the methodology of strategic compliance; they also give recommendations on human resources management in the region.

The authors use analytical and statistical methods of research, and they take into consideration relevant scientific publications of domestic and foreign scientists. The research findings can be applied in the implementation of the concept for innovation development of the region.

Key words: innovation development, innovation strategy, innovation development strategy, human resources management strategy, strategic compliance, innovation economy, human resources potential.

Transformation of resource needs of the region's economy (production, financial, human and other resources) in its transition to innovation development necessitates the changes in established approaches to their reproduction. Traditionally, human potential is one of the most important resources for innovation development of economic system at any of its levels [17]; the condition of human resources primarily affects the extent and quality of research findings and scientific developments. Therefore, the formation of innovation economy requires selection of a particular development strategy taking into account specific requirements to human potential.

The aim of this study is to establish strategic correlation between innovation development of the region and human resources management.

For achieving this goal it is necessary to determine the type of innovation development strategy of the region on the basis of an integrated indicator for innovation growth, to establish the type of human resources management strategy corresponding to the type of innovation development strategy, and to set out the strategic direction of formation of human resources potential in the region.

According to the definitions adopted in economic science, the strategy for the region's innovation development is understood as a system that comprises long-term goals and objectives aimed to promote innovation activity and increase the region's innovation potential, ways of using tools and resources for the development, implementation and dissemination of innovations and their implementation mechanisms [1, 2, 18, 19]. It should be noted that economic science, despite extensive research on the subject, has not developed a unified typology that would distinguish essential differences in the strategies for innovation development of regions. This can be explained by the fact that there are various research goals and foci, in particular: dependence on certain factors; composition of elements; structural transformation; economic mechanisms, etc.

In accordance with the purpose of this study, it is proposed to use the generalized change rate of indicators of science, technology and innovations that promote innovative activity in the region as the criteria for classification of innovation development strategy. This will help to distinguish three types of innovation strategies (growth, limited growth, reduction) using the classification of global development strategies proposed by American economists M. Mescon and F. Khedouri [16]:

- *growth strategy* is characterized by the annual increase in indicators of development of science, technology and innovation compared to the level of the previous year *(fig. 1a)*:

$$X_j^{t+1} > X_j^t ,$$

where X_j^t is the indicator *(j)* that characterizes the development of science, technology or innovation in the period *(t)*;

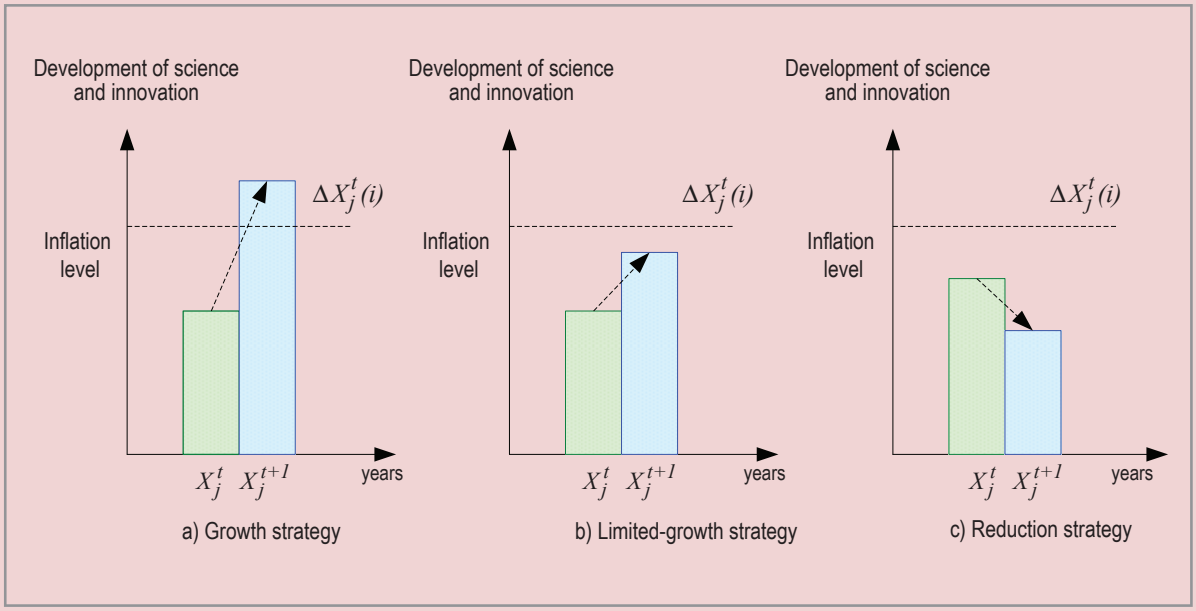
X_j^{t+1} are the values of the same indices *(j)* in the subsequent period *(t+1)*;

- *limited-growth strategy* is characterized by the increase in the rates of development of science, technology or innovation compared to the previous period, but this increased does not exceed the value provided by the increase in the level of inflation *(fig. 1b)*:

$$X_j^t < X_j^{t+1} \le X_j^t + \Delta X_j^t(i) ,$$

where $\Delta X_j^t(i)$ is the increase in the indicator of development of science, technology or innovation, caused by rising inflation *(i)* in the period *(t)*;

Figure 1. Innovation growth strategies



Source: compiled by the authors.

• *reduction strategy* is characterized by the reduction of the achieved level of the studied parameters in comparison with the previous period *(fig. 1c)*:

$$X_{j+1} < X_j .$$

The system of indicators of the region's innovation activity was created taking into account world experience [4, 20], specifics of formation of innovation development potential in Russia's regions [21, 22], availability of statistical data necessary for the analysis. The system covers three groups of indicators.

Indicators that reflect the status of human resources potential in the region for the development of science and innovation:

– number of students of higher and secondary professional education institutions per 10,000 population – the feature characterizing the reserve of highly qualified specialists;

– number of personnel engaged in research and development – the feature characterizing the scale of employment in science and the potential for the increase of scientific knowledge and search for new spheres of its application;

– number of researchers with an academic degree – the feature characterizing the qualification of those engaged in research and development.

Indicators of activity and innovation performance:

– number of organizations engaged in scientific research and development;

– share of organizations engaged in technological, organizational or marketing innovation, the total number of organizations;

– number of implemented advanced production technologies;

– number of protected results of intellectual activity;

– volume of innovation goods, works and services;

– proportion of goods, works, and services produced in the region that have been newly introduced or have undergone significant technological change, in the total volume of shipped goods and performed works and services.

Indicators of expenditure on technological innovation, scientific research and development:

– proportion of expenditures on R&D in GRP characterizes the resources, equipment and funding of scientific research, the availability and renewal of equipment, the possibility of testing and implementation of research results in practice, the level of labor remuneration of personnel employed in R&D;

– share of extra-budgetary funds in R&D expenditures.

The type of innovation strategy in the region is determined in the following way: first, it is necessary to form statistical series of the data for each single indicator of the region's innovation activity; then – to calculate the indicators based on the ratio of the values of individual indicators at the end of the study period to their average value for the analyzed time interval; after that – to calculate the integral indicator of the region's innovation development (α) on the basis of the arithmetical average of the indices of single indicators.

The type of innovation development strategy is determined according to the following rule:

– if the value of the integral indicator is less than one ($\alpha<1.0$), then the type of regional innovation development strategy is *reduction*;

– if the value of the integral indicator has increased within the established inflation level ($1.0<\alpha<1+i$), then the type of strategy is *limited growth*;

– if the value of the integral indicator is higher than in the previous years ($\alpha>1+i$), then the type of strategy is *growth*.

The results of calculations for Krasnoyarsk Krai based on statistical data for the five years from 2009 to 2013 are presented in the *table*. The calculations of the growth rates of individual indicators and integral index ($\alpha=1.3$) determined the type of innovation strategy – it is *limited growth*, because the value of the integral

Calculation of the integral indicator of innovation development of Krasnoyarsk Krai

Indicator	2009	2010	2011	2012	2013	Average value	2013/ average value
1. Number of students of higher and secondary professional education institutions per 10,000 population	620	601	557	557	847	636	1.33
2. Number of personnel engaged in research and development, persons	6299	6475	6748	6353	7273	6629	1.10
3. Number of researchers with an academic degree, persons	790	823	850	839	837	827	1.01
4. Number of organizations engaged in scientific research and development, units	52	54	53	52	52	52	0.99
5. Share of organizations engaged in technological, organizational or marketing innovation, the total number of organizations	12.2	10.0	10.2	9.5	11.2	10	1.05
6. Number of implemented advanced production technologies, units	1352	1937	1979	2261	2388	1983	1.20
7. Number of protected results of intellectual activity	561	518	474	529	499	516	0.97
8. Volume of innovation goods, works and services, million rubles	3 895	4 957	11 694	35 800	53 874	22 044	2.44
9. Proportion of goods, works, and services produced in the region that have been newly introduced or have undergone significant technological change, in the total volume of shipped goods and performed works and services	0.6	0.5	1.1	3.4	5.1	2.2	2.36
10. Internal expenditures on scientific research and development, million rubles	5572	6961	8908	10548	9736	8345	1.17
11. Share of extra-budgetary funds in R&D expenditures	58.3	77.3	106.9	45.3	42.1	65.9	0.64
Integral indicator (α)							1.3

Compiled with the use of the following sources: Territorial Office of the Federal State Statistics Service in Krasnoyarsk Krai. Available at: http://www.krasstat.gks.ru.

indicator does not exceed the official rate of inflation for 2013 (6.45%). A great part of examined indicators has positive dynamics; the indicators "the volume of innovation goods, works and services" and "the share of newly implemented goods or goods that have undergone substantial technological change" have the maximum effect on the integral indicator of regional innovation activity indicators. At the same time, the single indicators of the region's innovation development have three indicators with negative dynamics, among them: "the number of organizations engaged in scientific research and development", "the number protected results of intellectual activity", "the share of extra-budgetary funds in R&D expenditures".

Our calculations (see Table) show that the formation and development of innovation economy in the region depends largely on both direct (the first group of indicators – items 1–3) and indirect (performance indicators – items 7–9) influence of human resources potential. The contribution of these indicators to the integral indicator (α) of innovation development in Krasnoyarsk Krai is 64.7%. Thus, the research substantiates the importance of human resources management strategy for promoting innovation growth of the regional economic system.

At the same time, as the region's economy is shifting toward innovation development, there emerge certain interrelated issues concerning human resources management.

First, due to these processes the economy *changes its internal needs* focused on resource-efficient and innovation technology, which, in turn, necessitates a change in the *qualitative composition* (vocational qualification) of the region's human resources.

Second, due to the *technological diversity* of the region's economy there are segments that are currently at different stages of economic development and have different *different demands* for quality and composition of human resources.

Third, the *sectoral unevenness* of innovative activity makes it necessary to reproduce the personnel for *traditional* economic sectors in the region, and, at the same time, to form personnel potential of *the new quality* to satisfy the needs of innovation development.

Therefore, the specifics of innovation economic development in the region determine the formation and selection of different strategies of human resources management that are vertically integrated with the region's development strategy and are its integral part [3]. Vertical integration is necessary to ensure consistency between the region's development strategy and the strategy for the formation, use, and management of human resources in order to achieve synergistic effect of their interaction.

In accordance with the typology developed by Michael Armstrong we can distinguish three strategies of human resources management in the region [3]:

– resource-oriented strategy;

– strategy focused on achieving a high level of development;

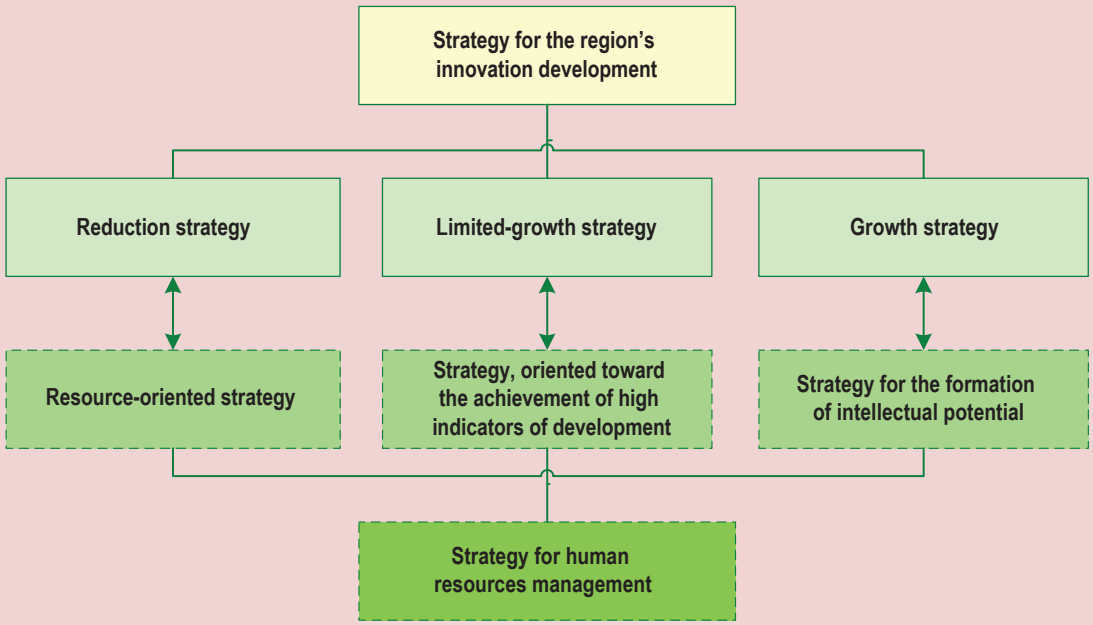
– strategy for the formation of intellectual potential, focused on the high level of participation and commitment.

Let us establish a logical relationship between the strategies for innovation development in the region and human resources management in the region *(fig. 2)*.

Due to the fact that *reduction strategy* is characterized by decline in innovation activity, economic development in the region is provided largely by socio-economic factors, therefore, the region's human resources potential is characterized by stable professional-qualification structure (by levels, directions and qualifications of professional training), which is traditional for the region's economy. In these conditions its strategy of human resources management is focused on improving the efficiency of labor resources usage. The purpose of this strategy is to achieve strategic compliance of resources with favorable opportunities to obtain added value from their effective use. The *resource-oriented* type of strategy emphasizes direct correlation between the professional performance of personnel and the cost of enhancing the level of social and personal competencies (discipline, responsibility, diligence) and support of the required level of professional competence (education, qualification) [3].

The strategy of limited growth, being an intermediate stage in the transition to innovation development model, does not imply qualitative change in the structure of the region's human resources

Figure 2. Strategic compliance of innovation development of the region's economy with human resources management



Source: compiled by authors.

potential, while allowing for quantitative redistribution of labor resources between occupational groups (by level, direction and specialization of professional training). This strategy aims to increase the size of the economy in general, and ensure moderate rate of innovation and growth achieved through the development of programs for promoting and motivating labor resources in order to implement large-scale investment development projects and use new forms of employment (working on a rotational basis, part-time work, etc.), that directly affect the growth of productivity, quality of work and receipt of added value. The type of human resources management strategy *that is focused on the achievement of a high level of development* emphasizes the dependence of professional staff performance on the expansion of their range of competencies (professional, organizational, social, personal, etc.) [3].

The strategy of innovation growth of the economy is characterized by qualitative change in the demand for professional staff, which causes qualitative change in the structure (new levels of professional training, specialties, professions) of human resources potential in the region. *The formation of the intellectual potential in the region* is a type of strategy for management of professional staff, focused on achieving a high level of participation of professional staff in the development, implementation and dissemination of innovation (profound knowledge in the subject area, out-of-the-box thinking, ability to work not only within the team but also on one's own, commitment to lifelong learning, professional development, willingness to accept innovation and change). This method of development makes it necessary to develop loyalty in professional staff not only through the high level trust and partnership relations with employers [3], but also through a sound regional policy of innovation development, which should have the following objectives [23]:

– decrease of uncertainty about the directions of innovation development in the region;

– promotion of active forms of cooperation between enterprises and universities, which can have a positive impact on the quality of intellectual potential;

– support (fiscal, resource, communication) to the development of innovation industries, creation of new jobs, retention of highly skilled employees and attraction of specialists from other regions.

Thus, according to R. Nelson and E. Phelps, the value of the region's human resources increases with the increase in innovative content of the tasks and technological changes [4, p. 69].

According to the results of calculation of the integral indicator of innovation development, the type of innovation growth strategy of Krasnoyarsk Krai is defined as *limited growth*.

According to the established strategic compliance, the most acceptable strategy for human resources management in the region is *the strategy focused on achieving the high level of development*. The main strategic directions of development of the region's personnel potential should comprise the following: development of

employment management programs in the region using forms of intra-regional mobility; improvement of the efficiency of professional training of personnel with an extended range of competencies (professional, organizational, social, personal, etc.) to meet the region's needs of investment development; identification of the needs of innovation development of the economy in order to create programs for training highly skilled knowledge workers that possess fundamental knowledge, innovative thinking and creativity and are able to use modern technology efficiently.

References

1. Il'enkova S.D., Gokhberg L.M., Yagudin S.Yu. *Innovatsionnyi menedzhment: uchebnik* [Innovation Management: Textbook]. Ed. by S.D. Il'enkova. Moscow: Yuniti, 1997. 306 p. Available at: http://www.vipstudent.ru/index.php?q=lib&r=13&id=1194190608&p=34
2. Pikanov M.I. Formirovanie strategii innovatsionnogo razvitiya regiona [Formation of the Strategy for Innovation Development of the Region]. *Ekonomika i upravlenie* [Economics and Management], 2011, no. 4 (77), pp. 58-62.
3. Armstrong M. *Praktika upravleniya chelovecheskimi resursami* [A Handbook of Human Resource Management Practice]. Available at: http://thelib.ru/books/maykl_armstrong/

praktika_upravleniya_chelovecheskimi_resursami-read-11.html (Accessed December 11, 2013).

4. Nelson R., Phelps E. Investment in Humans, Technological Diffusion, and Economic Growth. *American Economic Review: Papers and Proceedings*, 1966, no. 51 (2), pp. 69-75.
5. Fursik S.N. Kachestvo chelovecheskogo potentsiala kak faktor innovatsionnogo razvitiya ekonomiki regiona [Quality of Human Capital as a Factor Promoting Innovation Development of the Region's Economy]. *Problemy razvitiya territorii* [Problems of Territory's Development], 2014, no. 1 (69), pp. 67-81.
6. Guzakova O.L., Fursik S.N., Andronovich S.A. *Kachestvo chelovecheskogo kapitala kak faktor ekonomicheskogo rosta: monografiya* [The Quality of Human Capital as a Factor in Economic Growth: Monograph]. Under scientific editorship of O.L. Guzakova. Vologda: VGPU, 2011. 118 p.
7. Shabunova A.A., Chekmareva E.A. *Trudovoi potentsial regiona: ucheb. posobie dlya vuzov* [Labor Potential of the Region: Textbook for Higher Schools]. Vologda: ISERT RAN, 2010. 95 p.
8. *Doklad o razvitii chelovecheskogo potentsiala v Rossiiskoi Federatsii za 2011 g.* [National Human Development Report for the Russian Federation 2011]. Ed. by A.A. Auzan and S.N. Bobylev. Moscow: PROON v RF, 2011. 146 p.
9. Zarubina N.N. Chelovecheskie resursy rossiiskoi modernizatsii: k novoi paradigme issledovaniya [Human Resources of Russian Modernization toward a New Research Paradigm]. *Vestnik MGIMO-Universiteta* [Bulletin of MGIMO University], 2010, no. 6 (15), pp. 7-14.
10. Simkina L.G., Kritskii M.M., Sudova T.L., Selishcheva T.A. et al. *Chelovecheskii kapital i problemy formirovaniya innovatsionnoi ekonomiki: monografiya* [Human Capital and the Issues of Building an Innovation Economy: Monograph]. Saint Petersburg: SPbGIEU, 2007. 227 p.
11. Tikhonova N.E. Chelovecheskii potentsial rossiiskikh modernistov i perspektivy modernizatsii v Rossii [Human Potential of the Russian Modernists and the Prospects of Modernization in Russia]. *Terra Economicus*, 2012, vol. 10, no. 1, pp. 135-146.
12. Gulin K.A. K voprosu o sotsial'no-ekonomicheskoi modernizatsii rossiiskikh regionov [On the Issue of Socio-Economic Modernization of Russian Regions]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2012, no. 4, pp. 42-58.

13. Simkina L.G., Kritskii M.M., Sudova T.L., Selishcheva T.A. et al. *Chelovecheskii kapital i problemy formirovaniya innovatsionnoi ekonomiki: monografiya* [Human Capital and the Issues of Building an Innovation Economy: Monograph]. Saint Petersburg: SPbGIEU, 2007. 227 p.
14. Korchagin Yu.A. *Chelovecheskii kapital – sushchnost', ideologiya, razvitie* [Human Capital: Essence, Ideology, Development]. Available at: http://www.lerc.ru
15. Il'enkova S.D., Gokhberg L.M., Il'enkova N.D. et al. *Innovatsionnyi menedzhment: uchebnik* [Innovation Management: Textbook]. 2000. Available at: http://www.irbis.vegu.ru
16. Mescon M., Albert M., Khedouri F. *Osnovy menedzhmenta* [Management]. Moscow, 2009. 672 p.
17. Petrukhina E.V., Gubareva L.I. Intelektual'no-kadrovyi potentsial innovatsionnogo razvitiya regiona [Intellectual and Personnel Potential of Innovation Development in the Region]. *Sovremennye problemy nauki i obrazovaniya* [Modern Issues of Science and Education], 2013, no. 1. Available at: http://www.science-education.ru/107-8363
18. Korobeinikov O.P., Kolesov V.Yu., Trifilova A.A. Strategicheskoe povedenie: ot razrabotki do realizatsii [Strategic Behavior: from Design to Implementation]. *Menedzhment v Rossii i za rubezhom* [Management in Russia and Abroad], 2002, no. 3, pp. 88-129.
19. Leonov S.N. Razrabotka strategii regional'nogo razvitiya (primer Dal'nego Vostoka Rossii) [Development of the Strategy for Regional Development (Case Study of Russia's Far East)]. *Problemnyi analiz i gosudarstvenno-upravlencheskoe proektirovanie* [Problem Analysis and Public Administration Projection], 2009, no. 2, vol. 2, pp. 59-70.
20. Hollanders H., Tarantola S., Loschky A. Regional Innovation Scoreboard (RIS) 2009. *Pro Inno Europe,* 2009, p. 4.
21. *Reiting innovatsionnogo razvitiya sub"ektov Rossiiskoi Federatsii* [Innovative Development Rating of the Russian Federation Subjects]. Issue 2. Ed. by L.M. Gokhberg. Moscow: Natsional'nyi issledovatel'skii universitet VShE, 2014. 88 p.
22. Dubinin A.S. *Sushchnost' i metody otsenki innovatsionnoi aktivnosti regiona* [Essence and Methods of Estimation of Innovation Activity in the Region]. *Vestnik Novgorodskogo gosudarstvennogo universiteta* [Herald of Novgorod State University], 2011, no. 61, pp. 22-26.
23. Lagutina L.G. Ispol'zovanie forsaita v protsesse upravleniya intellektual'nym potentsialom regiona [The Use of Foresight in the Management of the Region's Intellectual Potential]. *Ekonomicheskie nauki* [Economic Sciences], 2009, no. 4 (53), pp. 169-171.

Cited works

1. Il'enkova S.D., Gokhberg L.M., Yagudin S.Yu. *Innovation Management: Textbook*. Ed. by S.D. Il'enkova. Moscow: Yuniti, 1997. 306 p. Available at: http://www.vipstudent.ru/index.php?q=lib&r=13&id=1194190608&p=34
2. Pikanov M.I. Formation of the Strategy for Innovation Development of the Region. *Economics and Management,* 2011, no. 4 (77), pp. 58-62.
3. Armstrong M. *A Handbook of Human Resource Management Practice*. Available at: http://thelib.ru/books/maykl_armstrong/

praktika_upravleniya_chelovecheskimi_resursami-read-11.html (Accessed December 11, 2013).

4. Nelson R., Phelps E. Investment in Humans, Technological Diffusion, and Economic Growth. *American Economic Review: Papers and Proceedings*, 1966, no. 51 (2), pp. 69-75.
5. Fursik S.N. Quality of Human Capital as a Factor Promoting Innovation Development of the Region's Economy. *Problems of Territory's Development*, 2014, no. 1 (69), pp. 67-81.
6. Guzakova O.L., Fursik S.N., Andronovich S.A. *The Quality of Human Capital as a Factor in Economic Growth: Monograph*. Under scientific editorship of O.L. Guzakova. Vologda: VGPU, 2011. 118 p.
7. Shabunova A.A., Chekmareva E.A. *Labor Potential of the Region: Textbook for Higher Schools*. Vologda: ISERT RAN, 2010. 95 p.

8. *National Human Development Report for the Russian Federation 2011.* Ed. by A.A. Auzan and S.N. Bobylev. Moscow: PROON v RF, 2011. 146 p.
9. Zarubina N.N. Human Resources of Russian Modernization toward a New Research Paradigm. *Bulletin of MGIMO University*, 2010, no. 6 (15), pp. 7-14.
10. Simkina L.G., Kritskii M.M., Sudova T.L., Selishcheva T.A. et al. *Human Capital and the Issues of Building an Innovation Economy: Monograph*. Saint Petersburg: SPbGIEU, 2007. 227 p.
11. Tikhonova N.E. Human Potential of the Russian Modernists and the Prospects of Modernization in Russia. *Terra Economicus*, 2012, vol. 10, no. 1, pp. 135-146.
12. Gulin K.A. On the Issue of Socio-Economic Modernization of Russian Regions. *Economic and Social Changes: Facts, Trends, Forecast*, 2012, no. 4, pp. 42-58.
13. Simkina L.G., Kritskii M.M., Sudova T.L., Selishcheva T.A. et al. *Human Capital and the Issues of Building an Innovation Economy: Monograph*. Saint Petersburg: SPbGIEU, 2007. 227 p.
14. Korchagin Yu.A. *Human Capital: Essence, Ideology, Development*. Available at: http://www.lerc.ru
15. Il'enkova S.D., Gokhberg L.M., Il'enkova N.D. et al. *Innovation Management: Textbook*. 2000. Available at: http://www.irbis.vegu.ru
16. Mescon M., Albert M., Khedouri F. *Management.* Moscow, 2009. 672 p.
17. Petrukhina E.V., Gubareva L.I. Intellectual and Personnel Potential of Innovation Development in the Region. *Modern Issues of Science and Education*, 2013, no. 1. Available at: http://www.science-education.ru/107-8363
18. Korobeinikov O.P., Kolesov V.Yu., Trifilova A.A. Strategic Behavior: from Design to Implementation. *Management in Russia and Abroad*, 2002, no. 3, pp. 88-129.
19. Leonov S.N. Development of the Strategy for Regional Development (Case Study of Russia's Far East). *Problem Analysis and Public Administration Projection,* 2009, no. 2, vol. 2, pp. 59-70.
20. Hollanders H., Tarantola S., Loschky A. Regional Innovation Scoreboard (RIS) 2009. *Pro Inno Europe,* 2009, p. 4.
21. *Innovative Development Rating of the Russian Federation Subjects.* Issue 2. Ed. by L.M. Gokhberg. Moscow: Natsional'nyi issledovatel'skii universitet VShE, 2014. 88 p.
22. Dubinin A.S. Essence and Methods of Estimation of Innovation Activity in the Region. *Herald of Novgorod State University*, 2011, no. 61, pp. 22-26.
23. Lagutina L.G. The Use of Foresight in the Management of the Region's Intellectual Potential. *Economic Sciences,* 2009, no. 4 (53), pp. 169-171.

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Evaluation of the efficiency of development of specially protected natural areas in the Republic of Komi*

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Abstract. The article presents an algorithm for the management of specially protected natural areas in the region. This algorithm consists of the following procedures: assumption of the obligation to preserve biodiversity; planning and implementation of activities to preserve natural complexes; evaluation, analysis of results and development of recommendations to improve management. According to this algorithm the procedures were tested on model objects – specially protected natural territories of federal and regional importance. In the course of implementation of these activities the sources of funding of specially protected model objects were identified: the funds of budgets of all levels; grants and charitable contributions; funds received from the provision of recreation and tourism services. The financial strategies of development were provided, and the business plans were analysed for seven natural reserves. The results of a sociological survey concerning the effectiveness of implementation of business plans show that positive effects from the existence of protected areas are much more pronounced than the limitations experienced by local residents. This refers to the opportunities and forms of cooperation and contribution to socio-economic development in the region. The activities for the organization of recreation for residents in the region are proposed. Recreation at the weekend, the costs of which amount to two thousand rubles/person, is most interesting to the region's residents, especially to urban residents. This type of recreation can organize a flow of 200 thousand people per year, if the necessary range of services, especially children's leisure, is provided. Leisure tourism, on the contrary, requires the maximum reduction of cost (five thousand rubles/

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person for the route), and the provision of minimum number of services; the annual flow of this category of tourists may reach 40 thousand people. Establishment of conventional natural parks can be another way to improve the condition of protected areas. The possibility of rational nature management carried out along with recreational activity that promotes the development of these areas is shown on the example of model objects of specially protected natural areas.

Key words: specially protected natural areas, biodiversity, ecosystem services, recreational resources, ecological tourism, business plan.

At present it is apparent that the objectives of environmental conservation and economic development are interrelated, because it is impossible to ensure sustainable economic development when nature is destroyed and depleted.

Preservation of areas with undisturbed ecosystems must become one of the most important tasks on the way to sustainable development. The system of specially protected natural areas (SPNA) established in Russia is one of the measures that aim to solve this task.

The principles of sustainable development of the territory should be observed, on the one hand, through the multi-aspect use of forest resources, including timber harvesting and processing, recreation, harvesting of wild herbs, forest quotas trading and so on; on the other hand – through the use of natural resources in the amounts which do not interfere with the resilience of ecosystems and the opportunity to preserve nature for future generations.

Profound experience of experimental investigations on the territory of the Russian Federation [1, 2, 3, 4] helped formulate a general algorithm for making management decisions on resource and environmental issues, which comprises several continuous and successive actions:

- assumption of the obligation to preserve biodiversity;
- planning and implementation of activities to preserve natural complexes;
- evaluation, analysis of results and development of recommendations to improve management.

The main purpose of the algorithm consists in the continuous improvement of effectiveness of control to prevent depletion of resources and ecosystem services provided in the territories. The scheme of such actions is a common strategy for sustainable development in the context of territorial development; it is set out in international standards such as ISO 14001 *(tab. 1)*.

Benefits from the use of the algorithm are as follows: improvement of institutional environment for conservation of biological resources; creation of an information database; promotion of greater benefits from the use of resources and environment. Let us present the main findings based on the experience of the UNDP/GEF Komi Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region".

The fund of nature reserves of the Republic consists of 240 SPNA, 238 of which are of national importance. The most significant of them – Pechora-Ilych Nature

Table 1. Algorithm for management of biodiversity preservation in SPNA

No.	Stage	Procedure	Basic tools
1.	Assumption of the obligation and adoption of a strategy to preserve biodiversity	Detection of main problems and threats	Sociological surveys data, field research
		Assessment of social and environmental importance	Research according to the methodology of environmental-economic accounting (UN)
		Determination of main directions for improving environmental policy	Regulations, instructions, institutional and financial support
2.	Planning of activities to preserve biodiversity	Identification of flows of natural resources and ecosystem services and identification of groups of their users	Field research
		Estimation of economic value of resources and services	Economic assessment of natural resources and ecosystem services
		Analysis of distribution of benefits from their usage	
		Analysis of financial expenses on biodiversity preservation	Business plans for development of SPNA
3.	Implementation of activities to preserve biodiversity	Development of tools to implement the chosen directions of activity	
		Consideration of nature management traditions	
4.	Assessment of results	Assessment of efficiency	Control activity, sociological surveys
5.	Analysis and improvement of management	Analysis of the trends in the economic value of natural resources and ecosystem services and the development of measures and recommendations	Forecasting the dynamics of the state of natural resources, ways and specifics of their use

Reserve (NR) and Yugyd Va National Park (NP) – were included in 1995 in the UNESCO World Natural Heritage List under the title "the Virgin Komi Forests". Protected objects of regional significance occupy a significant fraction of the total area of SPNA (about 2.7 million ha). With regard to the possibility of their exploitation, almost all the objects are used by the local population and region's residents.

Assumption of the obligation and adoption of a strategy to preserve biodiversity

Problems of biodiversity conservation can be defined by analyzing the population survey data and the expert data on the results of field research. Inventory of SPNA in the region began in 2005 under the supervision of the Ministry of Natural Resources of the Komi Republic. The introduction of the UNDP/GEF Komi Project in 2008 made it possible to complete the inventory by 2013; as a result, the significant volume of materials of field research into both biological and social issues was accumulated. Surveys of residents living in the areas adjacent to SPNA were conducted in 2006 and 2013. The survey of local residents in 2013 (504 persons) included rural and urban residents, tourists, persons working in SPNA, and local authorities. According to a sociological survey of the local population, main threats to the biodiversity of natural systems in SPNA in the region include: poaching on the part of "corrupt elite

and business" (62% of the respondents), poaching on the part of "unemployed local population of neighboring villages" (36%), and also "negative impact of industrial facilities" (27% of the respondents) [5]. The low standard of living of rural residents, especially of native and long-term residents, becomes a driving force of poaching if there is a demand for these resources.

Actual impunity for excessive use of natural forest and water resources leads to the emergence of organized groups of poachers among urban residents and employees of enterprises located in close proximity to SPNA.

The identified threats to the ecosystems and biodiversity of SPNA in the Republic of Komi include: illegal logging, unregulated harvesting of non-timber products, poaching, including illegal hunting and fishing, the penetration of invasive species, unregulated tourism, oil and gas, mining, construction of roads and linear structures, and forest fires.

Social and environmental importance of protected areas consists in the sustainable use of natural resources and ecosystem services. In accordance with the methodology of environmental-economic accounting (UN), the stream of benefits from the use of natural resources and ecosystem services is the main value of the territory. Therefore, environmental policy should seek *to maintain and increase this value* in strict compliance with environmental regimes. In this regard, in the initial stages it is necessary to carry out an economic evaluation of resources and services, as it was presented in previously published articles [6, 7].

The aesthetic value of SPNA can be the most attractive factor in creating the conditions for ecotourism and recreational activities in the region for its residents. The "Strategy for development of tourism in the Russian Federation for the period up to 2020" provides for the establishment of incoming tourism in SPNA and creation of necessary conditions and infrastructure. According to the surveys of the whole territory of the region aimed to assess the state of SPNA, it is proposed to make a number of integrated nature reserves and nature monuments into nature parks that will make it possible to focus on recreation and ecotourism [8]. These objects include Belyi and Beloborsky integrated nature reserves. It is necessary to provide the Ministry of Natural Resources of the Komi Republic with the right to determine the specifics of the use and protection of SPNA of regional importance, to control access to these areas and to charge a sliding scale fee for the use of natural resources and benefits. In this case the region will be the absolute owner of all its resources located in protected areas.

Planning for preserving biodiversity

Natural resources and complexes, which are actually in demand, are identified on the basis of field studies and observations, review of documentation, and analysis of statistical information; this helps to form the flows of use. For example, according to the data on thirteen sites in the region with a total area of approximately 1.367 million hectares, there has been conducted an evaluation of *the flows of natural resources and ecosystem services*. They included: forest resources – fuel wood, non-timber resources

(berries, mushrooms, medicinal plants, nuts), hay (hay making); resources for recreation, fishery and hunting; resources for reindeer pastures; absorbtion of carbon by forests and water bodies; water management of wetlands, and purification of water by forest and aquatic ecosystems. The main users of these flows are local population, tourists, international community and business [9, 10, 11].

Economic evaluation is carried out in accordance with the methodology of environmental-economic accounting (UN) and the use of market and non-market methods of assessment:

- direct market assessment (wood and non-wood forest resources, hunting and fishing resources);
- indirect market assessment (carbon sequestration);
- assessment of economic damage (reindeer pastures);
- transport and travel costs (recreation and tourism resources);
- compensation costs (water regulation and water purification).

The results of these assessments and their analysis have been published in the articles [6, 12] and are summarized in *table 2.*

Thus, the specific indicators of the average annual economic assessment of SPNA are different: for the far northern taiga – from 190 to 310 rubles/ha per year; for the northern taiga – from 8 to 220 rubles/ha per year; for the middle taiga – from 200 to 993 rubles/ha per year. At that, large SPNA have greater share of global functions of ecosystems (carbon sequestration and water regulation). Groups of users of natural resources and ecosystem services are identified in the course of field research, their size is determined in the course of their economic assessment. Thus,

Table 2. Results of economic assessment of SPNA of regional importance

SPNA	Area, thousand ha	Economic value, million rub/year	Specific indicator, rub/ha/year
Far northern taiga			
Usinsky Integrated Reserve	179	33.765	188.6
Ocean Marsh Reserve	139	43.561	313.4
Northern taiga			
Sebys' Integrated Reserve	175	37.192	212.5
Udorsky Integrated Reserve	242	52.272	216.0
Podchersky Cedar Reserve	1.3	0.051	39.2
Soplyassky Cedar Reserve	0.6	0.039	65.0
Pechorskoye Marsh	6.4	0.054	8.4
Natural Water Monument "Paraskiny Lakes"	0.02	0.377	188.5
Middle taiga			
Ilychsky Ichtyological Reserve	532.4	108.556	203.9
Un'inskii Integrated Reserve	32.4	22.455	693.1
Beloborsky Integrated Reserve	9.0	8.940	993.3
Belyi Integrated Reserve	7.8	2.68	343.6
Verkhne-Lokchimsky Integrated Reserve	42.4	10.2	240.6

the distribution of benefits varies depending on SPNA. Due to the fact that the world community is the recipient of benefits from absorption of carbon by forests, and the local population is the recipient of benefits from water regulation, it is business entities and tourists that become a more mobile category. Therefore, their share increases to 50–70% in those SPNA that are used for active recreation (and also for the implementation of business projects) or that are subject to poaching [12].

Currently, none of the protected areas of regional importance receives funding to implement concrete environmental protection measures. At the same time, inspectors and forestry officers are unable to control such vast sites located in remote areas of the region. That is why it is only this remoteness and the availability of similar resources in other, more nearby, areas that helps preserve many SPNA from inevitable poaching. These problems can be solved only with the participation of local population and more significant financial investment in the protection of natural resources. The main goal in the development of business plans for SPNA is to streamline the uncontrolled flow of people, to provide employment of local population, to provide security measures at the expense of funding from the implementation of financial strategies.

The choice of model SPNA for business planning depends on their significance and location. The first two sites – Pechora-Ilych Nature Reserve and Yugyd Va National Park – are the most important for the region, and they also protect biodiversity and provide recreational activities on a nationwide scale. Other sites (Belyi Integrated Reserve, Beloborsky Integrated Nature Reserve, Natural Water Monument "Paraskiny Lakes") are located near the region's largest cities (Ukhta and Syktyvkar), which promotes the possibility of organizing recreation, celebrations and educating programs at the weekend. Un'inskii Integrated Nature Reserve is located in the buffer zone of the reserve, and the development of its business plan is focused on the redistribution of the flow of tourists visiting the nature reserve and on the simultaneous protection of natural resources. The analysis of actual financial costs involves identification of all the revenues that are spent on biodiversity conservation. This information becomes the basis for development of business plans, at that it is necessary to take into account that the funds allocated from the federal and regional budget to BZ and NP are spent on control and supervisory functions and on the inventory carried out in the last decade. Charitable funds and foreign grants are not a constant source of funding and they are generally used at the initial stage of implementation of business plans for establishing infrastructure (guest houses, summerhouses, parking lots, waste disposal, etc.). it is also necessary to take into account the fact that most of the districts in the region have programs for tourism development, according to which the funds are annually transferred to the organization of tourism, and in particular, to the support of SPNA (Ust-Vymsky, Knyazhpogostsky, Udorsky and other districts). Allocation of finance from different sources of funding of SPNA, for which business plans were developed, are presented in *table 3*.

Table 3. Sources of funding of SPNA

Sources of funding	BZ	NP	Beloborsky	Belyi	Un'inskii	Paraskiny Lakes
Federal budget	+	+				
Regional budget	+	+	+	+	+	+
Local budget		+				
UNDP/GEF projects	+	+	+	+	+	+
Foreign grants	+	+				
Charitable funds	+	+				
Own activity	+	+		+		

Due to underfunding, the management of SPNA is forced to rely on tourism as a source of income, but without a developed infrastructure (specifically designed to reduce environmental impact) the pressure on nature systems is critical and it causes their degradation; it is also the reason for irresponsible use of resources and nature conservation areas by external business entities.

The shortage of skilled workers, for which SPNA offers low remuneration and is no competitor in the labor market, is only a consequence. Due to the same reasons (SPNA does not develop local communities that are often detached from the labor market) the residents living close to SPNA and visitors are engaged in poaching. In this situation, we use the method of pre-selection of financial strategies (mechanisms), which is performed on the basis of data collected by means of interviews of the management and heads of SPNA, organization of round tables, questionnaire surveys of target groups, and reviews of reports of previous research (*figure*).

Preliminary selection of financial mechanisms

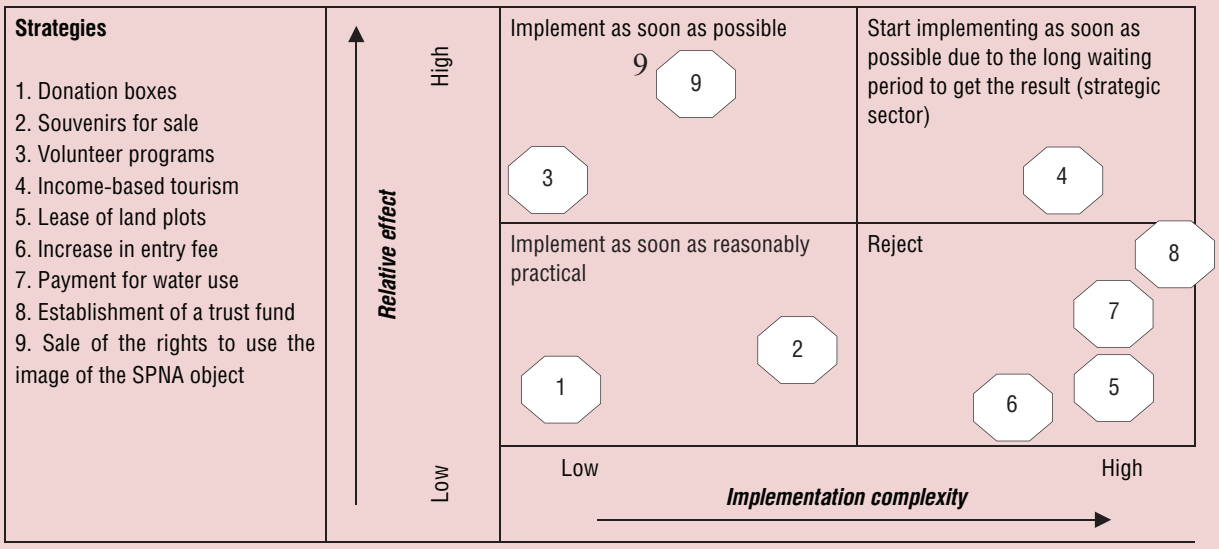

Table 4. Financial strategies of business plans for development of SPNA

Strategies	BZ	NP	Beloborsky	Belyi	Un'inskii	Paraskiny Lakes
Federal budget	+	+				
Regional budget			+	+		+
Local budget			+	+	+	+
Foreign grants	+	+	+	+	+	
Charitable funds	+	+	+	+	+	+
Tourism	+	+	+	+	+	+
Lease of territory and facilities		+	+	+		+
Images, printed products, promotional advertising	+	+				
Multimedia encyclopedia	+	+				
Visitor center		+	+	+		+
Contribution of volunteers			+	+		

Different financial strategies are defined depending on the specifics of business planning objects *(tab. 4)*.

So, the receipt of funds for "trademark" SPNA, apart from the receipts from tourism can be achieved through the creation of multimedia information sources, sales of printed images and advertising, installation of boxes for donations.

For "suburban" protected areas it is expedient to involve volunteers; to organize fishery production, processing of berries and mushrooms; to establish visitor centers with outreach activities.

Implementation of activities for conservation of biodiversity

The business plan of SPNA is a flexible financing tool of the programs for management of SPNA and their systems *(tab. 5)*.

According to the business plans, tourism services included: sports tourism (cycling, walking, skiing, kayaking, boating), family and corporate recreation, educational practices for students and schoolchildren, observations of animals and birds (video filming), celebrations of holidays and sporting events such as dog sledding, orienteering, paintball), amateur fishing, tourist routes through historical places.

The traditions of nature management are taken into account in the involvement of local communities in the programs for development of SPNA. For instance, it was envisaged that almost all protected areas had jobs for local residents in the sphere of tourist guidance, security, maintenance of guest houses, organization of leisure. A sociological survey of the population (504 people), who live near SPNA, shows that they are willing to cooperate in the field of maintenance, construction, manufacture of boats, souvenirs (56%). Thus, the respondents fall into the following categories: local rural population of Pechorsky District – 22%; local rural population of Vuktylsky District – 100%; local rural population of Troitsko-Pechorsky District – 68%; urban residents of the region – 52%; tourists from the region – 57%; representatives of local authorities of these districts – 50% [5]. The social factor is very important for socio-economic

Table 5. Programs of business plans for SPNA

Program	BZ	NP	Beloborsky	Belyi	Un'inskii	Paraskiny Lakes
Management and technical support	+	+	+	+	+	+
Security of the territory	+	+	+	+	+	+
Restoration of disturbed areas		+	+			
Scientific research	+	+	+	+	+	
Environmental education	+	+	+	+		+
Reorganization of security system	+	+	+			
Support of funding	+	+	+	+	+	+
Preservation of traditional lifestyles and culture of the population	+	+	+	+	+	+

Table 6. Information on the social factor in business planning of SPNA

	BZ	NP	Beloborsky	Belyi	Un'inskii	Paraskiny Lakes
Number of visitors, persons/year	1 900	4 840	17 000	8 100	100	1 000
Number of jobs, units	24	20	14	12	23	7

development of the region's territories; that is why the provision of jobs, equipment for protection of SPNA, control, and personal interest of the population in the sustainable use of resources should be included in the business plan on a mandatory basis *(tab. 6)* [9, 10, 11, 12, 14].

Evaluation of the results

The performance of activities is assessed from the perspective of ecological and economic efficiency, when a reduction in the quality or a degradation of natural systems cannot be compensated by investments in other types of capital. Thus, along with the implementation of business projects it is necessary to maintain or increase the value of natural resources and ecosystem services. It can be done in the most acceptable way through the implementation of control activity that monitors the use of natural resources and services and traces changes in natural sites. This helps to carry out a monitoring and comparative analysis of human-induced impact and an analysis of how natural environment reacts to this impact.

The combination of tourism and educational and scientific activities in the same territory should ensure the rational use of resources and monitor its changes. The state-financed institution of the Komi Republic the Center for SPNA under the Ministry of Natural Resources of the region should carry out external monitoring in the form of reports on paper and visits to the territories of natural sites on a quarterly basis. The head of protected SPNA exercises internal control in the form of reports.

Taking into account a short imple-mentation period (2–3 years) for business planning projects in the territory, only two nature sites (Pechora-Ilych Nature Reserve and Yugyd Va National Park) were subject to a survey.

Five hundred and four respondents participated in the sociological poll that was conducted among the local population of rural (15 villages) and urban communities (towns of Vuktyl, Inta and Pechora).

The following data were obtained: the level of accessibility for the population, opportunities for cooperation, and the role of protected areas in the socio-economic development of surrounding communities *(tab. 7)*. Despite the administrative and financial restrictions, 54% of all the respondents consider the protected areas accessible, and 32% considers them inaccessible. Access restrictions are explained by high costs of petroleum, oil and lubricants, equipment, poor condition of roads and tourist infrastructure. Willingness to cooperate is reflected to the same extent, especially for those residents who want to get a job. Local tourists are ready to make the greatest contribution to volunteering (20%), this accounts for 8% of the respondents on average [5].

The table shows that various positive effects due to the existence of SPNA greatly exceed the limitations experienced by local residents.

However, the activities aimed to attract residents who live near Pechora-Ilych Nature Reserve and Yugyd Va National Park, are not sufficient; as a result, the change in estimates of services is also insignificant. The projects for effective use of non-timber forest resources (organization of their processing on site) have not been implemented so far.

Table 7. Information about the interaction between local residents and SPNA

Categories of respondents	Contribution to the region's socio-economic development				Nature of interaction	
	Important for maintaining the quality of life, %	Promotes local economic development, %	Provides jobs, %	Hinders regional development, %	Restricts traditional activity, %	Restricts visiting, %
Rural residents of Pechorsky District (98 persons)	35	29	4	6	30	47
Rural residents of Vuktylsky District (8 persons)	100	no				
Urban residents (162 persons)	53	28	11	16	31	46
Rural residents of the settlement of Yaksha (39 persons)	62	36	31	no		28
Rural residents of Troitsko-Pechorsky District (25 persons)	52	44	40	no	12	36
Tourists in the region (60 persons)	50	40	10		30	53
Teachers and students (61 persons)	69	20	20		38	21
Heads of local authorities (40 persons)	50	53	23	3	18	45
Employees of SPNA (11 persons)	64	45	27	no	18	no
Total (504 persons)	**52**	**32**	**15**	**7**	**30**	**38**

Analysis and improvement of management directions

Analysis of improvement should concern all the directions of activity of SPNA – natural resources conservation, and financial and social indicators. Recreation and tourism generates financial receipts and provides employment for the local population; consequently, we carried out a sociological survey of residents in five municipal formations (Syktyvkar, Inta, Pechora, Usinsk and Ukhta) and seven municipal districts (Izhemsky, Ust-Vymsky, Ust-Kulomsky, Troitsko-Pechorsky, Knyazhpogostsky, Priluzsky and Koygorodsky).

Six hundred and four people have taken part in the survey; the number of urban residents is 83%. The number of young respondents (aged 20–25) prevails (42%), other age groups are represented equally on equity participation (aged 25–35 – 15%; aged 35–50 – 26%; aged 50 and more – 17%). The goal of the questionnaire survey was to identify preferences by type of recreation, services required and the amounts of eligible costs necessary for its arrangement. The analysis resulted in the following conclusions:

• residents of the region have good knowledge of SPNA and have extensive experience of visiting protected areas for recreation and tourism (56% of the respondents, of which 18% visit SPNA every year and more frequently; they visit protected areas for recreation (60%) and sports tourism (16%); only 8% of the respondents visit SPNA for business purposes);

• preferences for organizing recreation are divided into two categories – outside the region (41% of the respondents) and inside the region (53% of the respondents); at that, the rest of the latter is perceived as a desire of aesthetic pleasure and quietness;

• the most desirable services for the *weekend recreation* are as follows (arranged by decreasing importance): excursions, baths, fishing and sports equipment rental, organization of campsites;

• the list of the most important services for recreation in the form of *tourist routes* include: baths, organization of campsites, tourist routes guidance and sports equipment rental;

• hypothetical costs of the respondents for the organization of the *weekend recreation* are distributed evenly: up to one thousand rubles/person (22%); 1–2 thousand rubles/person (37%), 2–5 thousand rubles/person (30%);

• expenditures of the respondents on the organization of tourist recreation are classified as being 2–5 thousand rubles/person (35%) and 1–2 thousand rubles/person (29%).

• respondents suggested the following types of services as additional: organization of leisure for children, expansion of recreational areas with the provision of services for the whole family; winter sports – ice swimming, snowmobiling, dog sledding.

The majority of the respondents (87%) prefer recreation in the region and, at the same time, a more extensive recreation outside the region. The survey shows that the region's residents, particularly urban dwellers, find the weekend recreation (the cost of which amount to two thousand rubles/person) more preferable. A significant proportion of the respondents (30%), who

are ready to spend from two to five thousand rubles/person on the weekend recreation, taking into account the fact that they prefer family recreation, expect to receive good quality services. This type of holiday can arrange a flow rate of 200 thousand people per year, provided that the necessary range of services, especially related to children's leisure, is available. Leisure tourism, on the contrary, requires the maximum reduction of costs (five thousand rubles/person per route), provision of minimum services (bath, accompanying routes and sports equipment rental); at the same time, the annual flow of this category of tourists (residents of the region) may be 40 thousand people. It is necessary to create comfortable conditions for the recreation of regional residents, thereby providing employment for the population; to expand the scope of services and their quality; to form an image of "healthy recreation" especially for young people.

Another direction to improve the condition of SPNA can be the establishment of nature parks of traditional orientation. The most suitable nature sites and territories include Sebys' Integrated Reserve (Izhemsky District), Udorsky Integrated Reserve (Udorsky District) and an area of 25 hectares near the village of Eremeevo and the settlement of Priuralsky (Troitsko-Pechorsky District). Given the centuries-old experience of the inhabitants of these territories (reindeer herding, fishing and hunting of the Izhma-Komi and the Udorans – ethnographic groups of Komi people), their traditional way of life, skills, the diversity of natural resources (animals, birds, mushrooms and berries), the experience of organizing tourism, and various holidays, these areas can sustain themselves through the implementation of environmental and socio-economic development programs. An important step in this direction is the zoning of nature sites by spheres of activity and the limitation of resources extraction. Outside the specially protected areas it is suggested to organize cognitive, agricultural, event, hunting, fishing, environmental and sports tourism with special events to preserve fauna and flora.

These events can include: mandatory monitoring of resources, establishment of feeding sites, feeding troughs, forage fields and salt licks, etc. it is expedient to establish horse breeding in some nature reserves to minimize negative impacts on the environment. This can provide additional types of recreation such as horse riding and hiking. Employment for the local population can be provided through the development of fish farming, beekeeping, keeping game animals in open-air cages, etc. Thus, the organization of territories of traditional nature management will not only help to preserve biodiversity, but it will also improve economic condition of the local rural population and preserve the culture and traditional forms of nature management.

Reduction of funding is the most acute problem of biodiversity conservation in the Komi Republic. This is a system-wide, rather than a regional, problem; it indicates the need to change approaches to the management of SPNA. The accumulated management experience can be used not only for this region, but also for other areas with similar natural and socio-economic conditions.

References

1. Bobylev S.N., Solov'eva S.V., Stetsenko A.V., Kas'yanov P.V. *Kompleksnaya ekonomicheskaya otsenka lososevykh Kamchatki* [Comprehensive Economic Assessment of Salmon in Kamchatka]. Moscow: Prava cheloveka, 2008. 64 p.
2. Krasovskaya T.M. *Prirodopol'zovanie Severa Rossii* [Nature Management in the North of Russia]. Moscow: Izdatel'stvo LKI, 2008. 288 p.
3. Tishkov A.A. *Biosfernye funktsii prirodnykh sistem Rossii* [Biospheric Functions of Natural Systems in Russia]. Moscow: Nauka, 2005. 309 p.
4. Fomenko G.A., Fomenko M.A., Mikhailova A.V., Mikhailova T.R. *Ekonomicheskaya otsenka osobo okhranyaemykh prirodnykh territorii Kamchatki: prakticheskie rezul'taty i ikh znachenie dlya sokhraneniya bioraznoobraziya (na primere prirodnogo parka "Bystrinskii")* [Economic Assessment of Specially Protected Natural Areas of Kamchatka: Practical Results and Their Importance for Preservation of Biodiversity (Case Study of Bystrinsky Nature Park)]. Scientific editor G.A. Fomenko. Yaroslavl: ANO NIPI "Kadastr", 2010. 156 p.
5. Davydova N.V. Opros mestnykh zhitelei o vliyanii OOPT na sredu ikh obitaniya i deyatel'nost' [Survey of Local Residents concerning the Impact of Specially Protected Natural Areas on Their Environment and Activities].*Otchet po proektu PROON/GEF "Sokhranenie bioraznoobraziya pervichnykh lesov v raione verkhov'ev reki Pechora Respubliki Komi"* [Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"]. Syktyvkar, 2013. Available at: http:// www.undp-komi.org
6. Tikhonova T.V. Sotsial'no-ekonomicheskaya otsenka osobo okhranyaemykh prirodnykh territorii (na primere zakaznikov Respubliki Komi) [Socio-Economic Estimation of the Particularly Protected Natural Territories (by the Example of the Komi Republic Preserves)]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2011, no. 2 (14), pp. 144-157.
7. Tikhonova T.V. Strategiya razvitiya osobo okhranyaemykh prirodnykh territorii v tselyakh ispol'zovaniya i sokhraneniya bioresursov i ekosistemnykh uslug [Strategy of Protected Areas Development in Purposes of Using and Keeping Bioresources and Ecosystem Services]. *Ekonomika regiona* [Economy of the Region], 2012, no. 3 (31), pp. 150-160.
8. *Osobo okhranyaemye prirodnye territorii Respubliki Komi: itogi analiza probelov i perspektivy razvitiya* [Specially Protected Natural Areas of the Republic of Komi: the Results of the Gap Analysis and Prospects of Development]. Syktyvkar, 2011. 256 p.
9. Belykh A.V. Biznes-plan vodnogo pamyatnika prirody "Paras'kiny ozera" [Business Plan for the Natural Water Monument "Paraskiny Lakes"]. *Otchet po proektu PROON/GEF "Sokhranenie bioraznoobraziya pervichnykh lesov v raione verkhov'ev reki Pechora Respubliki Komi"* [Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"]. Syktyvkar, 2012. Available at: http:// www.undp-komi.org
10. Nosova E.S. Biznes-plan kompleksnogo zakaznika "Belyi" [Business Plan for Belyi Integrated Reserve]. *Otchet po proektu PROON/GEF "Sokhranenie bioraznoobraziya pervichnykh lesov v raione verkhov'ev reki Pechora Respubliki Komi"* [Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"]. Syktyvkar, 2013. Available at: http:// www.undp-komi.org
11. Tikhonova T.V. Biznes-plan razvitiya kompleksnogo zakaznika "Un'inskii" [Business Plan for the Development of Un'inskii Integrated Nature Reserve]. *Otchet po proektu PROON/GEF "Sokhranenie bioraznoobraziya pervichnykh lesov v raione verkhov'ev reki Pechora Respubliki Komi"* [Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"]. Syktyvkar, 2012. Available at: http:// www.undp-komi.org
12. Biznes-plan natsional'nogo parka "Yugyd va" [Business Plan for Yugyd Va National Park]. *Otchet po proektu PROON/GEF "Sokhranenie bioraznoobraziya pervichnykh lesov v raione verkhov'ev reki Pechora Respubliki Komi"* [Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"]. Vuktyl, 2011. Available at: http://www.undp-komi.org
13. Tikhonova T.V. Razvitie sistemy osobo okhranyaemykh prirodnykh territorii Respubliki Komi [Development of Protected Area System of the Komi Republic]. *Ekonomika regiona* [Economy of the Region], 2013, no. 3 (35), pp. 132-142

14. Biznes-plan Pechoro-Ilychskogo gosudarstvennogo prirodnogo biosfernogo zapovednika [Business Plan for Pechora-Ilych Nature Reserve]. *Otchet po proektu PROON/GEF "Sokhranenie bioraznoobraziya pervichnykh lesov v raione verkhov'ev reki Pechora Respubliki Komi"* [Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"]. Yaksha, 2010. Available at: http:// www.undp-komi.org
15. Zimina I.V. Biznes-plan kompleksnogo zakaznika "Beloborskii" [Business Plan for Beloborsky Integrated Nature Reserve]. *Otchet po proektu PROON/GEF "Sokhranenie bioraznoobraziya pervichnykh lesov v raione verkhov'ev reki Pechora Respubliki Komi"* [Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"]. Syktyvkar, 2012. Available at: http:// www.undp-komi.org

Cited works

1. Bobylev S.N., Solov'eva S.V., Stetsenko A.V., Kas'yanov P.V. *Comprehensive Economic Assessment of Salmon in Kamchatka*. Moscow: Prava cheloveka, 2008. 64 p.
2. Krasovskaya T.M. *Nature Management in the North of Russia*. Moscow: Izdatel'stvo LKI, 2008. 288 p.
3. Tishkov A.A. *Biospheric Functions of Natural Systems in Russia*. Moscow: Nauka, 2005. 309 p.
4. Fomenko G.A., Fomenko M.A., Mikhailova A.V., Mikhailova T.R. *Economic Assessment of Specially Protected Natural Areas of Kamchatka: Practical Results and Their Importance for Preservation of Biodiversity (Case Study of Bystrinsky Nature Park)*. Scientific editor G.A. Fomenko. Yaroslavl: ANO NIPI "Kadastr", 2010. 156 p.
5. Davydova N.V. Survey of Local Residents concerning the Impact of Specially Protected Natural Areas on Their Environment and Activities. *Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"*. Syktyvkar, 2013. Available at: http:// www.undp-komi.org
6. Tikhonova T.V. Socio-Economic Estimation of the Particularly Protected Natural Territories (by the Example of the Komi Republic Preserves). *Economic and Social Changes: Facts, Trends, Forecast,* 2011, no. 2 (14), pp. 144-157.
7. Tikhonova T.V. Strategy of Protected Areas Development in Purposes of Using and Keeping Bioresources and Ecosystem Services. *Economy of the Region*, 2012, no. 3 (31), pp. 150-160.
8. *Specially Protected Natural Areas of the Republic of Komi: the Results of the Gap Analysis and Prospects of Development*. Syktyvkar, 2011. 256 p.
9. Belykh A.V. Business Plan for the Natural Water Monument "Paraskiny Lakes". *Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"*. Syktyvkar, 2012. Available at: http:// www.undp-komi.org
10. Nosova E.S. Business Plan for Belyi Integrated Reserve. *Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"*. Syktyvkar, 2013. Available at: http:// www.undp-komi.org
11. Tikhonova T.V. Business Plan for the Development of Un'inskii Integrated Nature Reserve. *Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"*. Syktyvkar, 2012. Available at: http:// www.undp-komi.org
12. Business Plan for Yugyd Va National Park. *Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"*. Vuktyl, 2011. Available at: http://www.undp-komi.org
13. Tikhonova T.V. Development of Protected Area System of the Komi Republic. *Economy of the Region*, 2013, no. 3 (35), pp. 132-142
14. Business Plan for Pechora-Ilych Nature Reserve. *Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"*. Yaksha, 2010. Available at: http:// www.undp-komi.org
15. Zimina I.V. Business Plan for Beloborsky Integrated Nature Reserve. *Report on the UNDP/GEF/EU Project "Conservation of Virgin Forest Biodiversity in the Pechora River Headwaters Region"*. Syktyvkar, 2012. Available at: http:// www.undp-komi.org

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Analysis and adoption of the experience of the global food system diversification in the Republic of Belarus

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Abstract. The article considers the main trends in the diversification of the global food system. The author proves that at the present time the dynamic development and globalization in the modern world economy require diversification of Belarusian agro-food complex in order to achieve its independence from crises, reduce risks of the external environment uncertainty, unforeseen circumstances (export embargoes and restrictions) and changes in consumer preferences and, ultimately, boost competitiveness and strengthen economic immunity and stability.

At the same time, the pressure of the abundant food supply in the world market segments, ensured by consumer demand, makes the manufacturers follow the principle "from fork to farm". Thus, it is consumers' preferences that are often drivers of contradictory and competing shifts in the transformation of food systems. The survey shows that two opposite driving forces – the consumers' desire for ready-to-use food products with the deep level of processing and the growing elite interest in the natural healthy diet – determine the progressive development of productive forces in the agricultural complex in the direction of innovative search of diverse, adapted to consumer demand, high-tech schemes of production, processing and distribution of food.

The classification of main consumer types helps substantiate the priority to develop new types of product subcomplexes. The ecological forms of agriculture have significant export potential and import substitution reserves in the Republic of Belarus and the Eurasian Economic Union as a whole. The author proposes a "road map" for the diversification of food production on the basis of organic (environmentally friendly)

agriculture. Its innovation is scientifically justified by the state large-scale economic, managerial and technological measures to develop a highly efficient organic sector of agricultural production in the republic.

Key words: diversification, food system, consumer demand, food.

The dynamic development and globalization in the modern world economy require diversification of the national agro-food system in order to achieve its independence from crises, reduce risks of the external environment uncertainty, unforeseen circumstances (export embargoes and restrictions) and changes in consumer preferences and, ultimately, boost competitiveness and strengthen economic immunity and stability of the Belarusian agro-food complex. The above circumstances substantiate **the goal of the conducted work**, which is to study the evolution and identify megatrends in the diversification of the global food system for the scientific justification of new principles and directions of best practices adoption in the Republic of Belarus.

Food export is an essential element of agricultural policy of the Republic of Belarus; assessing the foreign economic activity of the country's agricultural complex in terms of food supplies according to the global market requirements we can note that the work results have exceeded the limit of 5 billion U.S. dollars export revenues, with the trade surplus in this group of goods.

According to rational norms of consumption of own population, the Belarusian food reserves can satisfy the annual demand of more than 60% of the population of Moscow in meat products, almost 80% – in dairy products and can meet the needs of the Russian capital residents sure for a year and a half.

Nowadays, however, the range of the most significant manufactured and exported food products are limited. The analysis of the data provided by Food and Agriculture Organization of the United Nations (FAO) indicates that the production of milk, beef and pork has accounted for 65% of the monetary value of agricultural production in Belarus. Of the 20 leading export positions 95% accounts for meat and dairy and refined sugar (82% and 13%, respectively). Due to the threatening dominance of low-margin dairy products, fresh chilled or frozen meat (carcasses, half-carcasses and cuts) that amount to 59.5% of the export, it is concentrated in the product areas that do not provide access to the global markets characterized by a high added value of the products [14].

Therefore, the search and adoption of promising directions of agroindustrial complex development are critical for boosting the competitiveness of the Belarusian economy in general.

Forming the information society, information becomes a separate element of the productive forces and its impact on economic decisions and the creation of innovative management algorithms is one of the strategic factors of effective progressive development.

Thus, **the analysis of the main directions of global food market diversification is relevant and very important.**

The population needs are sources and drivers of the development of the agrofood industry as the economy sector aimed at final consumption of the society. The change in these requirements presupposes the appearance of new forms of labor social division that boost material production through the development of productive forces. New types of labor are created.

During the previous millennia the way of food production was distinguished by the significant degree of conservatism: food was traditionally produced, sold and consumed at the local scale (in fact – within "walking" distance). Today, despite the fact that there are still local markets for the products produced in the traditional way, only for the last few decades the overall picture of food production and consumption has drastically changed in favor of a large variety of the so-called "international" products. This is particularly noticeable in the developed countries, where the society has raised food availability through industrial production, as well as regional and international food trade. Nowadays food and health, safety, stability, comfort, individualism, healthy ageing and authenticity, etc. want the national food systems to be flexible.

The transformation process has covered the global food market, and the subsequent changes are having an increasing impact on the stages of production, processing, packing, distribution, exchange and consumption of food, i.e. on all stages of the food chain.

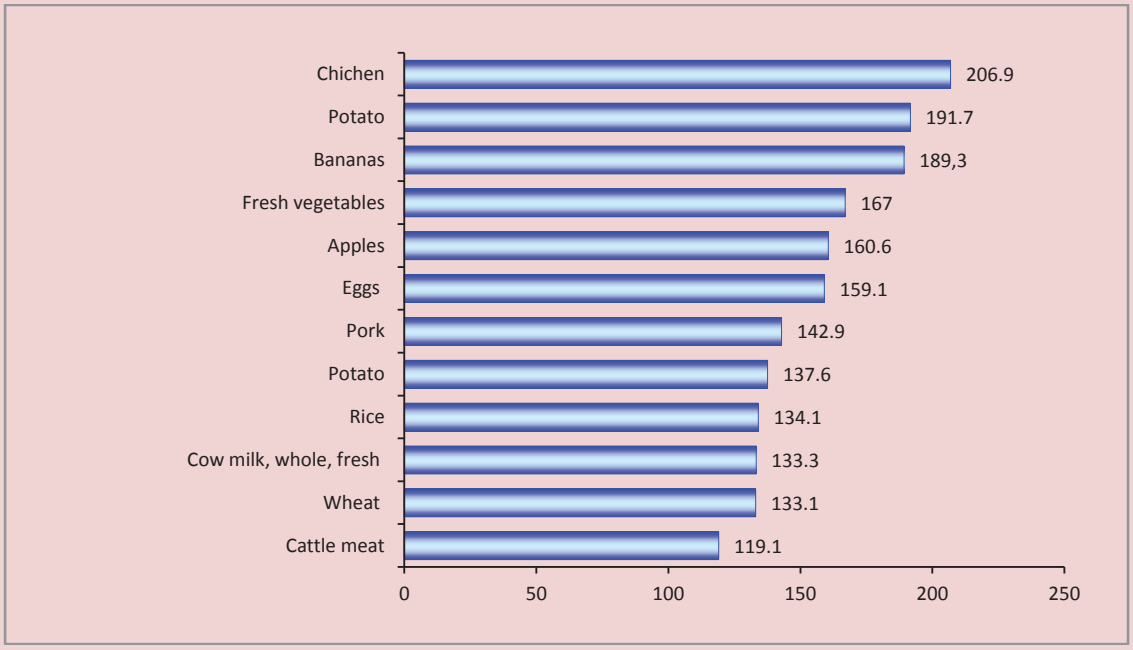
Since the modern agricultural production is one of the most complex of production and economic systems, the binder in the whole economic activities of the so-called cycle "from farm to fork", then presents a comprehensive picture of the evolution of the world food system as the quintessence of scientific works of domestic and foreign scientists, and practices relevant research institutions dealing with problems of the functioning of the individual stages of the food chain.

Food consumption. Although consumption is a final stage in the food system, the pressure of the abundant food supply in the world market segments, ensured by *solvent* consumer demand, makes the manufacturers follow the principle "from fork to farm". Thus, it is consumers' preferences that are often drivers of contradictory and competing shifts in the transformation of food systems.

1. The changes in the balance of food consumed. For example, according to FAO, the developed countries are decreasing the consumption of potatoes, milk and red meat, at the same time, increasing the consumption of fruit, vegetables, pork, poultry, fish and seafood. It influences the world production of the most important food commodities and agricultural raw materials (*fig. 1*).

At the same time, the rapidly developing countries are characterized by the change of the predominant share of grain crops to diary (India) and meat (China) products. According to the forecasts (Steinfeld and others, 2006), the global demand for foods of animal origin in 2000–2050 is expected to double [13].

Figure 1. Dynamics of the world production of the most important food commodities and agricultural raw materials, 2011 to 1994 in %

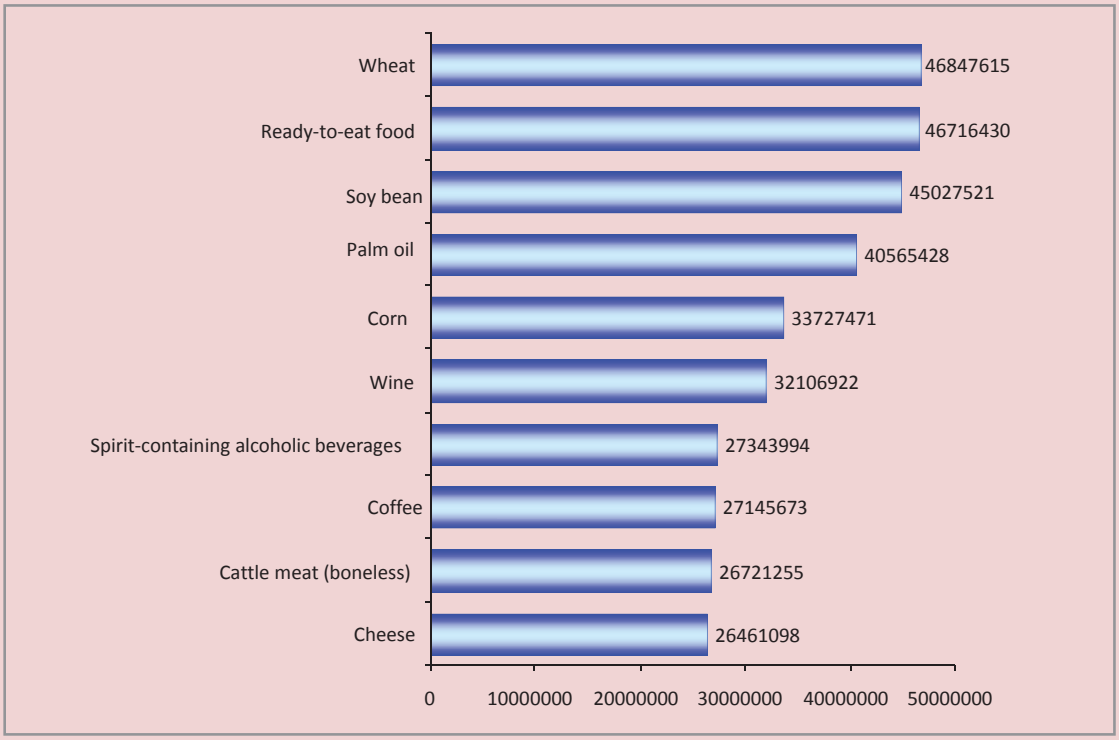


Note. Compiled with the use of the FAOSTAT data [14].

2. The increase in the living standard, change in the lifestyle and demographic situation, growth in the number of working hours among employed population and the share of employed women, availability of the variety of refrigeration equipment for households, etc. These factors cause a decrease in the demand for fresh products and a simultaneous increase in the demand for semi-manufactured, processed (frozen or chilled) and ready-to-eat products; the preference of the advertised diet with the qualities more associated with marketing, cinema, TV, culture stars than the special nutritional properties; an increase in "snacking", leading to the expansion of the types of feeding points, especially points of impulse purchases (service stations and vending machines appear in addition to small food shops and stalls); and finally, eating out accounts for a significant share of consumption (Michaelis and Lorek, 2004). As a result, the culinary products category, including ready-to-use food products and basic culinary products, consistently holds a leading position in the monetary value of world food trade (*fig. 2*).

3. The increased awareness of risks along with the social concerns associated with consumption (body weight, energy balance disorder, eating out of habit, unbalanced diet); the attention paid to the environment and

Figure 2. Top 10 most important export commodities of the world, 2011



Note. Compiled by the FAOSTAT data [14].

ethics issues (including animal protection, working conditions, child labor, conditions of trade). This involves the development of a diametrically opposite trend – the growing interest in healthy eating, the increasing demand for organic, vegetarian products, products without artificial additives, as well as products purchased in accordance with the fair trade principles [5; 6; 10]. According to the International Federation of Organic Agriculture Movements, 162 countries around the world are actively involved in organic agriculture along with traditional agriculture, and the volume of certified organic products is annually growing by 20–30% (*tab. 1*).

Nowadays, in this segment of the global food market supply is lagging behind rapidly growing demand; and according to the international experts, the global market for organic products in 2020 will amount to 200–250 billion U.S. dollars.

In accordance with the considered socio-economic trends we suggest the following basic segmentation of key consumer types, which satisfaction should be aimed at the activity of the agro-food complex:

– a consumer who cares about health, prefers fresh products to maintain a healthy lifestyle: for example, low-fat food that is low in fat and rich in vitamins and minerals;

Table 1. World organic production: key indicators and leading countries

Indicator	Value	Country-leaders
Organic products market volume	2011: 62.9 billion U.S. dollars 2000: 15.2 billion U.S. dollars	2011: USA: 29 billion U.S. dollars Germany: 6.6 billion euros France: 3.7 billion euros
Countries, certified for organic agriculture	2011: 162 countries 2000: 86 countries	
Organic agricultural land	2011: 37.2 million hectares 1999: 11 million hectares	Australia: 12 million hectares (2009) Argentina: 3.8 million hectares USA: 1.9 million hectares (2008)
Note. Compiled by the data [11].		

– a consumers who cares about the environment, prefers raw (fresh) products or products with short supply chains, products of organic agriculture;

– a consumer who loves nature and animals, is interested in methods of primary production, concerned about genetic modification, considers animal protection an important issue, focuses on ethical efficiency of production systems;

– a consumer who appreciates convenience, prefers snacks, fast food .... take-away, ready-to-eat food, easy-to-prepare food, restaurant food;

– a consumer who focuses on the optimal ratio of price and quality (for example, products of mass production, cheap semi-finished products);

– a consumer-hedonist who prefers exotic specialties, delicacies, products with value-added, food as entertainment and leisure, restaurant food, high organoleptic quality food;

– a consumer who looks for variety and likes the variety of semi-finished products, components and finished products for home cooking and the variety of types of food (from carefully prepared gourmet homemade food to a good somewhere else) [11; 12].

Of course, none of the consumers follows the pattern absolutely, for example, on weekdays convenience can prevail, while at the weekend – interest in gourmet food or care about a healthy lifestyle. At the same time, this classification helps define key areas of demand diversification and new promising types of work in the sphere of domestic production of food raw materials and finished food products.

The development of productive forces and the resulting changes in the specific structure of food products is advisable to consider in accordance with the stages of the food chain. Let us consider the main stages of the agro-technological evolution in historical retrospect (*fig. 3*).

Production of food raw materials and primary food products. Natural fertilizers (substances of organic origin) were already used in ancient China, and recommendations for their use were reflected in the work of Cato "On agriculture" (Rome, 2nd century BC).

However, for thousands of years this area had been characterized by the sufficient degree of technological conservatism – before the use of chemical fertilizers in the 19th century [5]. As for the permanent

Figure 3. Historical retrospective of the main stages of agrotechnological evolution

process of agro-technological shifts (agrochemical, transgenic, information), it entered the most active phase in 1940–1970 (*fig. 4*) and since the beginning of "green revolution" it has been developing in the form of integrated management results in the chain of systemic factors of agricultural production (new plant varieties and animal breeds – nutrients – protection from pests and diseases – harvest) [1].

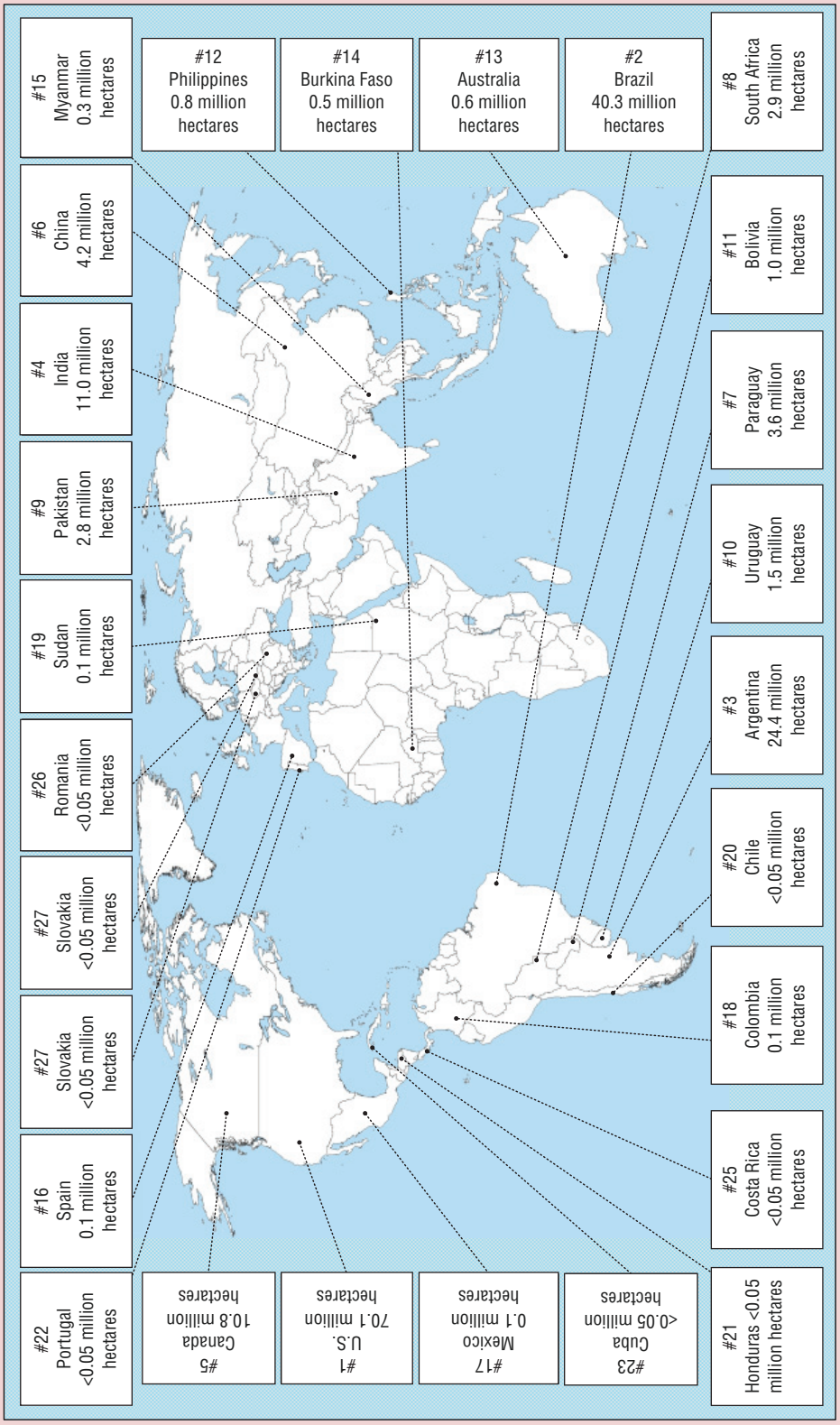


Figure 4. Total area of genetically modified crops in different countries of the world, 2013, million hectares

Note. Compiled by [9].

On the one hand, the development of productive forces by means of high technology has determined a sharp leap in the efficiency of traditional (conventional) agricultural production by increasing the productivity of agricultural plants.

The increased production of wheat, rice and maize and the proportional reduction in prices have not only caused an increase in their direct consumption, but also expansion of forage reserves and rise in livestock productivity (trend called as "meat revolution").

Today according to the leading Belarusian-Russian scientist in the field of post-industrial development V. Inozemtsev, *"the post-industrial world enters the 21st century as a quite autonomous social formation that monitors the world production of technology and sophisticated high-tech products, it provides itself with industrial and agricultural products, is relatively independent of supplies of energy and raw materials"* [3].

It is intellect-generated knowledge and its embodiment at the level of productive forces development that allows the post-industrial world leaders to go far beyond the productivity growth in agriculture and the scope of self-sufficiency with regard to the agrarian sector.

The implementation of the National Export Initiative (NEI) of the U.S. Administration has led to the 4 billion U.S. dollar increase in food and agricultural commodities export by 2012. It is a record figure that amounts to 145 billion U.S. dollars. USA ranks the 1st in the world ranking of the top ten exporters of wheat first (*tab. 2*).

In this group of leaders the well-developed economies of France and Germany hold a strong position; for example, in France grain crop productivity is twentyfold and labor productivity per person employed in agriculture hundredfold higher than in Botswana (3.6 centner per hectare and 762 U.S. dollars, respectively).

Table 2. Indicators of agricultural activities in some countries

Country	Share of the employed in agriculture in the total employment, 2009–2012, %	Value added per employee in agriculture, 2009–2012, U.S. dollars	Wheat export, 2012, tons	Monetary value of wheat export, 2012, thousand U.S. dollars	Grain yield, 2012, kg/ha
USA	2	49817	32789893	11134659	59
France	3	76586	20345934	6738299	75
Australia	3	53777	17657181	5709036	22
Canada	N/a	59818	16335086	5742111	35
Russia	10	5969	15185953	3671176	19
Argentina	1	N/a	8411136	2508660	48
Germany	2	32087	6168890	1981035	69
Ukraine	17	4375	4097309	1070292	32
Kazakhstan	26	3533	2891482	609419	10
Brazil	15	5035	2350720	699110	46

Note. Compiled by the World Bank data [4].

On the other hand, intensification of the avalanche-type and often uncontrolled use of chemical-synthetic fertilizers and means of protection, concentration of animal breeding in the industrial-type complexes, increased waste produced by the food industry, unpredictability of the GMO-organisms' impact on the environment and animals and genetically modified food on humans have caused public concerns about degradation of the environment and people's health [8].

The historical retrospective shows that since the early 1990s the process of the integration of intensive industrial and biological methods and the ecologization of agricultural production due to the growth of knowledge-intensive high-performance organic agricultural technology has been developing, in particular, by means of replacing the chemical synthetic agents by environmentally friendly biological products (see fig. 4). Thus, diversification in the production of food raw materials and primary food products has mainly affected the development of agricultural technology.

At the same time, despite the fact that the composition of the main species (enlarged groups) of agriculture products has not undergone significant changes, the development of breeding and genetic methods (selection for heterosis based on the use of inbreeding and outbreeding, creation of directed mutations methods, etc.) has contributed to the emergence of new varieties of agricultural crops (including well-known cross-breeds and hybrids of fruits and vegetables obtained due to interspecific crosses of plants: nectarine, tangerine, neshi, pluot, broccolini, yuzu, jostaberry, etc.), as well as to new forms of animals – breeds, types, lines, crosses with new desired properties (mule is the most famous example of the heterosis use for practical purposes; it is a cross of horse (Equus caballus) with donkey (Equus asinus) [2].

Processing of food raw materials and primary food products. Nowadays the developed countries produce food mainly industrially: about 80–90% of food raw materials undergo some degree of processing; the scientific approaches are replaced by traditional methods (although still there are traditional roots of many processes) to address the following problems in food production:

– best possible use of raw materials so that food ingredients and finished products can meet the consumers' requirements for high quality;

– efficient use of water and energy resources, packing and other materials (processing aids, etc.) required for processing;

– processing methods that are reliable and meet the consumers' perception, social and cultural values;

– economic performance of sustainable recycling schemes.

In the sphere of processing the principle "from fork to farm" is applied in "reverse engineering" and at the present time new system approaches to food industry engineering systems are developing. The areas of interdisciplinary research are based on the study of genetic, physiological,

psychological and behavioral factors, knowledge and concepts borrowed from physics, chemistry, mathematics and informatics.

For example, innovative solutions are used in high technology molecular gastronomy – a direction that represents cooking as a symbiosis of chemical and physical processes. The key phrases to describe the requirements to the modern refining process are the following: "just in time", "in the right place", "in accordance with the requirements", "for a specific person", "in accordance with the principle of sustainability". The challenge is how to produce meals that are rich in fiber and minerals, low in salt and "bad fats", do not have allergens, but have high organoleptic parameters and value for money that satisfies the consumer's needs. This requires a number of studies aimed at diversifying production technology and a range of foodstuff in the direction of:

– more fresh products with characteristics similar to the properties of the ingredients they are made of;

– functional foods with specific properties based on new bioprocessing processes;

– convenient, ready-to-eat dishes, together forming an extensive menu through the diversification of supply in retail trade and public catering;

– flexible, small-scale, locally applicable (even for cooking at home) processing forms that, at the same time, ensure decent working conditions (ergonomics, health and safety);

– operative screening and analytical monitoring of the production (processing options, hygiene, etc.) in order to ensure food safety.

To develop innovation technologies for ready-to-eat and healthy food production and simultaneously meet the demand of different consumer groups it is necessary to search for optimal soft recycling schemes, boost bioprocessing, microengineering, which main directions are grouped in *table 3*.

We should emphasize the priority to minimize food and non-food waste when producing and consuming foodstuff and reduce emissions into the atmosphere, waste water and energy consumption (*fig. 5*).

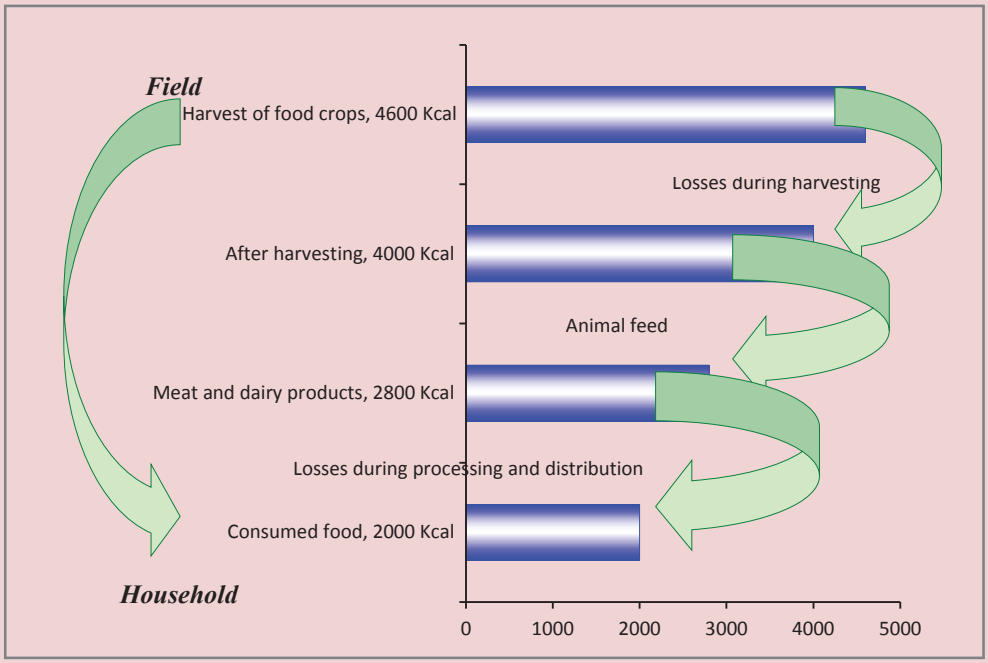
The reduction of losses and efficient valorization of wastes is one of the defining strategic reserves to accumulate food resources without increasing the load on the environment. For example, waste in the United States makes 40% of the total amount of produced foods, which at an annual rate totals 48.3 billion U.S. dollars and is commensurate with the cost of 350 million barrels of oil and 40 trillion liters of water [5; 13].

The researchers estimate that the scale of losses and waste in the entire chain of production and consumption are the following: for cattle meat – 40–52%, cheese – 85–90; juices from fruits and vegetables – 30–50; potato starch – 80; sugar from sugar beets – 86; vegetable oil – 40–70; canned fish products – 30–65, smoked, salted or dried fish – 50–75%.

Table 3. Classification of innovative solutions in food production technologies

Technology	Process type
Preservation by means of heat treatment	High-temperature processing
	Ohmic heating
	Infrared heating
	Microwave heating
	Preliminary low-temperature processing
Preservation by means of non-thermal methods	High pressure
	Electrical impulses of high frequency
	Undulating light processing
	Radiation exposure
	Ultrasonic treatment
	Drying, dehydration
	Packing in glass containers
Preservation by means of cold	Fast freezing
Film technology with minimal processing	Combination of storage technologies
Packing	Sterile packing
	Packing in modified and controlled atmosphere
Fermentation	Continuous processes
	Fermentation of solid surface layer
Division	Membrane synthesis
	Chromatographic synthesis
	Organic-chemical synthesis
	Ultradeep liquid extraction
	Modified trace elements
Production of ready-to-eat products	Extrusion
	Beating / emulsions
	Separation

Figure 5. Amount of losses in the food chain, kilocalorie per capita per day



Note. Compiled by [7].

Packing. According to manufacturers, packing rather prevents losses than causes them (INCPEN, 2005); therefore, contrary to a popular opinion about the need to reduce the amount of packing materials there is an increase in their use (for example, in the UK 50% of all packing materials are used in food industry), which is followed by the diversification of the packing process in order to ensure its multi-functionality:

1. Standardization of processing and distribution. Nowadays packing is applied for standardization of production lines and simplification of logistics systems (for example, along with the primary packing secondary packing is used for easy transportation of goods by pallets).

2. Protection. Packing helps minimize damage to the transported goods and losses.

3. Safety and health of consumers. Packing enhances food safety and protects against biological and other types of pollution.

4. Shelf life. Packing extends shelf life and helps preserve the natural structure of products (for example, controlled packing atmosphere is used to improve the appearance of products).

5. Marketing, information and branding. Packing plays a key role in increasing the attractiveness of products, is used for communication with the consumer to transfer the nutrition information, time, the method of delivery, etc., (for example,

in British retail, particularly in the network Marks&Spencer and Tesco, marking of the products delivered by air by means of a special logo highlights their freshness).

6. Speed of preparation. Packing can be used in order to reduce the time of cooking, especially when products can be just warmed up in the microwave (oven).

Distribution and exchange of food products. Nowadays the transportation of food amounts to more than 20% of the global road freight considered in tons of the transported products and 27% in t/km. The changes in distribution have helped diversify the range of food products in individual regional market segments due to the delivery of food that does not grow (or is not produced) in the area.

At the same time, at the present time the transportation distance, the method and some its stages are also significantly diversified and defined by the following features of the separate supply chain.

• On the one hand, the rise in the degree of food products processing and packing, as well as the demand for year-round supply of certain products instead of seasonal production have led to a greater number of links in the food supply chain and longer transportation distances. The products purchased by major retailers by means of global supply chains can be imported from far-located places (for example, meat and dairy products from New Zealand overcome about 18000 km to reach the European continent). In addition to the stage of transportation from the place (country) of origin to the place of destination the large retail chains add a few more stages in the country of origin and/or destination to streamline logistics and inventory control, thus increasing the number of delivery stages and distance even for locally produced products. Some food supply chain are quite illogical at first glance (for example, the company producing sandwiches in Derbyshire has the plant located a few hundred meters from a shop of the large supermarket chain but it supplies its products to the retail delivery center of this chain located at the distance of more 100 km).

• On the other hand, the consumers who adhere to the principle "know your farmer, know your food" become more interested in locally produced products, which are sold at farms, nearest markets or directly delivered to ultimate consumers. It reduces the number of delivery stages and transportation distances (typically less than 50 km).

Thus, the study reveals the main trends in the global food system development at each stage of production, processing, packing, distribution, exchange and consumption of food, that is, at all stages of the food chain. It states that two opposite driving forces – *consumers' desire for ready-made food with the deep level of processing and growing elite interest in a healthy diet* – determine the development of productive forces in the agricultural complex in the direction of innovative search for various knowledge-intensive schemes of food production, processing and distribution that satisfy the consumers' demand.

Current schemes are based on NBIC technologies (convergence of nano-, bio-, informational and cognitive technologies), comprising the in-depth research in biologically active substances, chemical composition, innovative manufacturing and nanotechnologies and molecular nutrition, studying the relationship between nutrition and human health.

Classification of main consumer types substantiates the demand for new types of product subcomplexes, among which the ecological forms of agriculture have a significant export potential and reserves for the Belarusian market development. So, the author's proposals (EEU) are significant for the Republic of Belarus and for all existing and potential members of the Eurasian Economic Union.

Insufficient manufacture of certified environmentally friendly (organic) products on the territory of the EEU gives great possibilities for organic technologies to enter this segment of the world market, because the entry barriers are quite low, the competition is still relatively weak and the performance can be characterized by high rates of return.

In particular, the large capacity of the Russian food market with a deservedly high reputation of the Belarusian food products and the changed preferences of urban well-to-do population in the field of healthy nutrition and healthy lifestyle give grounds to speak about the potential success of diversification of agricultural production in Belarus in the sphere of organic technologies.

Taking into account the accumulated international experience, the government should focus on ecologization of the domestic food production complex, particularly on the implementation of two directions.

– First, for organic production, aimed at the internal market development, it is advisable to create a layer of small entrepreneurs. To achieve it the state should focus on informing the population about benefits of organic products, creating small farms that have extensive infrastructure of certification support, ensuring the products delivery to consumers. In addition, the development of small farms requires the allocation of regular government subsidies during the transformation period. At the same time, the problem of high financial and time costs can be addressed quite effectively if there is strong demand in the form of state order in the system of health-promoting, agro-and ecotourism, preschool upbringing and education (school meals), health care (feeding in the system of stationary institutions of health care), etc. However, a number of farms de facto manage their activity according to the basic principles of organic production that will minimize the amount of state preferences.

– *Second*, export-oriented organic production is managed by creation of a small number of large-scale organic farms. To form a competitive export sector the certification should comply with the international standards of potential markets, the network of strong players from existing traditional manufacturers should be created rapidly.

As a result of the conducted research we propose a "road map" for diversification of food production on the basis of organic (environmentally safe) agriculture. Its innovation and relevance lies in the scientific justification of the large-scale complex of economic, managerial and technological activities of the state level to develop a highly efficient organic sector of agricultural production:

1. Legislative and regulatory support for the development of organic production in order to ensure fair competition and proper functioning of the internal market for organic products, as well as maintain and justify consumers' trust in products labeled as organic. This regulation should be aimed at ensuring the conditions under which this sector can develop simultaneously with the development of normal production and market by means of adoption of the law "On organic production" in Belarus and implementation of basic agro-ecological requirements and standards, consistent with the requirements and regulation of organic production in the EU.

2. Creation of the system of incentives and financial assistance for organic production on the basis of improvement of tax policy in terms of its application to the participants of organic production; optimization of state support for the development of rural areas and agriculture in compliance with the WTO; support for the implementation of regional investment projects aimed at applying the methods of organic production.

3. Scientific and advisory support for the development of organic production in the form of state support and restructuring of agricultural science and education, teaching the rural population to conduct organic production, training specialists in the field of organic production according to the state order, expansion of research in organic production; creation of organic production subsystems in the unified information system of the agroindustrial complex; development of agricultural services to spread global and domestic best practices of organic production management.

4. Development of land relations and management forms by means of the improved system of state management of land resources, in particular in the zones of sanitary protection of water bodies; promotion of withdrawal of degraded, underproductive and polluted urban agricultural land from intensive use; provision of sustainable functioning of drainage systems and effective use of reclaimed lands; protection and reproduction of soil fertility, in particular, through the use of soil conservation technologies; formation of the ecological network as an effective mechanism to preservation landscape biodiversity.

5. Development of the production sphere through the state support for competitiveness of national organic agricultural products; implementation of scientifically-based systems for organic agricultural production management; state support for the production of organic fertilizers; state support for the production of biological means of plants and animals protection; introduction of energy-saving technologies.

6. Development of the agricultural market through the formation of the domestic market for organic certified products; enhancement of the marketing of organic products; promotion of export activities of the organic products manufacturers and expansion of the state support for external marketing; improvement of the agricultural and environmental image of the Republic of Belarus.

7. Enhancement of the safety and food quality through better consumer protection due to the improved state control over the quality and safety of organic food products, compliance of the national standards with international standards; implementation of the national system of certification; marking organic agricultural products and food products; expansion of the production of organic food, particularly, of child nutrition; conservation of the in agricultural production zones that are free from the use of genetically modified organisms.

In conclusion it should be emphasized that in the Republic of Belarus the achievement of average parameters of the organic sector share (5–10%) with large volumes of food production and export in the absolute value can be a significant resource of currency receipts into the country's economy. This potential increases significantly if the government seeks to achieve a 30% threshold of organic agriculture, set by the EU.

References

1. Gusakov V.G. *Voprosy rynochnogo razvitiya APK. Knigi 1-2* [Issues of Market Development of Agriculture. Books 1–2]. Minsk, 2013.
2. Il'ev F.V. *Inbriding i geterozis v selektsii sel'skokhozyaistvennykh zhivotnykh* [Inbreeding and Heterosis in Breeding Farm Animals]. Kishinev: Kartya Moldovenyaska, 1987. 182 p.
3. Inozemtsev V.L. *Sovremennoe postindustrial'noe obshchestvo* [Modern Post-Industrial Society]. Available at: http://ru.scribd.com/doc/12982954/. Accessed March 25, 2014
4. Cato M.P. *Zemledelie* [On Agriculture]. Moscow, Leningrad, 1950, pp. 8, 9, 11, 12.
5. *Navstrechu "zelenoi" ekonomike: puti k ustoichivomu razvitiyu i iskoreneniyu bednosti: obobshchayushchii doklad dlya predstavitelei vlastnykh struktur* [Towards Green Economy: Ways to Sustainable Development and Poverty Eradication: Summorizing Report for the Representatives of Power Structures]. UNEP, 2011. 45 p.
6. Nikitenko P.G., Solodovnikov S.Yu. *Sotsial'no-ekonomicheskie sistemy Belarusi i Rossii: evolyutsiya i perspektivy* [Socio-Economic Systems of Belarus and Russia: Evolution and Prospects]. Minsk: Belaruskaya navuka, 2008.
7. Agriculture & Rural Development. *The World Bank*. Available at: http://data.worldbank.org/topic/agriculture-and-rural-development. Accessed March 24, 2014
8. *Childhood Pesticide Poisoning, Information for Advocacy and Action. UNEP Chemicals* (2004). Available at: http://www.chem.unep.ch/Publications/pdf/pestpoisoning.pdf. Accessed March 3, 2012.
9. *Executive Summary: Global Status of Commercialized Biotech/GM Crops: 2013 - ISAAA Brief 46-2013.* Available at: http://www.bioportfolio.com/news/article/1819146/Executive-Summary-Global-Status-of-Commercialized-Biotech-GM-Crops-2013-ISAAA-Brief.html. Accessed March 24, 2014.
10. *Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Working Group III Report: Mitigation of Climate Change*. IPCC, 2007. 205 p.

11. *Organic Agriculture Worldwide: Key Results from the Survey on Organic Agriculture Worldwide 2010–2013*. Available at: http://www.organic-world.net/yearbook-2012-presentations.html. Accessed March 4, 2012.
12. Schaack D. *News about the Organic Market in Germany 2011* Available at: http://www.organic-world.net/fileadmin/documents/yearbook/2012/2012-02-16/schaack-120216_Bio_UmsatzDE_engl.pdf. Accessed March 4, 2012.
13. *The Environmental Food Crisis*. UNEP, 2009. Available at: http://www.grida.no/_res/site/file/publications/FoodCrisis_lores.pdf. Accessed August 25, 2014.
14. *The Statistics Division of the FAO*. Available at:: http://faostat.fao.org/site/291/default.aspx. Accessed March 4, 2012.

Cited works

1. Gusakov V.G. *Issues of Market Development of Agriculture. Books 1–2*. Minsk, 2013.
2. Il'ev F.V. *Inbreeding and Heterosis in Breeding Farm Animals*. Kishinev: Kartya Moldovenyaska, 1987. 182 p.
3. Inozemtsev V.L. *Modern Post-Industrial Society*. Available at: http://ru.scribd.com/doc/12982954/. Accessed March 25, 2014
4. Cato M.P. *On Agriculture*. Moscow, Leningrad, 1950, pp. 8, 9, 11, 12.
5. *Towards Green Economy: Ways to Sustainable Development and Poverty Eradication: Summorizing Report for the Representatives of Power Structures*. UNEP, 2011. 45 p.
6. Nikitenko P.G., Solodovnikov S.Yu. *Socio-Economic Systems of Belarus and Russia: Evolution and Prospects*. Minsk: Belaruskaya navuka, 2008.
7. Agriculture & Rural Development. *The World Bank*. Available at: http://data.worldbank.org/topic/agriculture-and-rural-development. Accessed March 24, 2014
8. *Childhood Pesticide Poisoning, Information for Advocacy and Action. UNEP Chemicals* (2004). Available at: http://www.chem.unep.ch/Publications/pdf/pestpoisoning.pdf. Accessed March 3, 2012.
9. *Executive Summary: Global Status of Commercialized Biotech/GM Crops: 2013 - ISAAA Brief 46-2013*. Available at: http://www.bioportfolio.com/news/article/1819146/Executive-Summary-Global-Status-of-Commercialized-Biotech-GM-Crops-2013-ISAAA-Brief.html. Accessed March 24, 2014.
10. *Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Working Group III Report: Mitigation of Climate Change*. IPCC, 2007. 205 p.
11. *Organic Agriculture Worldwide: Key Results from the Survey on Organic Agriculture Worldwide 2010–2013*. Available at: http://www.organic-world.net/yearbook-2012-presentations.html. Accessed March 4, 2012.
12. Schaack D. *News about the Organic Market in Germany 2011* Available at: http://www.organic-world.net/fileadmin/documents/yearbook/2012/2012-02-16/schaack-120216_Bio_UmsatzDE_engl.pdf. Accessed March 4, 2012.
13. *The Environmental Food Crisis*. UNEP, 2009. Available at: http://www.grida.no/_res/site/file/publications/FoodCrisis_lores.pdf. Accessed August 25, 2014.
14. *The Statistics Division of the FAO*. Available at:: http://faostat.fao.org/site/291/default.aspx. Accessed March 4, 2012.

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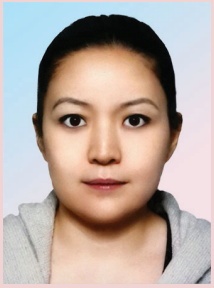
Differentiated organizational and economic mechanisms of industrial-innovation development of the regions of Kazakhstan



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Abstract. Kazakhstan is characterized by significant interregional differences in the provision with natural resources and economic capacity; this feature is reflected in the level of economic development, provision with social infrastructure, and investment opportunities. Specifics of spatial development in Kazakhstan, different potential of its individual territories, differences in the structure and specialization of economic entities, ambiguity in the severity and depth of the crisis processes in the years of market reforms, the pace and forms of their implementation put the regions of our country in unequal conditions that aggravated their differentiation. That is why the Address of the President of the Republic of Kazakhstan Nursultan Nazarbayev to the People of Kazakhstan "The Strategy "Kazakhstan 2050": New Political Course of the Established State" sets out a very timely task of aligning the socio-economic conditions in the regions and forming new effective mechanisms of its implementation. In order to solve this problem under the conditions of economic growth, it is appropriate to implement a new approach to regional policy, which involves the alignment of the level of economic development in the regions, and also provides people's welfare throughout the country. This important shift in regional policy corresponds to the objectives of transition from resource-based development to industrial innovation development.

In this respect, special importance is attached to the comprehensive assessment of innovation processes and resources of the region for the purpose of their more efficient use and distribution in the interests of industrial-innovation modernization of territorial economy. The article proposes to use a differentiated approach when choosing effective organizational and economic mechanisms for territorial modernization. In particular, the author proposes to use the following components: legal, organizational, economic and

financial, research and informational. A new approach has been developed, which helps identify the main strategic directions of industrial-innovation development in the regions and choose the optimal mechanisms for implementation of these directions. The author proposes a model of "industrial-innovation modernization of the region" based on the rating values of the grouping indicators from "A" to "D" as a foundation for the elaboration of strategic directions of development of the territory.

Key words: modernization, innovation development, industrialization, region, Kazakhstan.

The early 21st century is characterized by a change in the regional policy and regional governance paradigm, search for the ways to improve efficiency of territorial development management and for new methods and mechanisms of dynamic development of territories. Currently, the economy of any region is influenced by new socio-economic and technological trends. Thus, in the context of globalization and increased competition sustainable development in the regions depends to a great extent on the use of specific internal factors that promote modernization and active involvement in the implementation of various innovations.

The regional aspect is quite strongly pronounced in many socio-economic processes in Kazakhstan with its large territory, diversity and heterogeneity of natural, geographic and economic conditions. Industrial modernization is no exception in this respect. On the one hand, industrialization opens up new opportunities for changes in production levels, for improvement of the regions' specialization, and for the use of natural resources as an important factor in the development of many areas [1]. New technology, being one of the main directions of industrialization, especially resource- and labor-saving, waste-free, and low water-consuming technology, advanced engineering tools help mitigate the influence of traditional factors in the location of economic activity.

On the other hand, undoubtedly, an impact on the pace and extent of industrialization is exerted by the set of regional factors such as the degree of technological development of the region's economy, provision with research facilities; provision with personnel, availability and characteristics of fuel, energy, mineral, land, water and recreational resources, and environmental constraints.

Thus, the President of the Republic of Kazakhstan Nursultan Nazarbayev in his Address to the People of Kazakhstan "The Kazakhstan Way – 2050": Common Goal, Common Interests, Common Future" from January 17, 2014, set out the task to **"adjust and strengthen innovation industrialization trend"** [2]. In this connection a special importance is attached to the development of effective organizational and economic mechanisms for industrial-innovation modernization of economy in the regions of Kazakhstan.

Modernization of the Kazakhstan economy requires solving a number of fundamental issues to provide industrial-innovation development of the national economic system. It is necessary to overcome the raw-materials orientation of the

economy, rejection of innovations by the real sector and consistent simplification of technological chains. It is also necessary to create institutions and tools to stimulate new knowledge implemented in the technologies and equipment based on it, and not only to provide them with financial resources, but also to create conditions for subsequent commercialization in Kazakhstan and abroad.

Therefore, the solution of industrial-innovation tasks is possible only with the use of a sound and conceptually substantiated regional policy.

Industrialization in Kazakhstan should be based on the target transition to modernization of economy in the regions, taking into account national specifics. If the regional factor in the implementation of industrial modernization is underestimated, then the disparities in the development of the Kazakhstan regions can be aggravated. This is evident from our past experience of industrialization in the framework of the "Soviet project". Soviet industrialization helped create a significant economic potential in many regions of Kazakhstan. But since it was carried out under the domination of the all-Union division of labor, the main regions of Kazakhstan became connected economically more to their adjacent territories of other Union republics than to each other: Northern Kazakhstan was integrated with the Urals and Siberia, Western Kazakhstan– with the Volga region and the Urals, Eastern Kazakhstan – with the Altai and Siberia, Southern Kazakhstan – with Central Asia. This caused a significant differentiation in the level of socio-economic development of the regions and made it difficult to integrate the national economy as a single complex at the stage of independent development.

Regional development of Kazakhstan should be considered the most important factor in its industrial modernization. Hence the necessity to solve problems of territorial development issues in their relation with industrialization objectives. For example, industrialization tasks require the concentration of resources in key regions promoting industrial development in the country, and the strategic priorities of territorial development make it necessary to support the regions that lag behind in their development. It necessitates the search for a balance between industrial and regional policy measures.

World experience shows that the catching-up development (currently observed in Kazakhstan) is not consistent with a uniform development of the whole territory. In the process of economic modernization in the catching-up countries industrial growth becomes focal, which results in the growth of regional differences in the level of development. The poles of growth under the conditions of catching-up industrialization emerge on the basis of regional advantages such as favorable geographic location, availability of natural resources, infrastructure and qualified human capital. The type of advantages determines the emergence of different types of growth poles. First of all, these are big cities, in which the most technologically advanced enterprises are located. It is the regions with developed potential in

the manufacturing sector, particularly in industries with high- and medium-high levels of technological development. These may be the regions with a favorable geographic and economic position: costal regions that have lower costs for transportation of export products, and cross-border regions, where free economic zones are often established; and regions with intensive development of resources.

First, we note that the **organizational-economic mechanism** is understood as a "combination of certain parts and elements that bring the system (mechanism) into action [3, p. 366]. Thus, industrial-innovation modernization should be implemented through a variety of organizational and economic mechanisms aimed not only at reduction of territorial disparities, but also at the promotion of people's well-being throughout the country. It is becoming a developing policy, i.e. it is focused on the development of promising economic structures, startup of new activities, modernization and formation of modern industrial-innovation infrastructures.

At the same time, regional policy in the field of industrial-and-innovation development requires, first of all, choosing such mechanisms and tools which, by using state support, should provide active investment and innovation, growth of production of competitive products, profitability of enterprises, and social protection of population [4], thereby establishing basic conditions for industrial-and-innovation modernization in the region.

We noted earlier in our research that the regions of Kazakhstan differ significantly according to the main socio-economic and innovative-technological parameters [5]. This differentiation does not only indicate the socio-economic heterogeneity of territories in Kazakhstan, but also causes a certain tension of industrial and innovative nature. The higher the country's regional heterogeneity, the more complicated its development, the more requirements to regional policy [6]. At that, large countries and many small ones with different inter-regional and inter-ethnic relations have to take this factor into account (for example, Spain, Italy, Belgium, etc.).

The growth of regional inequality has not been handled yet; economic activity is concentrated mostly in a small number of regions with special advantages: in Almaty (18.7% of the country's total GRP in 2012), the Atyrau Region (10.3%), the Karaganda Region (8.5%), Astana (9.0%), and also in the Mangystau Region in recent years. The four leading regions of Kazakhstan (the cities of Astana and Almaty, the Atyrau and Karaganda regions) account for almost half of GRP (46.5%), although the two latter show a decreasing trend in the share of total GRP [7].

Demographic resources are among the most important factors contributing to uneven development of the regions. In general, there is a continuing natural population growth in the Republic. Population growth rates are especially high in the southern regions (South Kazakhstan, Kyzylorda, the Jambyl Region), that represent the demographic reserve of the

country. At the same time, the two northern regions have stable natural population decline.

The need for fundamental changes in approaches to the formation of effective mechanisms of territorial development is linked to the influence of new factors – formation of "knowledge economy", strengthening of the role of science and science-intensive technology, information, emergence of new financial tools and methods of regulation, stock market development, expansion of transnational capital, etc.

Thus, in order to form an effective mechanism for the implementation of a new model of territorial development it is necessary to use a set of tools and methods of mobilization, accumulation, distribution and use of various resources [8]. In this regard it is advisable to use a **differentiated approach** due to the high degree of differentiation of the forms, ways and methods that ensure dynamic development in the region. This approach takes into account specific needs of the regions (investment-backed leading regions specializing in raw materials extraction; potential leaders that are industrialized and have high economic potential; developing regions specializing in agriculture and characterized by the intensification of industrial innovation activity; unstable depressed regions that have lost considerable potential for innovation, but still show signs of revival of innovation processes) for which it is elaborated, and the specifics of resources attracted (budget, loan, own funds, etc.).

The differentiated approach helps to implement the following activities:

a) to apply motivation techniques in order to improve the quality of investment, i.e., to stimulate the inflow of new high technology, knowledge, information, advanced management and marketing methods, etc.;

b) to ensure the wider use of new and advanced financial tools to regulate investment activity in the region;

c) to form adequate institutional conditions for efficient use of attracted and accumulated investment resources;

d) to improve investment processes management at the local level, to improve qualification and responsibilities of personnel engaged in investment management;

e) to identify opportunities for the development of regional economy based on the most efficient use of its resources, and to identify potential gaps and barriers in the implementation of management policy at the local level;

f) to assess the organizational and production infrastructure in the region with regard to the requirements of innovation, financial, intellectual and organizational technology sufficient to implement target regional projects and programs;

g) to create effective tools for implementing regional programs on the basis of attracting significant additional investment in regional programs and projects.

Therefore, as we noted earlier, it is advisable to apply the differentiated approach when choosing effective organizational and economic mechanisms for

territories' modernization. We propose to develop differentiated organizational-economic mechanisms, which not only set in motion the process of industrial-innovation modernization in the region, but also promote its further continuous and dynamic development.

We note that conceptual provisions of industrial-innovation modernization, regardless of the level of hierarchy of the space, should be implemented through the legal, organizational, financial, research and information components of organizational-economic mechanisms. These components can be classified according to this.

The *first component* is the institutional mechanism, which is a system of laws, documents and procedures that form the legal field of the region's development. It is the system of current legislation concerning the distribution of powers and responsibilities between the executive power and local government [4]. The system, which is represented by the Constitution of the Republic of Kazakhstan, by the laws "About local state administration and self-government in the Republic of Kazakhstan", "About taxes and other obligatory payments to the budget", "About banks and banking activity in the Republic of Kazakhstan" and other normative legal acts, regulates the solution of various economic, social and environmental issues at the regional level.

The *second component* is the organizational and structural mechanism, which is a system of interaction between institutions, organizations and services that provide the main functions of effective regional management. In addition, this mechanism includes the state strategy for regional development, development strategies for the Republic, individual cities and territories, policy documents, various forecasts and development plans.

The *third component* is the financial-economic mechanism, which is a system of financial and economic leverages that influence the organization of the different departments. This mechanism determines the possibility of financial support and promotion of the territory's development, as well as the complex ratio of market services production to their consumption. The main tool of this system in the context of this mechanism should be the development of production capacity, attraction of investments in the regional economy and efficient replenishment of the budget.

The *fourth component* is the research mechanism, i.e. the system that includes cooperation between relevant research and educational institutions and units that generate new knowledge and ideas, and that are engaged in personnel training, implementation of the strategy of the territory's dynamic development. It also provides for the most complete and efficient use of research, innovation, production and intellectual potential in the region.

The *fifth component* is the information mechanism, which includes the interaction between organizations engaged in the collection, processing and flow of information, special services and institutions that characterize the state, dynamics and performance efficiency in the implementation of the strategy for the territory's

dynamic development. The information provided should not only reflect the dynamics of economic growth and demographic trends, but also inform the authorities about the possible problem situations and the consequences of the ongoing changes. It makes possible the use of social network service, which will create an information environment that meets the needs of all sectors of society in obtaining electronic services, and will also contribute to the formation of the necessary conditions for the adoption of advanced information technologies in the region [9].

In light of the above, we conclude that effective modernization requires a new vector of industrial-innovation interaction between organizational and economic mechanisms capable of self-organization and self-improvement.

Successful development of any region depends to a great extent on the use of specific internal factors for creation of values in global markets; that is why there is no single universal strategy for all regions, because each territory has different potential and its own opportunities for implementation of industrial-innovation modernization.

Therefore, the implementation of a new model of innovation modernization in the regions should be focused not only on the appropriateness and correctness of formation and use of resources, but also on the ultimate goals of public resources management and on the quality of socio-economic development strategies developed for the regions, their performance efficiency and prospects.

Despite the fact that in different periods of economic development there were different development strategies for the regions, their purpose was to provide economic and social prosperity of the population of a certain territory [10]. As noted previously, an effective strategy for the development of regions should be selected with the use of the differentiated approach, which depends on territorial imbalances in the existing level of development and in development potential of the regions of Kazakhstan.

Therefore, we have developed a new approach that makes it possible to identify the main strategic directions of industrial-innovation development of the regions to choose optimal mechanisms for the implementation of these directions.

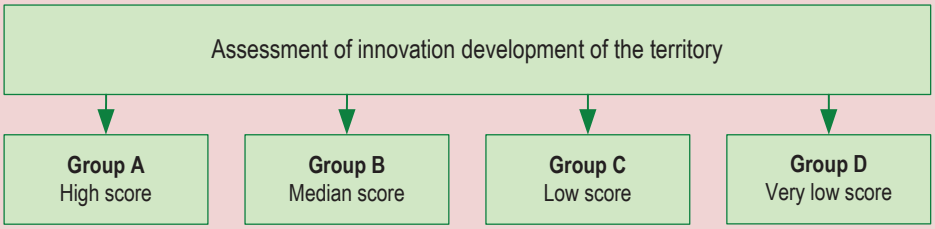
We propose a model of industrial-innovation development of the region as a basis for elaboration of strategic directions of development of the territory *(figure)*.

This model represents the dependence on the level of innovation development of the region. In accordance with this, each region is assigned a score (high, medium, low, very low), which reflects the degree of its development. After that, all the regions are divided into four groups: from group "A" (leading regions) to group "D" (outsider regions).

This model is based on two hypotheses.

First, a region with the high score according to the level of innovation development is the leader in relation to other regions. This means that the competitive position of the region is strengthening, because the commercial

Model of industrial-innovation development of the region*



* Compiled by the author.

effect of modernization and introduction of new technologies is multiplied by the number of enterprises in the region that have achieved success in their implementation and promotion in the market. As a result, the level of socio-economic development of the region is improving. That is why one of the most important elements of industrial innovation policy is the creation of conditions for the most rapid diffusion of technology within a particular specialization.

Second, under the conditions of tough competition, the regions have to choose a policy aimed to achieve high rates of innovation development and to search for funding sources. As a result, certain industries are selected, and new industries emerge; they help to determine the specialization of industrial policy in terms of comparative advantage (that differ in some regions).

The proposed model will be incorrect if it is not used in practice. Thus, the innovation processes structuring can start with an analysis of the innovation sphere and then it is possible to move on to the rating of the regions of Kazakhstan.

The rating procedure determines a linear series of objects, in which they are equally distant from each other by the combination of selected characteristics. Each of them is assigned a serial number or class corresponding to its place in the series.

The most preferred object, as a rule, is assigned the first grade "A". The regions are grouped on the basis of the ratings and absolute values of the indicators. In this case, each region belongs to a certain class of objects allocated by experts according to the combination of conditions of investment and the level of preference for the investor [11].

This ranking of the regions aims to identify their potential; the analysis will be focused mainly on identifying innovative advantages of the regions. As is known, the regions of Kazakhstan are characterized by high heterogeneity. Geographical location and natural resources have great influence on the competitiveness of the regions.

So, the innovation sphere, represented mostly by research and development (hereafter R&D), is the main driving force of economic growth at the present stage of

Table 1. Number of enterprises engaged in R&D in the regions of Kazakhstan, 2009–2013, %

Region, city	2009	2010	2011	2012	2013	2013 to 2009, %
Republic of Kazakhstan	*416*	*424*	*412*	*345*	*341*	81.97
Akmola Region	7	7	8	9	12	171.43
Aktobe Region	15	16	18	16	13	86.67
Almaty Region	7	10	8	7	10	142.86
Atyrau Region	12	12	9	9	8	66.67
East Kazakhstan Region	34	33	36	34	29	85.29
Jambyl Region	12	10	7	8	9	75.00
West Kazakhstan Region	10	10	9	15	9	90.00
Karaganda Region	29	28	29	26	23	79.31
Kostanay Region	14	15	13	14	13	92.86
Kyzylorda Region	9	14	23	7	6	66.67
Mangystau Region	6	8	8	7	7	116.67
Pavlodar Region	10	9	11	11	10	100.00
North Kazakhstan Region	5	5	3	3	3	60.00
South Kazakhstan Region	10	9	9	11	15	150.00
city of Astana	43	42	41	49	52	120.93
city of Almaty	195	196	180	119	122	62.56

Source: calculated by the author on the basis of [12].

development. Let us refer to the statistics on the Republic of Kazakhstan in order to make a full and objective assessment of innovative potential established in 2013 and its further dynamics. *Table 1* shows the dynamics of the number of enterprises in Kazakhstan that are engaged in R&D for each region.

There is a noticeable reduction in the number of enterprises engaged in R&D (almost by 18%) in Kazakhstan on the whole for the analyzed period (2009–2013). Reduction in organizational structures engaged in R&D means that an important link between production and science has been lost, as well as the shortest way to implement research results into production.

Moreover, during this period the largest decline in the number of organizations involved in R&D is observed in the North-Kazakhstan Region (60%) and Almaty (62.56%). There are *objective reasons* for such a significant reduction in the number of scientific enterprises: the financial situation of many industrial enterprises does not allow them to support scientific research and design developments, although their importance for maintaining the competitiveness of the production is unquestionable.

However, some regions of Kazakhstan for the period under review demonstrate a high level of scientific potential due to the increase in the number of enterprises engaged in R&D. In particular, the increase in the number of such enterprises amounted

to 171.43% in the Akmola Region, to 150% in South Kazakhstan, to 142.86% in Almaty, and to 120.93%. in Astana. The number of scientific organizations in the city of Astana has increased due to preparations for the forthcoming international exhibition "Astana EXPO-2017".

The rating is based on the set of parameters that define the level of innovation development of the regions and that are monitored by the state statistics (Statistics Agency for the Republic of Kazakhstan), and the mathematical tools were also elaborated in order to obtain aggregate ranking scores. The criteria of innovative development of the territory taken into account in the ranking are divided into two groups: factors that describe the level of susceptibility to innovation in the region, and the parameters of innovation activity in the region.

Taking into account many methods of initial data processing and the transition from the set of values of the primary indicators to the aggregate estimates, we propose to use the rating scale of innovation development of the regions at the stage of structuring the methods of analysis *(tab. 2)*.

The rating shows that in 2012 none of the regions of Kazakhstan was able to get into zone "A". The regions with rating class "B" are characterized by low economic efficiency of expenditure on R&D: the share of produced innovation products is several times smaller than the share of domestic expenditures on research and development in their total amount.

We should pay special attention to the group of regions of class "C", because it comprises most of the regions of Kazakhstan,

Table 2. Final indexes of regional innovation development in the regions of Kazakhstan for 2012

Region, city	Assessment	Score	Class
city of Almaty	Above medium	60.10	B
city of Astana	Medium	55.22	B
Atyrau Region	Medium	40.08	B
Pavlodar Region	Low	35.61	C
Mangystau Region	Low	35.25	C
East Kazakhstan Region	Low	33.22	C
Karaganda Region	Low	28.14	C
Aktobe Region	Low	26.79	C
Jambyl Region	Low	24.31	C
Kostanay Region	Low	22.91	C
North Kazakhstan Region	Low	22.87	C
West Kazakhstan Region	Low	22.06	C
South Kazakhstan Region	Low	21.43	C
Kyzylorda Region	Low	21.16	C
Akmola Region	Very low	18.90	D
Almaty Region	Very low	18.51	D

Source: calculated by the author on the basis of [12].

which, in turn, proves the low level of innovation development in the Republic.

There is a clear pattern, which is manifested in the fact that the central and eastern areas of Kazakhstan are the most industrialized regions, because they have a large number of large enterprises of heavy industry, in particular, coal industry, ferrous and nonferrous metallurgy.

In addition, these regions have a more developed electric power infrastructure. As for the regions of the southern zone, they have a relatively low level of innovation development due to the smaller number of large industrial enterprises and a weak resource base.

In general, the cities of Almaty (60.10) and Astana (55.22) are the most competitive regions in terms of innovation development. Other regions of the group specialize mainly in agriculture, mining and manufacturing industries. Akmola (18.90) and Almaty (18.51) regions are outsiders in the rating according to statistical indicators.

Thus, the city of Almaty confirms its status as leader in terms of innovation development. The city has the most powerful innovative, labor, consumer, transport and infrastructure potential, and it is the financial capital of Kazakhstan. However, it should be pointed out that an excellent financial performance of Almaty is largely based on the fact that the central offices of major companies are located there.

In this regard, we note that science and technology, the elements which form the innovation system and define the characteristics of modernization, are distri-buted unevenly throughout the regions of Kazakhstan [13]. The region's innovativeness is its ability to self-upgrade, to adapt to changes and to generate products of scientific and technological progress [14].

Practice shows that modernization is going on faster in the regions that have better conditions for the "diffusion of innovations": more population of higher quality, more developed infrastructure and short economic distances, lower institutional barriers [15].

Space is very inertial, that is why the choice of directions that promote industrial-and-innovation modernization for Kazakhstan is limited to a fairly narrow range of opportunities, especially given the worsening world economic situation and the growth of problems in the economy.

After arranging the regions by level of innovation development, we can conclude that *there are external barriers to the innovation development of the regions; we can highlight the following ones:*

– absence of technology transfer;

– prevalence of traditional and outdated technology;

– high cost of innovation implementation;

– shortage of investment and lack of interest of large corporations in the implementation of innovation.

The main *internal barriers to innovation development of the regions are as follows:*

– lack of financial resources of enterprises;

– low innovation potential of enterprises;

– lack of information on new technology;

– lack of qualified personnel.

All of the above can help to choose an appropriate strategy of industrial-innovation development for any region, depending on its affiliation to any of the following three groups.

Regions of group B – this group comprises regions with considerable innovation potential. That is why it is necessary to elaborate and search for new models of construction and development of the future generation regions. The establishment of new requirements to the development of regions and promotion of their competitiveness was followed by the emergence of the "Smart city" concept, which highlights the increasing role of human capital and the increasing importance of information, communication and intelligent technology in urban environment. The "Smart city" concept brings together various driving forces of regional development in a single mechanism, the main objective of which is to maintain leadership and provide further dynamic development.

Such cities should conduct continuous monitoring of the most important infrastructure objects (roads, bridges, tunnels, railways, subways, airports, seaports, communication systems, power grids) and even some strategic buildings in order to optimize the allocation of resources and security. Consequently, "smart cities" constantly increase the number of services available to the public and enhance their quality, providing a stable environment that promotes well-being and improve people's lives. The infrastructure of information, communication and intelligent technology is the foundation of these services.

At present, many countries are creating "smart cities". But we should not forget that the development and dissemination of technology, and the progress in the construction of "smart cities" are still relatively modest. The main problem lies in the limited capacity of local governments. The majority of municipal authorities do not have sufficient resources or power to implement full-scale information, communication and intelligent projects. For example, municipal authorities in France, Spain and the USA have the right to shape their policies within their geographic boundaries. And in the UK the authorities have virtually no opportunity to influence urban planning directly [16].

Kazakhstan is also involved in world trend of regional development – the concept of "Smart city". Currently, the city of Astana is implementing the concept of the project "Smart Astana" [17]; it aims to promote innovation in the city and to ensure the high quality of life through the use of the latest economical and environmentally friendly technology in urban infrastructure and utilities. It is necessary to point out that the project "Smart Astana" is based on the development model of European "smart cities", based on the interaction of six characteristics:

- Smart Governance;
- Smart Economy;
- Smart Mobility;
- Smart Environment;
- Smart People;
- Smart Living.

The main goal of the project "Smart Astana" is to establish and develop innovation and socio-economic environment for promoting intensive development of innovation and technological entrepreneurship in the future innovation city "Smart Astana". The concept envisages that the project "Smart Astana" will become a laboratory and an experimental platform for developing and testing new technologies that can then be replicated and implemented in other regions of Kazakhstan and abroad.

In general, the concept of "Smart city" will help to create favorable conditions for the development of regional innovation business. Therefore, it is possible to regulate industrial innovation process by using the latest management technology that improves the overall quality of life, and also by forming a creative environment that promotes free and intensive scientific research in the region. In particular, in connection to the formation of regional infrastructure of the "smart city" it is planned to use non-volatile and energy-saving technology, environmentally friendly technology that reduce the amount of harmful emissions, resource-saving technology, computer technology for centralized management and systems for automated control and regulation of traffic.

Thus, modernization in the regions is possible through the development of innovative business by using the concept of "Smart city", since one of the most important trends in innovation industries consists in the development of large cities not by extending the center, but by using satellite towns – an integrated solution for new, self-sufficient urban constructions with their centers of gravity and with their own economy. "Smart cities" in innovation and socio-economic aspects are oriented toward the future. Thus, these projects will be unified by a *synergistic approach focused on creating the infrastructure that has a high potential for sustainable long-term development and creation of comfortable living for the population*.

Regions of group C – these regions are characterized by low rates of innovation development. However, such regions can, in fact, be promising for the development of innovation business in the future. The regions of this group have the following common feature: they reach a certain peak of development, after which they face shortage of labor, technological, financial and other resources. Therefore, it is necessary to determine specialization industries in these regions and substantiate the directions of effective specialization.

The region's specialization stems from territorial division of labor, it is conditioned by the territory's ability to produce (by using favorable historical, economic, natural and other conditions) certain types of products in quantities greatly exceeding local needs, with relatively low labor costs, i.e. the ability to develop such industries whose products are competitive on the external market and are mainly export-oriented.

The large scale (volume) and efficiency of production, and participation in territorial exchange (export) of products are the main characteristics and distinctive features of the branches of specialization. Specialization industries perform a decisive role not only in production and export, but

also in their impact on the allocation of productive forces (region-forming function of the industry), because these industries in single-industry towns are like nucleus that attracts auxiliary services and other supporting productions.

Therefore, the definition of sectoral specialization of the regions makes it possible to concentrate effort and resources on such activities that produce the greatest benefits. This involves the creation of new sites for development of innovative business, which, on the basis of legal acts, will give the local authorities an opportunity to implement a set of measures to promote entrepreneurship: tax incentives, provision of land for new construction, the lease of old premises for reconstruction on favorable terms, etc. These measures will help to create new jobs, to transfer capital to depressed regions, to optimize the costs of various resources in such a way as to provide the desired rate of development of the types of activity and introduction of new technology, which give the greatest yield.

But the main point is that regional policy aimed to identify regional specialization is *the policy of encouraging innovation and interaction, and not just the planned allocation of industries (e.g., petrochemical, metallurgical, textile, etc.) and enterprises, the development of which will be supported by the state*. Thus, one should not forget that it has nothing to do with the "construction" of structural technological chains, as in the creation of territorial-industrial complexes in the planned economy.

In this regard, the implementation of regional policy should promote industrial-innovative modernization and business competitiveness through the implementation of effective interaction in the region, including increased access to innovation, technology, specialized services and highly qualified personnel; it should also help to reduce transaction costs that create preconditions for the implementation of joint projects and for productive competition.

Regions of group D – this group of regions is in a disadvantageous position with regard to innovation. The regions in this category are in a state of lingering stagnation; they are characterized by a lack of diversity in the sectoral structure of industry, by weak innovation capacity and by an underdeveloped social sphere. In fact, the preservation of these regions is associated with significant financial investments and little chance that the situation can be improved. In fact, these regions, which have significant constraints on resources for their economic development, are greatly interested in the industrial-innovative modernization of their economy, given the importance of dynamic development in the regions of Kazakhstan due to the positive synergistic effect under geo-economic competition.

Therefore, the state may provide support to these regions by developing their industrial infrastructure, promoting the inflow of private investment, providing certain tax and loan privileges and preferences, selective subsidies for enterprises, etc. But the extent of such financial and economic support in the coming years cannot be significant due to the limited financial resources.

In general, the regions of Kazakhstan differ significantly according to the main innovation indicators. This indicates their socio-economic heterogeneity and causes a certain tension of industrial-innovation nature. Regional policy should be implemented with the use of several organizational and economic mechanisms aimed not only to reduce territorial disparities, but also to provide people's welfare throughout the country.

Thus, industrial-innovation deve-lopment as the basis for modernization of the society acts as an independent direction of regional policy, which determines their close relationship and mutual influence. The need for fundamental changes in approaches to the formation of industrial-innovation modernization mechanisms in the regions is connected with the influence of new factors – the strengthening of the role of science and science-intensive technology, information, and the emergence of new financial tools and regulation methods. At the same time there is no single universal strategy for all the regions, because each territory has different potential and its own ability to implement industrial-innovation activity.

References

1. Broekel T. Regional Factors and Innovativeness: an Empirical Analysis of Four German Industries. *Annals of Regional Science,* 2011, vol. 47 (1), pp. 169-194
2. *Poslanie Prezidenta strany Nazarbaeva N.A. narodu Kazakhstana "Kazakhstanskii put' – 2050: Edinaya tsel', edinye interesy, edinoe budushchee" ot 17 yanvarya 2014 g.* [The Address of the President of the Republic of Kazakhstan Nursultan Nazarbayev to the People of Kazakhstan "The Kazakhstan Way – 2050": Common Goal, Common Interests, Common Future" of January 17, 2014].
3. *Ekonomika: entsiklopediya: v trekh tomakh* [Economics: Encyclopedia: in Three Volumes]. Kiev: Vidavnichii tsentr "Akademiya", 2001. Vol. 2. 848 p.
4. Romer P. Increasing Returns and Long Run Groft. *Journal of Political Economy,* 1986, pp. 1002-1037.
5. Nurlanova N.K., Kireeva A.A. *Metodika otsenki ekonomicheskogo i innovatsionnogo potentsialov regionov Kazakhstana* [Methodology for Assessing the Economic and Innovation Potential of the Regions of Kazakhstan]. Almaty: IE KN MON RK, 2014. 108 p.
6. Granberg A., Zaitseva Yu. Tempy rosta v natsional'nom ekonomicheskom prostranstve [Growth Rates within the National Economic Space]. *Voprosy ekonomiki* [Issues of Economy], 2002, no. 9, pp. 4-17.
7. *Regiony Kazakhstana: statisticheskii sbornik* [The Regions of Kazakhstan: Statistics Collection]. Astana: Agentstvo RK po statistike, 2013. 28 p.
8. Fujita M., Krugman P. When is the Economy Monocentric: von Thunen and Chambertin Unified. *Regional Science and Urban Economics,* 1995, vol. 254, pp. 505-528.
9. Kireyeva A.A., Yong M.K., Myoung K.Y. Effects of Characteristics of SNS upon Attitudes to the Product, Purchase Intention and Recommendation. *Journal of Industrial Distribution and Science,* June 2014, vol. 5, no. 1, pp. 27-37.
10. Gutman G.V., Illarionova A.E. *Strategiya razvitiya munitsipaliteta* [Development Strategy for the Municipality]. Moscow: Yurkniga, 2003. 256 p.
11. Panaseikina V.S. Otsenka investitsionnoi privlekatel'nosti territorial'nykh obrazovanii: osnovnye kontseptsii [Assessment of Investment Attractiveness of Territorial Entities: Basic Concepts]. *Obshchestvo: politika, ekonomika, pravo* [Society: Politics, Economics, Law], 2010, no. 2, pp. 36-40.
12. *Agentstvo po statistike. Ofitsial'nyi sait* [Official Website of the Statistical Agency of the Republic of Kazakhstan]. Available at: http://www.stat.kz/DIGITAL/Pages/Kazakhstan_cifrah.aspx
13. Kireyeva A.A., Nurlanova N.K. The Problems of Spatial Modernization of the Economy and New Approaches to Way Out from Crisis: Kazakhstan's Experience. *Journal Distribution of Science,* 2013, no. 11 (3), pp. 39-48.

14. Nurlanova N.K. *Regional'naya paradigma ustoichivogo razvitiya Kazakhstana: problemy teorii i praktiki* [Regional Paradigm of Sustainable Development of Kazakhstan: Theoretical and Practical Issues]. Almaty: Institut ekonomiki KN MON RK, 2009. 328 p.
15. Ageenko A.A. Metodologicheskie podkhody k otsenke investitsionnoi privlekatel'nosti otraslei ekonomiki regiona i otdel'nykh khozyaistvuyushchikh sub»ektov [Methodological Approaches to the Estimation of Investment Attractiveness of Industries of the Regional Economy and Individual Business Entities]. *Voprosy statistiki* [Statistics Issues], 2003, no. 6, pp. 48-51.
16. Tolmacheva T. *Goroda berutsya za um. O kontseptsii "umnogo goroda" i problemakh ee realizatsii* [Cities Are Coming to Their Senses. About the Concept of "Smart City" and Problems of Its Implementation]. Available at: http://www.relga.ru/Environ/WebObjects/tguwww.woa/wa/Main?textid=3213&level1=main&level2=articles
17. *Proekt "Umnyi gorod Astana (Smart Astana)"* ["Smart Astana" Project]. Available at: http://www.smartastana.kz

Cited works

1. Broekel T. Regional Factors and Innovativeness: an Empirical Analysis of Four German Industries. *Annals of Regional Science,* 2011, vol. 47 (1), pp. 169-194
2. *The Address of the President of the Republic of Kazakhstan Nursultan Nazarbayev to the People of Kazakhstan "The Kazakhstan Way – 2050": Common Goal, Common Interests, Common Future" of January 17, 2014.*
3. *Economics: Encyclopedia: in Three Volumes*. Kiev: Vidavnichii tsentr "Akademiya", 2001. Vol. 2. 848 p.
4. Romer P. Increasing Returns and Long Run Groft. *Journal of Political Economy,* 1986, pp. 1002-1037.
5. Nurlanova N.K., Kireeva A.A. *Methodology for Assessing the Economic and Innovation Potential of the Regions of Kazakhstan*. Almaty: IE KN MON RK, 2014. 108 p.
6. Granberg A., Zaitseva Yu. Growth Rates within the National Economic Space. *Issues of Economy,* 2002, no. 9, pp. 4-17.
7. *The Regions of Kazakhstan: Statistics Collection*. Astana: Agentstvo RK po statistike, 2013. 28 p.
8. Fujita M., Krugman P. When is the Economy Monocentric: von Thunen and Chambertin Unified. *Regional Science and Urban Economics,* 1995, vol. 254, pp. 505-528.
9. Kireyeva A.A., Yong M.K., Myoung K.Y. Effects of Characteristics of SNS upon Attitudes to the Product, Purchase Intention and Recommendation. *Journal of Industrial Distribution and Science,* June 2014, vol. 5, no. 1, pp. 27-37.
10. Gutman G.V., Illarionova A.E. *Development Strategy for the Municipality*. Moscow: Yurkniga, 2003. 256 p.
11. Panaseikina V.S. Assessment of Investment Attractiveness of Territorial Entities: Basic Concepts. *Society: Politics, Economics, Law*, 2010, no. 2, pp. 36-40.
12. *Official Website of the Statistical Agency of the Republic of Kazakhstan*. Available at: http://www.stat.kz/DIGITAL/Pages/Kazakhstan_cifrah.aspx
13. Kireyeva A.A., Nurlanova N.K. The Problems of Spatial Modernization of the Economy and New Approaches to Way Out from Crisis: Kazakhstan's Experience. *Journal Distribution of Science,* 2013, no. 11 (3), pp. 39-48.
14. Nurlanova N.K. *Regional Paradigm of Sustainable Development of Kazakhstan: Theoretical and Practical Issues*. Almaty: Institut ekonomiki KN MON RK, 2009. 328 p.
15. Ageenko A.A. Methodological Approaches to the Estimation of Investment Attractiveness of Industries of the Regional Economy and Individual Business Entities. *Statistics Issues*, 2003, no. 6, pp. 48-51.
16. Tolmacheva T. *Cities Are Coming to Their Senses. About the Concept of "Smart City" and Problems of Its Implementation*. Available at: http://www.relga.ru/Environ/WebObjects/tguwww.woa/wa/Main?textid=3213&level1=main&level2=articles
17. *"Smart Astana" Project*. Available at: http://www.smartastana.kz

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Development of national citation index as a condition for the formation of a system to evaluate scientific research performance

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Abstract. Nowadays the management of resources allocated to science depends directly on the availability of information about the state of scientific research in the country and abroad. Due to the increasing number of research projects that receive public funding and that are carried out with the support from various funds, special importance is attached to the issue concerning the analysis and comprehensive evaluation of scientific research performance and the choice of the most promising research topics.

The article substantiates the necessity to develop a national information and analytical system of citation, which should become part of the system to assess the effectiveness and performance of Russian scientists and scientific organizations. The author uses the analysis of bibliometric indicators of the Russian Science Citation Index and shows the evolution of publication activity of organizations engaged in economic research and subordinate to the Federal Agency of Scientific Organizations of Russia.

The results demonstrate that scientific organizations increase their publication activity in the RSCI, improve the quality of publications and their scientific and practical significance, as evidenced by the steadily increasing citation rates. The indicators of a scientometric monitoring prove that in the future the RSCI along with expert assessment can be used as a tool to evaluate performance efficiency of scientific institutions; it can be viewed as an alternative to international databases that are officially used for this purpose at present.

Key words: scientometrics, citation index, RSCI, a system to evaluate scientific research performance, publication activity.

Nowadays, efficient decision-making in the management of science requires creation of a system for objective assessment of scientific research performance, which helps to allocate public funds to promising research areas, the results of which are demanded by the country's society and economy.

Development of scientometric indicators and their comparison provide new opportunities for research performance evaluation, help to adjust its direction and content and compare research results. Citation analysis helps to identify regularities and to forecast the probable rate of development of science; it is an effective method for studying communication in the professional community and it represents the disciplinary structure of science.

Despite the fact that various aspects of the use of bibliometric indicators for the assessment of research performance are described by foreign scientists (E. Garfield [23, 24], M. Graber [24], J. Hirsch [25], R. Ketzler [28] and others), and domestic researchers (B.I. Bednyi [1], S.V. Bredikhin [2], V.A. Varshavskii [4, 5, 6], O.V. Kirillova [12], V.A. Markusova [4, 13], O.V. Mikhailov [14], V.V. Pislyakov [17] and others), there are no clear evaluation criteria based on bibliometric assessment; there remains a need for a number of scientometric studies to identify sources of information and methods of its extraction and to identify the tasks that can be solved if the necessary information is available.

The goal of this work is to substantiate the necessity to develop a national information-analytical system of citation, which should become part of the system for assessing the effectiveness and performance of Russian scientists and scientific organizations. The results of the monitoring of indicators of publication activity of scientific economic organizations subordinate to FANO of Russia show that the RSCI has accumulated a certain resource, which in the future can be used as a tool to evaluate the performance of research institutions, and as an alternative to international databases, which today are officially used for these purposes, although they do not make a comprehensive assessment of the results of scientific activity of the Russian scientific organizations and individual scientists because of their low representation in global citation indices.

At present, scientific publications and the media are discussing whether it is expedient to use scientometric indicators in the regulation of scientists' performance. Experts believe that "in connection with the reform of RAS, academic institutions will be subject to certification, and bibliometric indicators (number of publications, citation, impact factor of scientific journals, Hirsch index) will be used as indicators of performance efficiency of research teams" [7]. L. E. Mindeli points out that the transition of leading countries to knowledge-based economy opens up new opportunities for scientometric developments and, in his opinion, "the methodological arsenal of scientometrics will go beyond science itself and will find large-scale application in the monitoring interaction between economic and social actors in the field of knowledge" [7].

Along with scientists who recognize the role of bibliometric indicators as a tool for assessing the relevance of research results, many experts question the assessment of the academic value of research findings that is based on citation data; they argue that citation indicators give a limited and incomplete view of the quality of research[1].

Some of the researchers who consider it useful to apply scientometric methods in assessing research performance efficiency think that bibliometric indicators should be used as auxiliary tools, only as a supplement to expert assessment[2]. It should also be noted that, like foreign scientists[3], Russian experts admit that the effectiveness or productivity of research work is advisable to be assessed by the indicator of specific domestic expenditures on academic or basic science at purchasing power parity per article [32].

Although experts have not yet reached a unanimous opinion on the use of publication activity indicators for evaluating research performance of scientists and research teams, scientometric parameters are used as the targets of the state policy in the field of science. In this case the data from foreign systems of citation are taken as a basis.

Thus, for the further improvement of the state policy in the field of education and science and for the training of qualified specialists with regard to innovation economy requirements, the President ordered the Government to "ensure that by 2015 the proportion of publications by Russian researchers in the total number of publications in international scientific journals indexed in the WEB of Science database will have reached 2.44 percent"[4].

The Order of the Ministry of Education and Science of the Russian Federation of March 5, 2014 No. 162 has established the procedure, according to which scientific organizations provide the information on their performance results for the purposes of monitoring; the Order has also established the composition of these data [15]. The composition of the data is determined by 25 indicators, which evaluate research performance of scientific organizations in four areas: performance effectiveness and relevance of research; human resources development; integration into the world scientific community; dissemination of

[1] See, for example, works by P. Campbell, P. Lawrence *[Igra v "tsyfir'", ili Kak teper' otsenivayut trud uchenogo: sbornik statei o bibliometrike* [Playing with Numbers, or How the Work of a Scientist Is Now Evaluated: Collection of Articles on Bibliometrics]. Moscow: MTsNMO, 2011].

[2] Varshavskii A.E. *Osnovnye problemy otsenki rezul'tativnosti i effektivnosti deyatel'nosti nauchnykh organizatsii. Doklad na Ekspertnoi sessii FANO Rossii "Otsenka effektivnosti deyatel'nosti nauchnykh organizatsii"* [Main Problems in Assessing the Effectiveness and Efficiency of Performance of Scientific Organizations. Report on the Expert Session of FANO of Russia "Assessment of Efficiency of Performance of Scientific Organizations"]. Moscow, 2014. Available at: http://www.cemi.rssi.ru/news/cemi/index.php?ELEMENT_ID=7987

[3] See, for example: Leydesdorff L., Wagner C. S. Macrolevel Indicators of the rRlations between Research Funding and Research Output. *Journal of Informetrics,* 2009, vol. 3, no. 4, pp. 353-362.

[4] O merakh po realizatsii gosudarstvennoi politiki v oblasti obrazovaniya i nauki: Ukaz Prezidenta Rossiiskoi Federatsii ot 7 maya 2012 g. №599 [About the Measures to Implement State Policy in the Field of Education and Science: the Decree of the President of the Russian Federation of May 7, 2012 No. 599]. *Rossiiskaya gazeta* [Russian Newspaper], 2012, May 7. Available at: http://www.rg.ru/2012/05/09/nauka-dok.html

scientific knowledge and enhancement of prestige of science; resource support of scientific organizations.

The first group of indicators to assess the effectiveness and relevance of research includes eight indicators, three of which are bibliometric. These include the total number of citations of publications of an organization, indexed in the Russian and international information-analytical science citation systems, as well as a cumulative impact factor of the journals, in which the articles of this organization are published. It should be noted that the number and total citation of publications indexed in the Web of Science database are mandatory indicators, while the data for other databases are optional.

The data of international information-analytical science citation systems have two more indicators by which the degree of integration of an institution in the global scientific community is assessed. These include the number of articles prepared in collaboration with foreign organizations, and the number of scientific conferences with international participation. These indicators take into account the works published in the journals indexed in Web of Science and Scopus, and also scientific conferences and symposia that were followed by publication of the materials indexed in the specified international information-analytical systems of science citation.

Table 1 shows the indicators assessing the research performance of scientific organizations; the indicators are determined according to the data of information-analytical systems of science citation.

However, the global indicators of citation indices do not provide an objective evaluation of scientific performance of Russian scientists, since the number of their publications in international databases is insufficient (as of August 2013, the share of Russian scientists in the total number of publications in Scopus is 1.9% and in Web of Science – 1.2%) [12, p. 13]. It should also be noted that the citation of Russian authors is low. For instance, the citation impact indicator, which is calculated by InCites[5] as the average number of citations, expressed as a proportion of the world average (equal to 1), only in recent years, has been approaching the value of 0.5, i.e., two times below the world average indicator. Foreign experts note that the citation impact indicator for Russian publications is one of the lowest among the countries of Eastern Europe, despite the general opinion that science in Russia is very strong[6].

Thus, in our opinion, the use of indicators of global information-analytical science citation systems for monitoring and evaluating the performance of scientific organizations in Russia does not provide an objective overview of the publication activity of Russian scientists and research teams.

[5] Analytical system of Thomson Reuters, which uses the data of the Web of Science as a source of information. Available at: http://incites.isiknowledge.com/iplogin.action

[6] See, for example: Kozak M., Bornmann L., Leydesdorff L. How Have the Eastern European Countries of the Former Warsaw Pact Developed since 1990? A Bibliometric Study. *Scientometrics*, 2015, vol. 102, no. 2, p. 1113.

Table 1. Composition of information on the performance of scientific organizations assessed according to the data of information-analytical systems of science citation

Performance efficiency and relevance of scientific research	The number of publications of an organization, which are indexed in the Russian and international information-analytical systems of science citation:		All peer-reviewed publications during the reporting period (articles, reviews, theses of reports, conference proceedings) are taken into account
	a	Web of Science	The organization provides a searching field as additional information
	b	Scopus	Provided at the discretion of the organization
	c	Russian Science Citation Index	Provided at the discretion of the organization
	d	Google Scholar	Provided at the discretion of the organization
	e	ERIH (European Reference Index for the Humanities)	Provided at the discretion of the organization
	f	Specialized information-analytical system	Provided at the discretion of the organization in case the publications are indexed in an international system
	Total citation of organization's publications, which are indexed in the Russian and international information-analytical science citation systems:		The total citation of publications of the organization is taken into account
	a	Web of Science	The indicator is calculated automatically using the Search option
	b	Scopus	Provided at the discretion of the organization
	c	Google Scholar	Provided at the discretion of the organization
	d	Russian Science Citation Index	Provided at the discretion of the organization
	Cumulative impact factor of the journals in which the articles of the organization are published		Calculated according to the values of impact factors of journals relevant to the report year
Integration into the global scientific community, dissemination of scientific knowledge, enhancement of prestige of science	The number of articles prepared in collaboration with foreign organizations		Works published in the journals indexed in the Web of Science and Scopus international information-analytical systems of science citation are taken into account
	The number of scientific conferences with international participation, held by the organization		Only scientific conferences and symposia that were followed by publication of materials indexed in the Web of Science and Scopus iinternational information-analytical systems of science citation are taken into consideration

Source: *Prikaz Ministerstva obrazovaniya i nauki Rossiiskoi Federatsii ot 5 marta 2014 goda № 162. Prilozhenie 3 "Sostav svedenii o rezul'tatakh deyatel'nosti nauchnykh organizatsii, vypolnyayushchikh nauchno-issledovatel'skie, opytno-konstruktorskie i tekhnologicheskie raboty grazhdanskogo naznacheniya, predstavlyaemykh v tselyakh monitoringa i otsenki*" [The Order of the Ministry of Education and Science of the Russian Federation of March 5, 2014 No. 162. Appendix 3 "The Composition of Information about the Performance Results of Scientific Organizations Carrying Out Scientific Research, Experimental Design and Technological Works of Civil Designation Provided for the Purposes of Monitoring and Evaluation]. Available at: http://www.rg.ru/2014/05/14/minobrnauki2-dok.html.

In addition, leading scientists point out that "substitution of national abstract and citation databases with foreign citation systems leads to the fact that Russian scientists orient their scientific research mainly toward the interests of the foreign scientific community that has its own needs for scientific information, which very often do not coincide with what domestic science requires due to the historical realities" [11, p. 11]. The result is "the loss of sovereignty of Russian science in the choice of research areas and the outflow of promising young scientists who have focused on foreign research issues" [11, p. 11].

Thus, an issue concerning the creation of national citation index that could be an alternative to foreign databases is becoming more acute. Global experience shows that the development of national bibliographic databases enhances the level of national scientific publications and also promotes a comprehensive and accurate assessment of the performance of research teams on the basis of their published works.

National abstract databases, such as China Scientific and Technical Papers and Citations[7] and Chinese Science Citation Database (China)[8], Citation Database for Japanese Papers (Japan)[9], Brazil's National Database of Research and Science Résumés (Brazil), have made significant progress in promoting and demonstrating scientific achievements of their countries.

The issue concerning the creation of an objective system of scientific institutions performance was raised many times, and also at the highest level. For instance, at the meeting of the Council under the President of the Russian Federation for Science and Education in Gatchina (April 30, 2013) V.V. Putin pointed out that "the current tool for evaluating the performance of scientific organizations and the results of their work has certain disadvantages. It does not allow us to single out true leaders in a given research sector, and impact assessments are not linked to funding received by research organisations".

The President highlighted the necessity to develop a national system for objective assessment of scientific organizations' performance", which, in his opinion, "will allow us to concentrate public resources in those areas where we can indeed expect impressive new results, and receive the promising outcomes much needed by our society and economy"[10].

In our opinion, the Russian Science Citation Index can become part of such a system. Established in 2005 on a platform of the Scientific Electronic Library (www.eLibrary.ru), RSCI is a powerful analytical system for assessing scientific performance;

[7] China Scientific and Technical Papers and Citations (CSTPC) database was established by the Institute for Scientific and Technical Information of China. Thematic scope: applied sciences [Y. Wu, 2004].

[8] Chinese Science Citation Database was developed by the Documentation and Information Center of the Chinese Academy of Sciences. Thematic scope: fundamental sciences [B. Jin, 1999].

[9] Citation Database for Japanese Papers was established by the National Institute of Informatics of Japan. It indexes only the STM-publications that are published in Japan [M. Negishi, 2004].

[10] V.V. Putin's speech at the Council under the President of the Russian Federation for Science and Education in Gatchina (April 30, 2013). Available at: http://www.kremlin.ru/news/18010

a set of scientometric indicators is calculated and continuously updated in this system.

The national system is based on the abstract and citation database, which contains more than seven million publications of Russian authors and citations to these publications from more than 4.5 thousand Russian journals.

In addition to publications from scientific journals, the RSCI includes conference papers, monographs, textbooks, patents and dissertations. The database contains information about the output data, authors, their affiliation, key words and subject areas, as well as abstracts and reference lists. Based on the objective data, the RSCI helps evaluate research performance efficiency and study in detail the statistics of the publication activity of more than 600 thousand Russian scientists and 11 thousand scientific organizations in all the areas of knowledge[11].

Previously, we have attempted to present some general approaches to assessing performance efficiency of research organizations on the basis of statistical data provided by the Russian Science Citation Index [20, 21]. The study of the resources accumulated in the RSCI has substantiated the importance of scientometric indicators for the modern scientist in particular and for the scientific community in general.

A monitoring of publication activity indicators is carried out on the example of a group of economic academic institutions subordinate to the Federal Agency of Scientific Organizations and previously included in the Economics Section of the Department of Social Sciences of RAS. The analysis of scientometric indicators shows that these organizations are increasing their publication activity, improving the quality of publications and their scientific and practical relevance, as evidenced by the steadily increasing citation rates.

Judging by the results obtained, we can say that if in 2013 the RSCI resources were used insufficiently in the specified reference group, then at the beginning of 2015 the majority of the institutions significantly increased their presence in this database.

Due to the fact that the indicators in the RSCI are periodically updated not only for the current year, but also for previous periods, we compared several indicators for the five-year period in order to assess growth rates of publication activity of the institutions of the specified reference group.

In order to ensure comparability of the periods under comparison in the dynamics we used cumulative indicators of the two consecutive five-year periods: 2008–2012 (according to the RSCI data for October 2013)[12]; and 2009–2013 (according to the RSCI data for October 2014)[13], i.e.,

[11] Rossiiskii indeks nauchnogo tsitirovaniya [Russian Science Citation Index]. *Nauchnaya elektronnaya biblioteka* [Scientific Electronic Library]. Available at: http://elibrary.ru/projects/citation/cit_index.asp

[12] Statistical data for the period are given in the article: Tret'yakova O.V., Kabakova E.A. Vozmozhnosti i perspektivy ispol'zovaniya indeksov tsitirovaniya v otsenke rezul'tatov deyatel'nosti nauchnogo uchrezhdeniya [Opportunities for and Prospects of Using Citation Indices in Evaluating the Performance of Research Institution]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2013, no. 6 (30), pp. 189–200.

[13] Tret'yakova O.V. *Indeksy nauchnogo tsitirovaniya. Vozmozhnosti i perspektivy v otsenke rezul'tatov nauchnoi deyatel'nosti: preprint* [Science Citation Indices. Opportunities and Prospects in Evaluating Scientific Research Performance: Preprint]. Vologda: ISERT RAN, 2014.

in a subsequent period we excluded the indicators of the base year of the previous five-year period and added the indicators of the next year. This approach provides for equal time segments, and takes into account the activization of data input.

The indicators for the last five-year period presented in the RSCI, i.e. for 2010–2014, are given for reference. These data are not used for comparison, because they are not yet fully represented in the RSCI. These data identify future trends in development and are used for ranking the scientific institutions.

Table 2 shows the dynamics of the total number of publications in the RSCI by research institutions engaged in economics and subordinate to FANO of Russia. The organizations are ranked by total number of publications for 2010–2014.

The data indicate that the average growth rate of the number of publications for the period 2009–2013 in this reference group was 125% compared with the previous period of 2008–2012. The data as of January 14, 2015 also show the 13% growth in the number of publications for 2010–2014 in comparison with the previous five-year period. Obviously, these numbers will somewhat increase by the end of 2015.

Table 3 shows the dynamics of indicators of the total number of the RSCI citations of research institutions engaged in economics and subordinate to FANO of Russia. Organizations are ranked by total number of citations for 2010–2014.

Citation analysis shows that all the economic institutions subordinate to FANO of Russia have significantly improved their citation metrics for 2009–2013 in comparison with the previous five-year period. An average growth rate for this indicator in the reference group for 2014 amounted to 209%, i.e. the total number of citations has increased more than twice.

The study of the dynamics of the Hirsch[14] index for scientific institutions engaged in economics and subordinate to FANO of Russia proves that this indicator for many institutions has increased significantly in the course of 2014 *(tab. 4)*.

Thus, the analysis of indicators of publication activity of academic institutions engaged in economic research and subordinate to FANO of Russia shows that in the course of 2014 the indicators of publication activity of these organizations in the RSCI have increased significantly. Substantial growth of bibliometric indicators is caused by the fact that scientific institutions presented the results of their scientific work in the RSCI most widely, which confirms the growing interest in analytical resource. It is obvious that today the Russian Science Citation Index has excellent prospects to become part of a system for evaluating scientific organizations' performance.

We think that along with professional expert assessment that takes into account research specifics, scientometric indicators presented in the RSCI can form an objective overview of the efficiency of scientific institutions' performance by different reference groups.

[14] The Hirsch index h is obtained if *n* out of the total number *(Np)* of articles of the staff of the given institution is cited at least h times each, while the rest *(Np - h)* of the articles are cited no more than *h* times each [Hirsch J. E., 2005].

Table 2. Five-year dynamics of the indicators of the total number of publications by research institutions engaged in economics and subordinate to FANO of Russia, in the RSCI

Institution name	Total number of publications for 2008-2012 (data as of October 2013)	Total number of publications for 2009-2013 (data as of October 2014)	Growth rate 2009-2013 to 2008-2012, %	**Total number of publications for 2010-2014 (data as of January 14, 2015)**	Position in the ranking for 2010-2014 (data as of January 14, 2015)
RAS Institute of Economics	1979	2182	110	**2324**	1
Institute of Economics and Organization of Industrial Production, Siberian Branch of RAS	1354	1744	128	**1982**	2
Institute of Economics, Ural Branch of RAS	1312	1449	110	**1467**	3
Central Economic Mathematical Institute of RAS	781	945	120	**1459**	4
Institute of Socio-Economic Development of Territories of RAS	716	922	150	**1201**	5
G.P. Luzin Institute of Economic Problems of Kola Scientific Centre of RAS	644	1096	170	**1170**	6
Institute of Social and Economic Research of Ufa Science Centre of RAS	85	514	в 6 раз	**714**	7
Institute of Economic Forecasting of RAS	646	678	104	**643**	8
Market Economy Institute of RAS	188	406	216	**464**	9
Economic Research Institute, Far Eastern Branch of RAS	257	365	142	**457**	10
Institute of Social and Economic Research, Dagestan Scientific Center of RAS	480	472	98	**421**	11
Institute of Agrarian Problems of RAS	365	371	102	**382**	12
Institute of Social and Economic Studies of Population at RAS	352	372	106	**360**	13
Institute of Regional Economy of RAS	287	284	99	**359**	14
Institute of Social, Economic and Humanitarian Studies Southern Scientific Center of RAS	116	185	159	**242**	15
Institute of Economics of Karelian Scientific Centre of RAS	128	163	127	**178**	16
Institute of Socio-Economic and Energy Problems of the North Komi Scientific Centre, Ural Branch of RAS	126	163	129	**171**	17
Sochi Research Center of RAS	69	106	154	**99**	18
Saint Petersburg Institute for Economics and Mathematics of RAS	73	80	110	**68**	19
Total	**9958**	**12497**	**125**	**14161**	-

Table 3. Five-year dynamics of the indicators of the total number of citations for research institutions engaged in economics and subordinate to FANO of Russia, in the RSCI

Institution name	Total number of citations for 2008-2012 (data as of October 2013)	Total number of citations for 2009-2013 (data as of October 2014)	Growth rate 2009-2013 to 2008-2012, %	**Total number of citations for 2010-2014 (data as of January 14, 2015)**	Position in the ranking for 2010-2014 (data as of January 14, 2015)
Central Economic Mathematical Institute of RAS	2389	4536	190	**10223**	1
RAS Institute of Economics	2655	5059	191	**6400**	2
Institute of Economics and Organization of Industrial Production, Siberian Branch of RAS	2138	5141	240	**6137**	3
Institute of Economics, Ural Branch of RAS	1448	2790	193	**3856**	4
Market Economy Institute of RAS	300	2504	in 8.4 times	**3519**	5
Institute of Economic Forecasting of RAS	2032	2876	142	**3092**	6
Institute of Socio-Economic Development of Territories of RAS	677	1335	197	**2027**	7
Institute of Social and Economic Studies of Population at RAS	806	1283	159	**1508**	8
G.P. Luzin Institute of Economic Problems of Kola Scientific Centre of RAS	197	861	in 4.4 times	**1116**	9
Economic Research Institute, Far Eastern Branch of RAS	399	820	205	**1075**	10
Institute of Social and Economic Research, Dagestan Scientific Center of RAS	108	352	326	**676**	11
Institute of Social and Economic Research of Ufa Science Centre of RAS	42	254	in 6 times	**385**	12
Institute of Regional Economy of RAS	149	225	151	**379**	13
Institute of Agrarian Problems of RAS	135	228	169	**314**	14
Institute of Economics of Karelian Scientific Centre of RAS	62	156	252	**273**	15
Institute of Socio-Economic and Energy Problems of the North Komi Scientific Centre, Ural Branch of RAS	100	169	169	**249**	16
Institute of Social, Economic and Humanitarian Studies Southern Scientific Center of RAS	15	103	in 6.9 times	**222**	17
Saint Petersburg Institute for Economics and Mathematics of RAS	119	170	143	**198**	18
Sochi Research Center of RAS	70	90	129	**112**	19
Total	**13841**	**28952**	**209**	**41761**	-

Table 4. Dynamics of the Hirsch index for scientific institutions engaged in economics and subordinate to FANO of Russia, in the RSCI

Institution name	h-index (data as of October 2013)	h-index (data as of October 2014)	Growth rate of the Hirsch index in 2014 as compared to 2013	**h-index (data as of January 14, 2015)**	Position in the ranking (data as of January 14, 2015)
Central Economic Mathematical Institute of RAS	21	32	152	**48**	1
Market Economy Institute of RAS	10	34	340	**35**	2
RAS Institute of Economics	23	29	126	**32**	3
Institute of Economics and Organization of Industrial Production, Siberian Branch of RAS	15	29	193	**31**	4
Institute of Economic Forecasting of RAS	22	27	123	**28**	5
Institute of Economics, Ural Branch of RAS	14	20	143	**21**	6-7
Institute of Social and Economic Studies of Population at RAS	16	20	125	**21**	6-7
Institute of Socio-Economic Development of Territories of RAS	12	13	108	**14**	8-9
Economic Research Institute, Far Eastern Branch of RAS	9	13	144	**14**	8-9
G.P. Luzin Institute of Economic Problems of Kola Scientific Centre of RAS	7	11	157	**12**	10
Institute of Social and Economic Research, Dagestan Scientific Center of RAS	4	9	225	**10**	11
Institute of Social and Economic Research of Ufa Science Centre of RAS	4	8	200	**9**	12-14
Institute of Agrarian Problems of RAS	5	8	160	**9**	12-14
Institute of Socio-Economic and Energy Problems of the North Komi Scientific Centre, Ural Branch of the RAS	6	7	117	**9**	12-14
Institute of Economics of Karelian Scientific Centre of RAS	4	7	175	**8**	15-16
Institute of Regional Economy of RAS	6	7	117	**8**	15-16
Saint Petersburg Institute for Economics and Mathematics of RAS	6	7	117	**7**	17-18
Institute of Social, Economic and Humanitarian Studies Southern Scientific Center of RAS	3	5	167	**7**	17-18
Sochi Research Center of RAS	4	5	125	**5**	19

However, it should be noted that the development of a Russian-language resource, such as the RSCI, requires additional organizational and economic efforts.

First of all, the government should adopt a decision that the Russian science citation index should be given the status of a national database. It is important to bear in mind that, if we are talking about assessing the effectiveness and efficiency of performance of Russian scientists and scientific organizations, and the ranking of scientific journals on the basis of any scientometric indicators, it is necessary to take the data of the national citation index as the basis. The development of a national abstract and citation database will largely contribute to the preservation of the sovereignty of the Russian science; it will also make it possible to be guided by mainly national interests in the choice of scientific development priorities.

It is advisable to specify "the number of publications of the organization, indexed in the RSCI" as part of the information about scientific organizations' performance, submitted to FANO of Russia for the purposes of monitoring and evaluation, as a compulsory indicator of the effectiveness and relevance of scientific research. In our opinion, the number of publications included in international databases cannot be used as the main scientometric indicator to assess the performance of a Russian scientific organization, since there are not many Russian publications represented in foreign databases, and this indicator does not provide objective overview of the publication activity of research institutions.

It should be noted that the formation of the national citation index must be arranged through the selection of periodicals and individual publications according to strict criteria that would ensure the quality of the materials contained in the database; it would make their assessment according to scientometric indicators more objective.

In conclusion it should be emphasized that the main objective of the system for evaluating research performance should consists in finding the ways for the promotion of scientific institutions, the establishment of a basis for making effective management decisions in the field of science, all this will help raise the level of Russian scientific publications and achieve significant results in all the areas of scientific research.

References

1. Bednyi B.I., Sorokin Yu.M. O pokazatelyakh nauchnogo tsitirovaniya i ikh primenenii [About Science Citation Indices and Their Application]. *Vysshee obrazovanie v Rossii* [Higher Education in Russia], 2012, no. 3, pp.17-28.
2. Bredikhin S.V., Kuznetsov A.Yu., Shcherbakova N.G. *Analiz tsitirovaniya v bibliometrii* [Citation Analysis in Bibliometrics]. Novosibirsk: IVMiMG SO RAN, NEIKON, 2013.
3. Varshavskii A.E. *Osnovnye problemy otsenki rezul'tativnosti i effektivnosti deyatel'nosti nauchnykh organizatsii. Doklad na Ekspertnoi sessii FANO Rossii "Otsenka effektivnosti deyatel'nosti nauchnykh organizatsii"* [Main Problems in Assessing the Effectiveness and Efficiency of Performance of Scientific Organizations.

Report on the Expert Session of FANO of Russia "Assessment of Efficiency of Performance of Scientific Organizations"]. Moscow, 2014. Available at: http://www.cemi.rssi.ru/news/cemi/index.php?ELEMENT_ID=7987

4. Varshavskii A.E., Markusova V.A. Metodologicheskie problemy mezhdunarodnogo sravnitel'nogo analiza rezul'tatov nauchnoi deyatel'nosti [Methodological Issues in International Comparative Analysis of Scientific Research Performance]. *Innovatsionnaya politika: Rossiya i Mir: 2002–2010* [Innovation Policy: Russia and the World: 2002–2010]. Under general editorship of N.I. Ivanova and V.V. Ivanov. Moscow: Nauka, 2011. Pp. 407-441.
5. Varshavskii A.E., Ivanov V.V., Markusova V.A. Ob adekvatnoi otsenke rezul'tativnosti nauchnoi deyatel'nosti [About an Adequate Assessment of Scientific Research Performance]. *Vestnik Rossiiskoi akademii nauk* [Herald of the Russian Academy of Sciences], 2011, vol. 81, no. 7, pp. 587-593.
6. Varshavskii A.E. Problemy nauki i ee rezul'tativnost' [Problems of Science and Its Effectiveness]. *Voprosy ekonomiki* [Issues of Economics], 2011, no. 1, pp. 151-157.
7. Vozovikova T. Arshinom ne izmerish'. Uchenye dostoiny fundamental'noi otsenki svoego truda [You Cannot Measure It by a Yardstick. Scientists Deserve Fundamental Assessment of Their Work]. *Poisk* [Search], 2013, no. 44.
8. Garfield E. Mozhno li vyyavlyat' i otsenivat' nauchnye dostizheniya i nauchnuyu produktivnost'? [Can We Identify and Evaluate Scientific Achievements and Scientific Performance]. *Vestnik AN SSSR* [Herald of the Academy of Sciences of the USSR], 1982, no. 6, pp. 43.
9. *Igra v "tsyfir'", ili Kak teper' otsenivayut trud uchenogo: sbornik statei o bibliometrike* [Playing with Numbers, or How the Work of a Scientist Is Now Evaluated: Collection of Articles on Bibliometrics]. Moscow: MTsNMO, 2011.
10. Kabakova E.A. Ispol'zovanie naukometricheskikh pokazatelei pri otsenke nauchnoi deyatel'nosti [The Use of Scientometric Indicators in Evaluation of Scientific Activity]. *Voprosy territorial'nogo razvitiya* [Territorial Development Issues], 2014, no. 8 (18). Available at: http://vtr.isert-ran.ru/?module=Articles&action=view&aid=4203.
11. Kablov E.N. Pravo na reiting. Kak otsenit' intellektual'nyi resurs Rossii? [The Right to Be Rated. How to Evaluate Russia's Intellectual Resources?]. *Poisk* [Search], 2013, no. 45-46, p. 11.
12. 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 Database Expert]. Moscow, 2013. Part 1. 90 p.
13. Markusova V.A., Ivanov V.V., Varshavskii A.E. Bibliometricheskie pokazateli rossiiskoi nauki i RAN (1997–2007) [Bibliometric Indicators of Russian Science and the Russian Academy of Sciences (1997–2007)]. *Vestnik RAN* [Herald of the Russian Academy of Sciences], 2009, vol. 79, no. 7, pp. 483-491.
14. Mikhailov O.V. Kriterii i parametry ob»ektivnoi otsenki kachestva nauchnoi deyatel'nosti [The Criteria and Parameters for Objective Assessment of Research Performance]. *Vestnik Rossiiskoi akademii nauk* [Herald of the Russian Academy of Sciences], 2011, vol. 81, no. 7, pp. 622-625.
15. Ob utverzhdenii poryadka predostavleniya nauchnymi organizatsiyami, vypolnyayushchimi nauchno-issledovatel'skie, opytno-konstruktorskie i tekhnologicheskie raboty grazhdanskogo naznacheniya, svedenii o rezul'tatakh ikh deyatel'nosti i poryadka podtverzhdeniya ukazannykh svedenii federal'nymi organami ispolnitel'noi vlasti v tselyakh monitoringa, poryadka predostavleniya nauchnymi organizatsiyami, vypolnyayushchimi nauchno-issledovatel'skie, opytno-konstruktorskie i tekhnologicheskie raboty grazhdanskogo naznacheniya, svedenii o rezul'tatakh ikh deyatel'nosti v tselyakh otsenki, a takzhe sostava svedenii o rezul'tatakh deyatel'nosti nauchnykh organizatsii, vypolnyayushchikh nauchno-issledovatel'skie, opytno-konstruktorskie i tekhnologicheskie raboty grazhdanskogo naznacheniya, predostavlyaemykh v tselyakh monitoringa i otsenki: Prikaz Ministerstva obrazovaniya i nauki Rossiiskoi Federatsii ot 5 marta 2014 goda № 162 [On Approval of the Procedure, according to Which the Scientific Organizations Carrying Out Scientific Research, Experimental Design and Technological Works of Civil Designation Are to Provide Information about Their Performance Results; and on the Approval of the Procedure of Confirmation of the Specified Information by the Federal Executive Authorities for the

Purposes of Monitoring; On Approval of the Procedure, according to Which the Scientific Organizations Carrying Out Scientific Research, Experimental Design and Technological Works of Civil Designation Are to Provide Information about Their Performance Results for the Purposes of Evaluation; and Also on Approval of the Composition of Information about the Performance Results of Scientific Organizations Carrying Out Scientific Research, Experimental Design and Technological Works of Civil Designation provided for the Purposes of Monitoring and Evaluation: the Order of the Ministry of Education and Science of the Russian Federation of March 5, 2014 No. 162]. *Rossiiskaya gazeta* [Russian Newspaper], 2014, May 14. Available at: http://www.rg.ru/2014/05/14/minobrnauki2-dok.html

16. O merakh po realizatsii gosudarstvennoi politiki v oblasti obrazovaniya i nauki: Ukaz Prezidenta Rossiiskoi Federatsii ot 7 maya 2012 g. №599 [About the Measures to Implement State Policy in the Field of Education and Science: the Decree of the President of the Russian Federation of May 7, 2012 No. 599]. *Rossiiskaya gazeta* [Russian Newspaper], 2012, May 7. Available at: http://www.rg.ru/2012/05/09/nauka-dok.html
17. Pislyakov V.V. Metody otsenki nauchnogo znaniya po pokazatelyam tsitirovaniya [Methods of Assessment of Scientific Knowledge by Citation Indices]. *Sotsiologicheskii zhurnal* [Sociological Journal], 2007, no. 7, pp. 128-140.
18. Rossiiskii indeks nauchnogo tsitirovaniya [Russian Science Citation Index]. *Nauchnaya elektronnaya biblioteka* [Scientific Electronic Library]. Available at: http://elibrary.ru/projects/citation/cit_index.asp
19. Tret'yakova O.V., Kabakova E.A. Vozmozhnosti i perspektivy ispol'zovaniya indeksov tsitirovaniya v otsenke rezul'tatov deyatel'nosti nauchnogo uchrezhdeniya [Opportunities for and Prospects of Using Citation Indices in Evaluating the Performance of Research Institution]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2013, no. 6 (30), pp.189-200.
20. Tret'yakova O.V. *Indeksy nauchnogo tsitirovaniya. Vozmozhnosti i perspektivy v otsenke rezul'tatov nauchnoi deyatel'nosti: preprint* [Science Citation Indices. Opportunities and Prospects in Evaluating Scientific Research Performance: Preprint]. Vologda: ISERT RAN, 2014. 52 p.
21. Tret'yakova O.V. Sovremennye instrumenty otsenki nauchnogo potentsiala territorii: naukometricheskii podkhod [Modern Assessment Tools of Territory's Scientific Potential: Scientometric Approach]. *Problemy razvitiya territorii* [Problems of Territory's Development], 2014, no. 4, pp. 7-16.
22. Wu Y., Pan Y., Zhang Y., Ma Z., Pang J., Guo H., Xu B., Yang Z. China Scientific and Technical Papers and Citations (CSTPC): History, Impact and Outlook. *Scientometrics,* 2004, vol. 60, no. 3, pp. 385-397.
23. Garfield E. Citation Indexes to Science: a New Dimension in Documentation through Association of Ideas. *Science,* 1955, vol. 122, no. 3159, pp. 108-111.
24. Garfield E., Sher I.H. New Factors in the Evaluation of Scientific Literature through Citation Indexing. *American Documentation,* 1963, vol. 14, no. 3, pp. 195-201.
25. Graber M.. Launov A., Walde K. Publish or Perish? The Increasing Importance of Publications for Prospective Economics Professors in Austria, Germany and Switzerland. *German Economic Review,* 2008, no. 9 (4), pp. 457-472.
26. Hirsch J.E. An Index to Quantify an Individual's Scientific Research Output. *Proc. of the National Acad. Sci. USA*, 2005, vol. 102, no. 46, pp.16569-16572.
27. Jin B., Wang B. Chinese Science Citation Database: Its Construction and Application. *Scientometrics,* 1999, vol. 45, no. 2, pp. 325-332.
28. Ketzler R., Zimmermann K. A Citation-Analysis of Economic Research Institutes. *Scientometrics,* 2013, vol. 95, no. 3, pp.1095-1112. doi:10.1007/s11192-012-0850-2.
29. Kozak M., Bornmann L., Leydesdorff L. How Have the Eastern European Countries of the Former Warsaw Pact Developed since 1990? A Bibliometric Study. *Scientometrics,* 2015, vol. 102, no. 2, pp. 1101-1117. doi: 10.1007/s11192-014-1439-8.
30. Leydesdorff L., Wagner C. S. Macrolevel Indicators of the rRlations between Research Funding and Research Output. *Journal of Informetrics,* 2009, vol. 3, no. 4, pp. 353-362.
31. Liansheng M. Document Database Construction in China in the 1990s: A Review of Developments. *The Electronic Library*, 2000, vol. 18, no. 3, pp. 210-215.

32. Markusova V., Jansz M., Libkind A., Libkind I. Varshavsky A. Trends in Russian Research Output in Post-Soviet Era. *Scientometrics,* 2009, vol. 2, no. 279, pp. 249-260.
33. Negishi M., Sun Y., Shigi K. Citation Database for Japanese Papers: A New Bibliometric Tool for Japanese Academic Society. *Scientometrics,* 2004, vol. 60, no. 3. pp. 333-351.

Cited works

1. Bednyi B.I., Sorokin Yu.M. About Science Citation Indices and Their Application. *Higher Education in Russia*, 2012, no. 3, pp.17-28.
2. Bredikhin S.V., Kuznetsov A.Yu., Shcherbakova N.G. *Citation Analysis in Bibliometrics*. Novosibirsk: IVMiMG SO RAN, NEIKON, 2013.
3. Varshavskii A.E. *Main Problems in Assessing the Effectiveness and Efficiency of Performance of Scientific Organizations. Report on the Expert Session of FANO of Russia "Assessment of Efficiency of Performance of Scientific Organizations"*. Moscow, 2014. Available at: http://www.cemi.rssi.ru/news/cemi/index.php?ELEMENT_ID=7987
4. Varshavskii A.E., Markusova V.A. Methodological Issues in International Comparative Analysis of Scientific Research Performance. *Innovation Policy: Russia and the World: 2002–2010*. Under general editorship of N.I. Ivanova and V.V. Ivanov. Moscow: Nauka, 2011. Pp.407-441.
5. Varshavskii A.E., Ivanov V.V., Markusova V.A. About an Adequate Assessment of Scientific Research Performance. *Herald of the Russian Academy of Sciences*, 2011, vol. 81, no. 7, pp. 587-593.
6. Varshavskii A.E. Problems of Science and Its Effectiveness. *Issues of Economics*, 2011, no. 1, pp. 151-157.
7. Vozovikova T. You Cannot Measure It by a Yardstick. Scientists Deserve Fundamental Assessment of Their Work. *Search,* 2013, no. 44.
8. Garfield E. Can We Identify and Evaluate Scientific Achievements and Scientific Performance. *Herald of the Academy of Sciences of the USSR*, 1982, no. 6, pp. 43.
9. *Playing with Numbers, or How the Work of a Scientist Is Now Evaluated: Collection of Articles on Bibliometrics*. Moscow: MTsNMO, 2011.
10. Kabakova E.A. The Use of Scientometric Indicators in Evaluation of Scientific Activity. *Territorial Development Issues,* 2014, no. 8 (18). Available at: http://vtr.isert-ran.ru/?module=Articles&action=view&aid=4203.
11. Kablov E.N. The Right to Be Rated. How to Evaluate Russia's Intellectual Resources? *Search,* 2013, no. 45-46, p. 11.
12. Kirillova O.V. *Editorial Preparation of Scientific Journals according to International Standards: Recommendations of a Scopus Database Expert*. Moscow, 2013. Part 1. 90 p.
13. Markusova V.A., Ivanov V.V., Varshavskii A.E. Bibliometric Indicators of Russian Science and the Russian Academy of Sciences (1997–2007). *Herald of the Russian Academy of Sciences,* 2009, vol. 79, no. 7, pp. 483-491.
14. Mikhailov O.V. The Criteria and Parameters for Objective Assessment of Research Performance. *Herald of the Russian Academy of Sciences,* 2011, vol. 81, no. 7, pp. 622-625.
15. On Approval of the Procedure, according to Which the Scientific Organizations Carrying Out Scientific Research, Experimental Design and Technological Works of Civil Designation Are to Provide Information about Their Performance Results; and on the Approval of the Procedure of Confirmation of the Specified Information by the Federal Executive Authorities for the Purposes of Monitoring; On Approval of the Procedure, according to Which the Scientific Organizations Carrying Out Scientific Research, Experimental Design and Technological Works of Civil Designation Are to Provide Information about Their Performance Results for the Purposes of Evaluation; and Also on Approval of the Composition of Information about the Performance Results of Scientific Organizations Carrying Out Scientific Research, Experimental Design and Technological Works of Civil Designation provided for the Purposes of Monitoring and Evaluation: the Order of the Ministry of Education and Science of the Russian Federation

of March 5, 2014 No. 162. *Russian Newspaper*, 2014, May 14. Available at: http://www.rg.ru/2014/05/14/minobrnauki2-dok.html

16. About the Measures to Implement State Policy in the Field of Education and Science: the Decree of the President of the Russian Federation of May 7, 2012 No. 599. *Russian Newspaper,* 2012, May 7. Available at: http://www.rg.ru/2012/05/09/nauka-dok.html
17. Pislyakov V.V. Methods of Assessment of Scientific Knowledge by Citation Indices. *Sociological Journal,* 2007, no. 7, pp. 128-140.
18. Russian Science Citation Index. *Scientific Electronic Library*. Available at: http://elibrary.ru/projects/citation/cit_index.asp
19. Tret'yakova O.V., Kabakova E.A. Opportunities for and Prospects of Using Citation Indices in Evaluating the Performance of Research Institution. *Economic and Social Changes: Facts, Trends, Forecast*, 2013, no. 6 (30), pp.189–200.
20. Tret'yakova O.V. *Science Citation Indices. Opportunities and Prospects in Evaluating Scientific Research Performance: Preprint*. Vologda: ISERT RAN, 2014. 52 p.
21. Tret'yakova O.V. Modern Assessment Tools of Territory's Scientific Potential: Scientometric Approach. *Problems of Territory's Development*, 2014, no. 4, pp. 7-16.
22. Wu Y., Pan Y., Zhang Y., Ma Z., Pang J., Guo H., Xu B., Yang Z. China Scientific and Technical Papers and Citations (CSTPC): History, Impact and Outlook. *Scientometrics,* 2004, vol. 60, no. 3, pp. 385–397.
23. Garfield E. Citation Indexes to Science: a New Dimension in Documentation through Association of Ideas. *Science,* 1955, vol. 122, no. 3159, pp. 108-111.
24. Garfield E., Sher I.H. New Factors in the Evaluation of Scientific Literature through Citation Indexing. *American Documentation,* 1963, vol. 14, no. 3, pp. 195-201.
25. Graber M.. Launov A., Walde K. Publish or Perish? The Increasing Importance of Publications for Prospective Economics Professors in Austria, Germany and Switzerland. *German Economic Review,* 2008, no. 9 (4), pp. 457-472.
26. Hirsch J.E. An Index to Quantify an Individual's Scientific Research Output. *Proc. of the National Acad. Sci. USA*, 2005, vol. 102, no. 46, pp.16569-16572.
27. Jin B., Wang B. Chinese Science Citation Database: Its Construction and Application. *Scientometrics,* 1999, vol. 45, no. 2, pp. 325-332.
28. Ketzler R., Zimmermann K. A Citation-Analysis of Economic Research Institutes. *Scientometrics,* 2013, vol. 95, no. 3, pp.1095-1112. doi:10.1007/s11192-012-0850-2.
29. Kozak M., Bornmann L., Leydesdorff L. How Have the Eastern European Countries of the Former Warsaw Pact Developed since 1990? A Bibliometric Study. *Scientometrics,* 2015, vol. 102, no. 2, pp. 1101-1117. doi: 10.1007/s11192-014-1439-8.
30. Leydesdorff L., Wagner C. S. Macrolevel Indicators of the Relations between Research Funding and Research Output. *Journal of Informetrics,* 2009, vol. 3, no. 4, pp. 353-362.
31. Liansheng M. Document Database Construction in China in the 1990s: A Review of Developments. *The Electronic Library*, 2000, vol. 18, no. 3, pp. 210-215.
32. Markusova V., Jansz M., Libkind A., Libkind I. Varshavsky A. Trends in Russian Research Output in Post-Soviet Era. *Scientometrics,* 2009, vol. 2, no. 279, pp. 249-260.
33. Negishi M., Sun Y., Shigi K. Citation Database for Japanese Papers: A New Bibliometric Tool for Japanese Academic Society. *Scientometrics,* 2004, vol. 60, no. 3. pp. 333-351.

YOUNG RESEARCHERS

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On the methodological approaches to the study of saving behavior of the population

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Abstract. The task to ensure effective functioning of all systems in the society and sustainable economic growth requires significant amounts of investment resources, which include savings of the population. This involves identification of the amount of funds accumulated by the population and studies of the characteristics of its saving behavior.

The article reveals advantages and disadvantages of the main methodological approaches to the research in saving behavior and gives a comparative analysis of methods on the basis of official statistical information. As for Russia income is a key factor in saving behavior, the article also addresses the problem of assessing the degree of income differentiation of saving behavior. For this purpose we have used a method of household budgets sample surveys on the basis of which we have calculated and analyzed key performance indicators of savings behavior of households, including in the context of groups with different income levels.

Unlike previous works on the topic, our study uses available resources (not money income) as a basis for the calculation of saving behavior indicators, as they more fully characterize funds of low-income households, which are mostly represented in the budget surveys sample.

The performed analysis has helped identify that the degree of the population's savings differentiation does not yield to the incomes differentiation, and the highest levels of savings and used financial assets belong to the well-to-do group. What is more, the growth in per capita income has not encouraged the poor to save. Thus, in contrast to the well-to-do, increasing the volume of savings in the cost structure, poorer groups direct the major part of funds for consumer needs and different payments. Thus, the share of savings in the overall structure of their income remains practically unchanged.

The conclusion emphasizes that sociological methods can be used to study qualitative changes in saving behavior and analyze the impact of subjective factors.

Key words: savings, households, balance of money income and expenditure (Bie) tax account system (TAS), household budgets sample survey, savings rate.

Over the past few decades both foreign and Russian scientific and expert communities have been actively studying and discussing the issues that deal with identifying the specifics of people's savings behavior and determining the amounts of savings they have accumulated. This is due to several reasons. The structure and dynamics of savings are essential indicators of financial well-being of citizens and economic development of the state; they have a significant impact on the conditions of development of the banking sector, show the current level of people's trust in financial institutions and authorities.

But, most importantly, people's savings are a significant investment resource, which promises substantial benefits to the state. First, it will reduce dependence on foreign investment. Second, the population will be able to get a higher income from their savings, to spend more on goods and services; this will promote economic growth and development of production. Third, the money resources of the population can be used in the funding of socially-oriented projects and industries, which are now the recipients of budget funds [22, p. 165]. In addition, the savings used for investment lending of production, are a necessary condition for structural adjustment and modernization of the economy [3, p. 23]. According to the experts [6], the attraction of people's savings into investments through bank deposits, investment funds, defined contribution pension system and other mechanisms can provide the annual GDP growth of more than 2.5%.

Economic-and-statistical and sociological methods are commonly used for the study of people's savings and savings behavior. Sociological approaches (questionnaire polls, focus groups, interviewing, social experiment, etc.) are valuable because they help to obtain timely information about the attitudes, motives and mechanisms of decision-making concerning the formation and use of savings nationwide and across individual territories and populations. Moreover, sociological methods allow scholars to solve the problem of "feedback": they help to trace how the preferences of financial services consumers change, how the population responds to the ongoing government activities in the field of socio-economic policy; they also help to determine the extent of the demand for adjustment of the activities of banks, insurance and investment companies, pension funds, etc.

According to the all-Russian polls conducted by VTSIOM, the level of savings activity in the Russians over last ten years has been relatively stable: after the proportion of savers increased in the early 2000s (from 22% in 2001 to 32% in 2004), it accounted for one third of the population (30% in 2010, 32% in 2014). The Russians

save money for the following purposes that remain the same: the purchase of housing (27% in 2010, 33% in 2014) and the accumulation of a money reserve "for a rainy day" (26%) [18]. The vast majority of those who have savings (90–95%), prefer to keep them in rubles [12].

The weakening of the national currency and the high consumer demand at the end of 2014 were the reasons why the Russians started to spend their ruble savings and to increase savings in foreign currency [23]. However, in January 2015, compared to November 2014, there were fewer negative assessments concerning the behavior of the ruble in the next two months: now 27% of the respondents think that the national currency will continue to decline, whereas at the end of last year 46% shared this viewpoint. The share of those who believe that the exchange rate will remain approximately at the same level as it is now has increased (from 24 to 36%). While the majority of the Russians do not know for sure how they should act in case the dollar rises further; 77% will do nothing. Those who are going to do something will most likely invest money in real estate or other expensive items (6%). Part of the respondents will buy dollars (4%), and others will begin to spend their savings (3%) [12].

A sociological study carried out at the Institute of Sociology of the Russian Academy of Sciences in November 2014 points out that people have "moderately anxious expectations": almost half of the citizens is sure that "the country will face hard times", another quarter has no hope that the change will come [21]. Such sentiments are naturally reflected in the behavior of the Russians. According to the Levada-Center, consumer sentiment index (CSI) in September 2014 dropped below 100 points (to 97) and as of January 2015 it is 77 points, which corresponds to the values of the acute phase of the crisis in 2008–2009[1]. Along with the "freezing" of savings activity, this can indicate the increase in inflation expectations and a negative forecast of the Russians concerning their income.

Similar trends in the savings behavior and consumer sentiment of the population are observed in the Vologda Oblast. The region's residents show more initiative in the formation of their savings: in 2000–2013 the share of individuals who had savings ranged between 35–40% (excluding post-reform and crisis periods, when it decreased to 24%). The region's residents accumulate savings mainly for the following purposes: to buy an apartment (26–35%), to save money "for old age" (15–25%) and to help their children (14–20%). Currency preferences of the Vologda Oblast residents are the same as those in Russia as a whole [2].

The analysis of the dynamics of CSI measured by ISEDT RAS in the region with the help of the public opinion monitoring carried out since 1997 on a regular basis indicates that the consumption opportunities of the region's population are slightly less favorable than the national average, but they are as responsive to changes in the socio-economic situation

[1] Available at: http://www.levada.ru/.

as those nationwide. This is expressed, for example, in the decrease of the index in the periods of crises of 1998 and 2008 (53.9 and 74.1 points, respectively) [5, 19].

The 2014 surveys registered a drop in savings activity (down to 23%) and a significant deterioration in consumer sentiment (from 92.3 points in January 2014 to 82.3 points in December 2014). These data indicate that the region's residents have mostly negative assessments of the socio-economic situation and development prospects in the region, which is connected, inter alia, with increasing concerns about the growth of prices for goods and services and the simultaneous reduction of incomes. However, only time will show what is in store for us[2].

The shortcomings of sociological methods are as follows: the inaccuracy of the information provided by the respondents concerning their financial opportunities, different methodologies and sample surveys carried out by various research organizations, the difficulties of mapping the received data and, as a consequence, the lack of opportunity to use these quantitative data as the target or forecast indicators.

Economic and statistical methods provide a more balanced assessment that helps to trace the trends in savings behavior. Statistical data can be used for assessing the amount of accumulated funds (both in total and by type of savings or population groups), for assessing the state of the banking sector (the interest rate, the amount of bank deposits of natural persons, etc.) and the role of savings in the economy (the share of people's savings in GDP or money incomes).

This article outlines key features of statistical methods for assessing population's savings, and also presents the results of the analysis of savings behavior based on sample surveys of household budgets. The latter is due to the fact that income is a key factor in savings behavior of the Russians, and the degree of income differentiation can be assessed according to the results of budget surveys.

Economic science and practice has several methodological approaches to the assessment of people's savings, namely [10, 15, 25]:

- the use of disposable income account for the household sector in the system of national accounts;
- the balance of money income and expenditure (BMIE) of the population;
- the data from the sample survey of household budgets conducted by the Federal State Statistics Service.

Each of the presented methodologies is based on the data that simultaneously assess the incomes, expenditures and other indicators of financial well-being of the population. However, there is not enough coordination between them, and they give different and often contradictory final results.

TAS and BMIE determine income and savings on the basis of official macrostatistical, reports of the Central Bank, other financial agencies and extra-

[2] According to Alexey Ulyukaev, Head of the Ministry of Economy, a decrease in consumer demand in 2015 can be from 7 to 9%, and the fall of real wages is forecasted at 12–15% [23].

budgetary social funds. The indicators in the budget-related surveys of the population are assessed on the basis of information about expenses and savings that is obtained directly from household members [13, 24].

The calculations of the amount of savings according to TAS are most often carried out when conducting international comparisons. The specific feature of this method consists in the fact that in this case the savings can take the form of financial (cash, bank deposits, loans, securities, etc.) and tangible (purchase of houses, land) assets, and as for disposable incomes, they include not only their primary distribution (labor remuneration, business profit, property income), but non-monetary income and current transfers [10, p. 31]. However, at the regional level TAS is used in a simplified form, so its opportunities in assessing people's savings and their savings potential within the country are limited.

The majority of researchers [9, 10, 20, 25] consider the data of BMIE to be the main source of information about incomes, expenses and savings of the population. The advantages of this approach include a relative simplicity of calculations and a possibility to use outcome indicators to compare them across the regions. However, the Balance, unlike TAS, does not make a clear division between current and capital expenditures. Thus, according to the BMIE methodology, income does not include the money obtained from the sale of property, foreign currency or securities (which are treated in TAS as the costs of capital deepening) [8, p. 509]. In addition, methodological materials of the Federal State Statistics Service on the preparation of the Balance were published back in 1996 and they have partly lost their relevance, because since then there have been changes in the legal system, new forms of savings have emerged, the role of lending in the life of households has increased, and new investment tools have emerged (non-state pension funds, trust funds, etc.).

Some experts point out that if this methodology is applied, there is a possibility of obtaining significantly overstated or understated results for some regions. The reason is that incomes and expenses are registered at the place where they are earned and made, which may not be the same as the place of residence [24].

The third methodological approach to the assessment of people's incomes, expenditures and savings is the sample survey of households' budgets. It represents the state statistical observation of the standard of living, carried out by the state statistics agencies, and covers 49,175 households. The survey is based on the direct polling (interviewing) of household members and on household records on current expenditures on consumption and saving. The sampling provides for obtaining representative data on the federal and regional levels. The distribution of the survey results on the general population is accompanied by statistical weighting [10, p. 33; 14].

The drawbacks of budget surveys are as follows: the absence of members of the most well-off segments of the population in the sample and its shift to the poor and middle income groups [10, p. 40; 20, p. 336; 24];

and the influence of psychological factors – the respondents can either intentionally change (understate or overstate) the amount of their spending and savings, thus making it difficult to estimate them accurately, or they just cannot clearly identify the part of their funds as savings or expenses [24].

But since the samples are comparable, and the forms that the households are to fill in use the same indicators, it is possible to assess the changes in the savings behavior of the population on the basis of sample surveys of the budgets. Moreover, the division of household according to socio-economic characteristics, which is performed within the framework of these observations, makes it possible to carry out a differentiated assessment of savings and to identify their specifics in different groups of households.

The main characteristics of savings and savings behavior of households, which can be studied on the basis of sample surveys of budgets are: 1) the amount of savings (or increase of savings); 2) the amount of loans (borrowed funds) and spent savings (dissavings); 3) the increase of financial assets (the balance of the two previous parameters) [25, p. 16].

Savings rate (SR) is used as an indicator characterizing the dynamics of saving behavior of the population [7, p. 21]. Savings rate represents the percentage ratio of the increase of savings to their source – the amount of money income of the population for a certain period [1, p. 67]. This indicator can be calculated regardless of the methodology used for determination of income and savings. Although, according to sample surveys of budgets, savings rates usually turn out to be slightly smaller than according to the TAS and BMIE data.

Savings rate in the short-term reflects a country's ability to cope with cyclical fluctuations: the higher the savings rate, the less the household consumption depends on a sharp decline in people's incomes. Savings rate in the long term is a key feature of the country's lending potential, it shows the ability of economy to finance its activities [30].

According to the methodology of the Organization for Economic Cooperation and Development (OECD), savings rate is determined as the ratio of people's savings to the disposable income of households. The savings themselves are calculated by subtracting consumer expenditures[3] from the disposable income of households[4] and adding to the figure obtained the net value of assets of households in pension funds [27].

The World Bank, OECD and other international organizations calculate savings rate on the basis of SNA-93 (System of National Accounts, 1993). In this case, savings rate is the ratio of the amount of people's savings and the net value of assets of households in pension funds to the disposable income of households [26].

Taking into consideration the existing Russian statistical base, this indicator for the Russian Federation and its regions can be assessed using either the ratio of gross

[3] Consumer expenditures include cash expenditures for consumer goods and services, and imputed costs of ownership.

[4] Disposable incomes of households consist of income from employment and income in the form of interest, dividends and social benefits excluding current taxes, interest on loans and social contributions.

savings (GS) and gross disposable incomes (GDI) of the household sector (according to SNA), or the ratio of the amounts of savings (S) and money incomes (MI) of the population (based on the Balance of money incomes and expenditures of the population) [7, p. 21]:

$$SR = \frac{GS}{GDI} \times 100\% \text{ , or } SR = \frac{S}{MI} \times 100\% .$$

The choice of method for calculating the index is determined by the purpose of the analysis. It is desirable to use the indicator of money incomes for assessing the investment potential. Gross disposable income is usually used as a basis for mapping in the cross-country analysis [7, p. 22].

The same method can be used for calculating dissavings rate (DR) and the growth rate of financial assets (GRFA) [7, p. 25]:

$$DR = \frac{ALSS}{MI} \times 100\% \text{ and } GRFA = \frac{GFA}{MI} \times 100\%,$$

where ALSS is the amount of loans and spent savings, GFA is the growth of financial assets.

Table 1 shows the change in the savings rate (SR) in different countries. As we can see, the range of values is quite wide. Savings rate in the majority of advanced economies has not changed significantly for several years and it remains at a rather low level of 10–12%.

Savings rate in developing countries, all other things being equal, should be higher than in developed countries. The lower savings rate is typical for countries with a relatively large accumulated wealth and relatively low interest rates. Thus, households in developed countries ceteris paribus will save a smaller proportion of disposable income than in developing countries [4, p. 9].

Savings rate in Russia has no pronounced changing trend; its noticeable upward and downward fluctuations (within 2–3%) are registered in different years. This situation is the result of concentration of savings in a limited number of households (with medium and high income), the unification of types of savings (mainly deposits in banks and cash in hand); and the development of a variety of consumer lending programs. Continuous socio-economic transformations and the changing external environment also influence this situation.

It is difficult to determine, what had the most significant influence on the differences in the values of savings rate in different countries – the real differences in people's behavior or the differences in the methods of calculating its component indicators. Moreover, the level of savings rate is affected by institutional, demographic and socio-economic differences between countries, the specifics of their financial-credit and tax systems, cultural traditions, etc. For example, government programs for retirement benefit, and the age structure of the population will affect the rate of savings of citizens (as a rule, after retirement, elderly people reduce their financial assets at the expense of savings). The availability and cost of loans, and an attitude to debt can also affect the decisions of citizens concerning the accumulation or spending of free cash [27, 29].

Table 1. Dynamics of savings rate of households in different countries (in % of disposable money income)

Country	2000	2005	2006	2007	2008	2009	2010	2011	2012
France	11.01	11.08	11.21	11.72	11.70	12.55	12.08	12.03	11.67
Germany	9.38	10.72	10.82	11.02	11.48	10.90	10.86	10.39	10.32
Austria	9.33	9.63	10.37	11.64	11.50	11.21	8.87	6.72	7.35
Belgium	12.46	9.91	10.67	11.34	11.53	13.17	9.93	8.43	9.62
Sweden	3.14	4.02	4.87	7.22	8.99	11.00	8.33	10.35	12.18
Mexico	-	10.12	10.07	9.73	9.25	9.03	9.00	8.23	-
Czech Republic	5.84	4.79	6.06	5.72	4.84	6.77	6.19	5.15	5.91
Estonia	-2.95	-10.77	-13.14	-8.18	-4.13	4.74	4.44	6.03	-1.10
Finland	0.48	0.88	-1.10	-0.88	-0.26	4.24	3.56	1.26	1.07
Hungary	6.16	6.68	7.23	3.34	2.74	4.80	5.42	5.42	1.87
Norway	4.30	9.62	-0.51	0.83	3.66	6.91	5.63	7.12	8.19
Slovenia	7.85	10.6	10.81	8.99	8.56	8.05	6.12	5.23	4.70
Spain	6.14	4.75	3.90	4.03	7.76	12.19	7.86	6.79	4.42
UK	0.09	-2.29	-2.21	-3.66	-2.68	2.26	2.93	2.16	2.37
USA	4.20	2.69	3.50	3.15	5.22	6.38	5.85	5.87	5.81
Canada	4.78	2.18	3.61	2.90	4.04	4.70	4.88	-	-
Russia	–	*10.99*	*12.37*	*12.07*	*10.11*	*13.13*	*15.5*	*13.88*	–
For reference: Russia (according to the data of BMIE)*	*7.60*	*10.40*	*10.30*	*9.60*	*5.30*	*13.90*	*14.80*	*10.40*	*9.90*

* Calculated by the author on the basis of: The balance of money income and expenditures of the population of the Russian Federation. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/level/#
Source: National Accounts at a Glance: National Accounts at a Glance 2014. Household Savings Total. OECD. Available at: http://data.oecd.org/hha/household-savings.htm#indicator-table

As noted above, income and the specifics of its use are the most significant factors contributing to the change in the amount of savings and savings behavior of households in Russia.

The socio-economic heterogeneity caused by the high income differentiation of the population has been the main characteristic of the Russian society for the last 10–15 years [16]. Despite the fact that, the average per capita incomes of the Russians in real terms increased significantly (2.6 times) in 2000–2012, the inequality of the population did not decrease; on the contrary, it has increased: for example, the ratio of the average income of the richest 10% to the poorest 10% (R/P 10%) in 2012 was 16.4 times, while in 2000 it was 13.9 times. The improvement of Russia's socio-economic development in 2000–2007 and in the subsequent period had a favorable impact on the wealthiest part of the population; as for the financial situation of low-income groups, it did not change did not change significantly both in Russia and in the regions. Thus, in 2012 the average per capita income of the least well-off part of the population was 93%

of the subsistence level, and more than half of consumer expenditures in every fifth Russian family was directed to the purchase of food [17, p. 94]. The structure of the total income distribution remains virtually unchanged – for almost 15 years half of money income (47–48%) has been concentrated in hands of the 20% of the most well-to-do, whereas the 20% of the least well-off have about 5% of all the money resources.

This income differentiation directly affects consumption and saving opportunities in different income groups. However, before we move on to the analysis of the data obtained from sample surveys of household budgets, it is necessary to outline two assumptions adopted in the analysis. First, we analyze the period from 2003 to 2012, because the surveys for these years are publicly available at the Rosstat database; besides, it is by 2003 that the markets of bank deposits and retail lending have become strong enough. Second, expenditures and savings are not compared with money incomes [7, 20, 25], they are compared with the resources available, including income in kind and a variety of transfers, because they give a more comprehensive picture of households' opportunities and allow needy groups to maintain consumption at the subsistence level.

Analysis of the income differentiation of consumer behavior *(tab. 2)* shows that income growth outpaces the growth in consumption when we move from groups with lower income to groups with higher income.

The largest share in the expenditures of households in all the income groups falls on consumer spending. In general, for the period of 2003–2012 we can observe the

Table 2. Ratio of costs and available resources of households in the Russian Federation depending on the amount of available resources, 2012 (%)

Expenditure item	All households	Groups of households										R/P 10%
		1st*	2nd	3rd	4th	5th	6th	7th	8th	9th	10th*	
Consumer expenditures	67.9	78.7	78.0	77.1	75.8	74.2	74.0	72.1	71.4	67.8	57.9	8.7
Expenditures on the purchase of real estate	4.1	0.0	0.0	0.0	0.0	0.01	0.0	0.0	0.2	0.6	12.6	16580
Taxes	5.9	8.1	8.1	8.1	7.8	7.4	7.2	6.8	6.4	6.1	3.5	5.1
Growth of financial assets	0.4	4.4	5.2	5.6	6.2	7.7	7.1	8.3	8.1	5.6	-13.3	-36.1
of them: - the amount of savings accumulated	10.3	5.1	6.0	6.8	7.7	9.4	9.3	10.8	11.5	12.0	11.4	26.5
- the amount of loans and savings used	9.9	0.7	0.8	1.2	1.5	1.8	2.2	2.4	3.4	6.4	24.6	403.2

* Note: 1st group has the smallest incomes (1st decile), 10th group has the largest incomes (10th decile).
Calculated by the author with the use of: Microdata of sample surveys of household budgets. Rosstat. Available at: http://obdx.gks.ru/

decreasing trend in the proportion of this expenditure item (from 77 to 68%). However, the lower the household income, the more money is spent on consumer needs.

The tax burden on the representatives of different deciles also varies. The amount of taxes paid by the rich is five times higher than that of poor households (24,614 rubles per year per household member against 4,812 rubles), but the share of taxes in the income of the poorest is 8%, whereas it does not exceed 3.5–6 percentage points in the 9th and 10th deciles. In general, the proportion of this expenditure item has not changed for the period of 2003–2012 (5.6 and 5.9%, respectively).

Significant disparities (the greatest degree of differentiation) are observed in the expenditures on the purchase of real estate and in savings. Only the representatives of the top (10th) decile are able to make substantial investments in real estate (12.6% of the income or 89,304 rubles per year per household member). And the highest degree of differentiation is observed for this very expenditure item: the expenditures of the most prosperous households on the purchase of real estate are in 16,580 times higher than those of the poorest households.

One of the reasons for this situation lies in the necessity of having a certain amount of "start-up" savings, which again varies depending on the level of household income *(tab. 2, 3)*. In the first decile 3,030 rubles per year is deposited as savings per household member (5% of income), whereas in the

Table 3. Costs on savings depending on the amount of disposable resources of households in the Russian Federation, 2012

Groups of households	The amount of savings (savings increase)		The amount of loans and savings spent		Growth of financial assets	
	rub. per year per person	% to resources available	rub. per year per person	% to resources available	rub. per year per person	% to resources available
All	23063.1	10.3	22177.5	9.9	885.7	0.4
1st	3029.8	5.1	432.0	0.7	2597.8	4.4
2nd	5098.7	6.0	671.8	0.8	4426.9	5.2
3rd	7070.1	6.8	1204.5	1.2	5865.7	5.6
4th	9474.8	7.7	1801.3	1.5	7673.4	6.2
5th	13657.3	9.4	2548.8	1.8	11108.4	7.7
6th	16013.1	9.3	3809.6	2.2	12203.4	7.1
7th	22727.8	10.8	5165.7	2.4	17562.1	8.3
8th	30623.5	11.5	9062.3	3.4	21561.2	8.1
9th	42613.2	12.0	22872.9	6.4	19740.3	5.6
10th	80322.7	11.4	174205.4	24.6	-93882.7	-13.3

Calculated by the author with the use of: Microdata of sample surveys of household budgets. Rosstat. Available at: http://obdx.gks.ru/

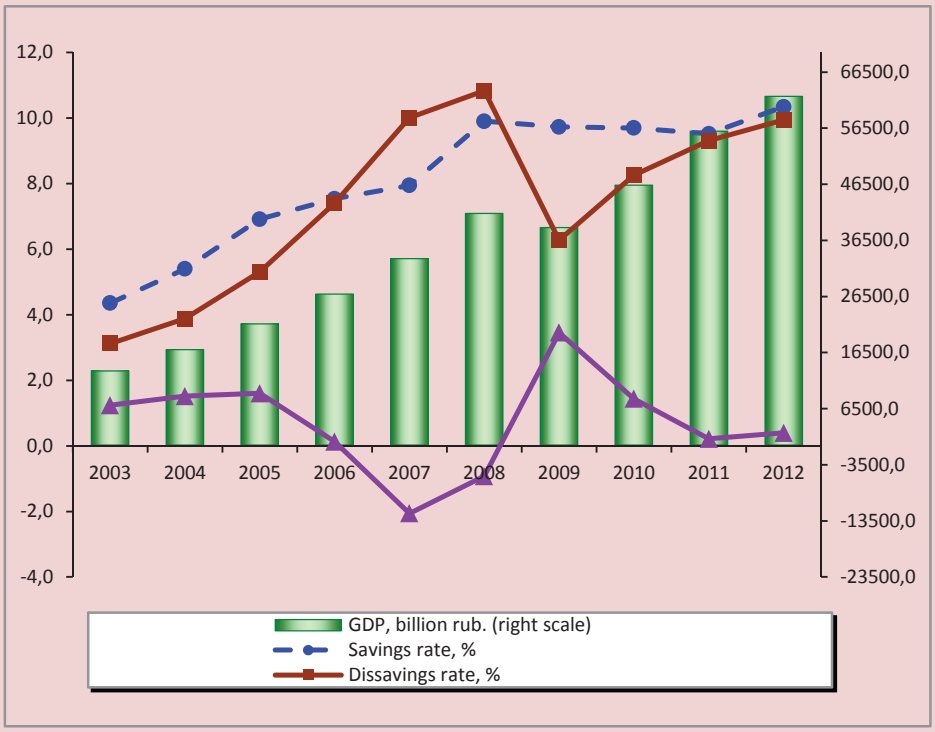
tenth decile this figure is 80,323 rubles per year (11%), which is 26.5 times more and it indicates an extremely high level of savings differentiation, greatly exceeding the level of differences in disposable income (equal to 12 times).

On average in 2012 households indicated 10% of their income as savings (in 2003 – 4.4%).

Representatives of the most well-off group are also more active in using borrowed funds and previously accumulated savings – nearly a quarter of their income or 174,205 rubles per year per household member (compared with 22,873 rubles (6%) in the 9th decile, and 432 rubles (1%) in the 1st decile).

If the savings increase characterizes the ability of households to implement savings, then the growth of financial assets is a general characteristic of people's savings opportunities, because it helps to take into account the current processes of accumulation, and the use of previously accumulated money and newly obtained loans [25, p. 20]. One peculiarity is traced here – there is an increase in financial assets in all income groups, except for the 10th group.

Dynamics of GDP, savings rate, dissavings rate and growth of financial assets of the RF population, 2003–2012



Calculated by the author using the following sources: Microdata of sample surveys of household budgets. Rosstat. Available at: http://obdx.gks.ru/; Gross domestic product. Annual data (in current prices). Rosstat. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/#

The amounts of savings and loans in the most well-off group exceed the accumulations made during the year, resulting in a decrease in financial assets of this group of households.

However, it would not be quite correct to say that they are characterized by dissaving behavior, because the amounts spent could be used for the purchase of real estate or jewelry, which they can regard as savings depending on the purposes of the household.

Therefore, the higher the level of household income, the more opportunities to make savings and dispose of other financial resources.

The *figure* presents the general dynamics of saving and dissaving rates and the growth of financial assets. In the period from 2003 to 2006, during which the Russian Federation witnessed economic growth and the growth of financial welfare of the population, there has been an increase in saving rates (from 4.4% in 2003 to 7.5% in 2006) and dissaving rates (from 3.1 to 7.4%, respectively).

In 2006–2008 dissavings rate (10–11%) exceeded savings rate (8–10%), which eventually led to an outflow of financial assets and the increase in borrowings in the expenditures of the population. This situation is probably related to the implementation of pent-up demand by households, which they formed during the period of stable economic growth. However, the crisis of 2008–2009 forced people to moderate their consumer desires, which resulted in a sharp reduction in the amount of lending resources and spending of previously accumulated savings. At the same time, citizens continued to accumulate money reserves "for a rainy day", and savings rate remained at 9.7–9.9%.

The fixation of savings rate (9–10%) that started in 2009, along with the increased use of borrowings and available savings by households (dissavings rate increased from 6.3% in 2009 to 9.9% in 2012), again reduced the growth of financial assets to a minimum (0.2–0.4%). Given the fact that these changes took place along with the aggravation of socio-economic development problems in Russia, it is possible to speak about the decline of people's trust in the actions of authorities in the sphere of savings and financial and credit policy, about the lack of adequate (reliable and sufficiently profitable) tools for placement of available funds and about the aspirations of the population to spend a significant share of available money resources.

It should be emphasized that the observed increase in the gap between the growth of savings and financial assets in the disposable resources of households means an increase in the public demand for credit resources and the increased use of previously accumulated funds to finance current expenditures.

Indicators of people's savings activity differ significantly by decile groups *(tab. 4)*. The level of savings by years is steadily increasing as we move from one income group to another. We also observe the growth in annual values of this indicator for each income group.

Table 4. Dynamics of savings rate, dissavings rate and rates of growth of financial assets of the Russian population in terms of income groups in 2003–2012 (%)

Year	All households	Groups of households									
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Savings rate, %											
2003	4.4	2.2	2.4	2.6	2.9	3.2	3.7	3.7	4.5	4.7	6.0
2004	5.4	2.6	3.1	3.3	3.4	3.7	4.2	4.8	5.9	7.0	6.6
2005	6.9	2.3	3.0	3.3	4.0	4.7	5.3	5.9	6.5	7.2	10.3
2006	7.5	2.8	3.6	4.2	4.7	5.6	6.4	7.1	8.2	9.5	9.0
2007	7.9	3.3	4.3	5.1	5.6	6.9	7.3	7.9	8.8	10.0	8.5
2008	9.9	4.1	4.9	6.0	6.7	7.6	8.0	9.3	10.2	10.9	12.5
2009	9.7	4.0	5.2	6.1	6.9	7.9	8.7	9.8	10.4	11.8	11.3
2010	9.7	4.1	5.3	6.1	6.6	7.4	8.4	9.6	10.4	11.2	11.7
2011	9.5	4.5	5.5	6.4	6.9	7.9	8.8	9.5	10.4	11.5	10.6
2012	10.3	5.1	6.0	6.8	7.7	9.4	9.3	10.8	11.5	12.0	11.4
Dissavings rate, %											
2003	3.1	2.1	1.5	1.3	1.4	1.5	1.6	1.5	1.6	2.1	7.2
2004	3.9	2.2	1.4	1.5	1.5	1.6	1.9	2.0	1.8	2.2	9.0
2005	5.3	1.1	1.2	1.2	1.3	1.7	2.0	2.4	2.2	3.1	13.0
2006	7.4	1.0	1.1	1.3	1.4	1.8	2.1	2.3	3.0	4.1	18.5
2007	10.0	0.9	1.2	1.2	1.5	1.8	2.5	2.9	3.2	4.3	25.2
2008	10.8	1.0	1.1	1.4	1.6	1.9	2.4	2.8	2.9	5.0	27.4
2009	6.3	1.1	0.9	1.0	1.2	1.5	1.8	2.1	2.4	3.5	16.7
2010	8.3	0.9	1.0	1.2	1.4	1.7	2.0	2.3	2.8	3.8	22.0
2011	9.3	0.8	1.1	1.2	1.6	1.8	2.1	2.7	3.1	5.0	23.8
2012	9.9	0.7	0.8	1.2	1.5	1.8	2.2	2.4	3.4	6.4	24.6
Rate of growth of financial assets, %											
2003	1.2	0.2	0.9	1.3	1.5	1.8	2.1	2.1	2.9	2.6	-1.1
2004	1.5	0.4	1.6	1.8	1.9	2.1	2.3	2.8	4.1	4.8	-2.4
2005	1.6	1.3	1.8	2.1	2.7	3.0	3.3	3.5	4.3	4.1	-2.7
2006	0.1	1.7	2.5	2.9	3.3	3.8	4.2	4.9	5.3	5.4	-9.5
2007	-2.1	2.4	3.2	3.9	4.2	5.1	4.7	5.0	5.6	5.6	-16.7
2008	-0.9	3.1	3.8	4.6	5.1	5.7	5.6	6.5	7.3	5.8	-14.9
2009	3.5	3.0	4.3	5.1	5.6	6.4	6.9	7.7	8.0	8.3	-5.4
2010	1.4	3.2	4.3	4.9	5.3	5.7	6.4	7.4	7.6	7.4	-10.3
2011	0.2	3.7	4.4	5.2	5.3	6.1	6.8	6.8	7.2	6.6	-13.2
2012	0.4	4.4	5.2	5.6	6.2	7.7	7.1	8.3	8.1	5.6	-13.3

Calculated by the author using the following sources: Microdata of sample surveys of household budgets. Rosstat. Available at: http://obdx.gks.ru/

Dissavings rate among the representatives of the first seven deciles is practically the same; moreover, it remained relatively stable in 2003–2012. This can be explained by the limited financial resources of the households in these groups and by the lack of opportunities to increase excessively the amount of borrowed funds. The values of this indicator in the 8th and 9th deciles are slightly higher.

However, the largest amount of loans and previously accumulated savings is observed the group of the wealthiest households, and they are increasing from year to year. In general for 10 years the amount of attracted funds and savings spent by households in the tenth decile in absolute terms has increased by more than 9 times from 18,764 rubles per household member in 2003 to 174,205 rubles in 2012 (in comparable assessment), or from 7% of the resources available to 25%, respectively. As of 2012, this trend of use of financial resources more than twice exceeded the amount of savings accumulated.

Therefore, the households of the 1st – 9th deciles over the period of 2003–2012 are characterized by the increase in the rate of financial assets; as for the most well-off population group, it is characterized by its reduction. In other words, the people that have significant financial resources and make savings in the largest amounts prefer to spend them on consumer needs, rather than direct them to the investment process. At the same time, the increase in the amount of financial resources in other groups makes it impossible to cover the outflow of funds due to the similar behavior of the households of the 10th decile. Therefore, the overall growth rate of financial assets tends to zero.

Table 5. Distribution of household savings depending on the amount of available resources in 2003–2012 (%)

Groups of households	Year									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
All households	100	100	100	100	100	100	100	100	100	100
1st	1.4	1.3	0.9	0.9	1.0	1.0	1.1	1.1	1.3	1.3
2nd	2.2	2.2	1.6	1.8	1.9	1.8	2.1	2.1	2.2	2.2
3rd	3.0	3.0	2.2	2.6	2.8	2.7	3.0	3.0	3.2	3.1
4th	4.0	3.7	3.3	3.5	3.8	3.6	4.0	3.9	4.1	4.1
5th	5.3	4.8	4.5	4.9	5.5	4.8	5.5	5.1	5.5	5.9
6th	7.5	6.5	6.3	6.8	7.1	6.3	7.5	6.9	7.3	6.9
7th	9.0	9.2	8.7	9.4	9.7	9.3	10.4	9.9	9.6	9.9
8th	13.4	14.1	11.9	13.5	13.7	12.6	13.6	13.3	13.1	13.3
9th	17.4	20.7	17.0	20.1	19.9	17.0	19.7	18.4	19.3	18.5
10th	36.7	34.5	43.7	36.5	34.6	40.9	33.0	36.3	34.5	34.8

Calculated by the author using the following sources: Microdata of sample surveys of household budgets. Rosstat. Available at: http://obdx.gks.ru/

The structure of savings distribution by income groups, similar to the structure of income distribution, has not changed. According to the data for 2012, 10% of the richest households have more than one-third of the total amount of savings (35%), while 10% of the poorest population have slightly more than 1% *(tab. 5)*.

S.A. Shashnov, Ph.D., Associate at HSE, [25, p. 24] points out that such a high level of savings differentiation is a factor that will contribute to the preservation of a high level of people's differentiation by income in the near future.

Summarizing the obtained results, it is worth noting that the methodology of sample surveys of household budgets used in the article allow us to assess not only the absolute levels of savings behavior, but also the degree of inequality in the distribution of savings in income groups. In addition, the conclusions are largely consistent with the main results of the work in earlier periods [7, 8, 15, 20, 25] and thus reflect the specifics of savings behavior of Russia's population.

Again we emphasize that the level of income is an important factor in the differentiation of savings of the Russians; that is why only the members of the most well-off groups can accumulate savings in the amounts and forms that make it possible to use them for the purposes of economic development.

However, we should remember that the use of economic and statistical methods is limited by the incompleteness and delay of the official statistical data, and by the inability to monitor the subjective features and current changes in savings behavior. Have the form of savings changed? What incentives for savings prevail? What are people's preferences when choosing how to dispose of available funds? What will the citizens do when the exchange rate of the national currency changes? And so on.

Ultimately, the choice of methods of analysis is determined by research objectives. Thus, in order to solve strategic issues relating to economic development and improvement of financial situation of the population, it is most appropriate to use methods based on statistics, which will help to assess the existing investment base of savings, to set target indicators for socio-economic policy and to make various forecasts. In the operational management it is recommended to use a comprehensive approach, involving the combination of economic-statistical and sociological methods for obtaining the most complete and reliable information about the phenomenon under consideration. It seems that such practice implemented by research community and public authorities will help to develop reasonable measures to address issues related to economic, fiscal and investment policy, standard of living and financial activity.

References

1. Batrakova A.G. Sberezheniya domashnikh khozyaistv: sushchnost', gruppirovki i rol' v sovremennoi ekonomike [Savings of Households: Essence, Grouping and Role in the Modern Economy]. *Den'gi i kredit* [Money and Credit], 2006, no. 11, pp. 66-72.

2. Belekhova G.V. Sotsial'no-demograficheskie osobennosti finansovogo povedeniya naseleniya [Socio-Demographic Peculiarities of Population's Financial Behavior]. *Problemy razvitiya territorii* [Problems of Development of Territories], 2015, no. 1 (75), pp. 100-115.
3. Burlachkov V. Politika Banka Rossii: tendentsii i protivorechiya [Policy of the Bank of Russia: Trends and Contradictions]. *Ekonomist* [Economist], 2014, no. 12, pp. 21-26.
4. Grigor'ev, L., Ivashchenko A. Mirovye disbalansy sberezhenii i investitsii [Global Imbalances in Savings and Investment]. *Voprosy ekonomiki* [Issues of Economics], 2011, no. 6, pp. 4-19.
5. Dement'eva I.N. Opyt primeneniya indeksnogo metoda v sotsiologicheskikh issledovaniyakh [Experience of the Index Method Use in Sociological Research]. *Monitoring obshchestvennogo mneniya* [Public Opinion Monitoring], 2014, no. 4 (122). Available at: http://elibrary.ru/download/25774667.pdf
6. Den'gi dlya novoi ekonomiki [Money for New Economy]. *RIA Novosti* [RIA News]. Available at: http://strategy2020.rian.ru/smi/20120131/366256259.html
7. Efimova M.R., Abbas N.Yu. Investitsionnyi potentsial naseleniya Rossii: osnovnye aspekty statisticheskogo izucheniya [Investment Potential of the Russian Population: Main Aspects of Statistical Learning]. *Voprosy statistiki* [Statistical Issues], 2011, no. 1, pp. 21-30.
8. Ivanov Yu.N., Khomenko T.A. Problemy i metody statistiki sberezheniya naseleniya v sootvetstvii s kontseptsiyami SNS [Problems and Methods of Statistics of the Population's Savings in Accordance with the Tax Account System]. *Ekonomicheskii zhurnal VShE* [HSE Economic Journal], 1998, no. 4, pp. 508-515.
9. Kashin Yu. O monitoringe sberegatel'nogo protsessa [On the Monitoring of the Savings Process]. *Voprosy ekonomiki* [Issues of Economics], 2003, no. 6, pp. 100-110.
10. Kondrat'eva Z.A. Primenenie osnovnykh metodologicheskikh podkhodov k otsenke sberezhenii naseleniya i individual'nykh investitsii [Application of Basic Methodological Approaches to the Estimation of the Population's Savings and Private Investment]. *Finansovaya analitika: problemy i resheniya* [Financial Analytics: Problems and Solutions], 2013, no.20 (158), pp. 31-40.
11. Kostomarova A.V. Krizisnye tendentsii v sfere sberezhenii naseleniya v stranakh s razvitoi rynochnoi ekonomikoi i Rossii [Crisis Tendencies in the Sphere of Population's Savings in the Countries with Developed Market Economies and Russia]. *Vestnik MGIMO-Universiteta* [Bulletin of MGIMO], 2012, no. 4, pp. 237-240.
12. Kurs rublya: strakhi i prognozy na budushchee: press-vypusk № 2755 [Exchange-Value of Ruble: Fears and Predictions for the Future: Press Release No. 2755]. *VTsIOM* [VTsIOM]. Available at: http://wciom.ru/index.php?id=459&uid=115123
13. Metodologicheskie polozheniya po statistike (vypusk 1, 2, 3, 4, 5) [Methodological Aspects of Statistics (Issue no. 1, 2, 3, 4, 5)]. *Rosstat* [Federal State Statistics Service of the Russian Federation]. Available at: http://www.gks.ru/bgd/free/B99_10/Main.htm
14. Metodologiya statisticheskogo obsledovaniya naseleniya. Obsledovaniya domashnikh khozyaistv. Metodologiya obsledovaniya byudzhetov domashnikh khozyaistv [Method of Statistical Surveys of the Population. Household Surveys. Method of Household Budgets Surveys]. *Rosstat* [Federal State Statistics Service of the Russian Federation]. Available at: http://www.gks.ru/bgd/free/B99_10/IssWWW.exe/Stg/d020/i020460r.htm
15. Nikolaenko S.A. Lichnye sberezheniya naseleniya [Personal Savings]. *Ekonomicheskii zhurnal VShE* [HSE Economic Journal], 1998, no. 4, pp. 500-507.
16. Rossoshanskii A.I., Belekhova G.V. Blagosostoyanie naseleniya kak pokazatel' modernizatsionnogo potentsiala territorii [Welfare of the Population as an Indicator of Modernization Potential of the Territory]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and Social Changes: Facts, Trends, Forecast], 2014, no. 5 (35), pp. 260-275.
17. Rossoshanskii A.I. K voprosu o regional'noi differentsiatsii kachestva zhizni naseleniya [Revisiting the Regional Differentiation of Population's Life Quality]. *Problemy razvitiya territorii* [Problems of Development of Territories], 2015, no. 1 (75), pp. 88-99.

18. Sberezheniya i investitsii: vkladyvaem v nedvizhimost': press-vypusk № 2750 [Savings and Investment: Investing in Real Estate: Press Release No. 2750]. *VTsIOM* [VTsIOM]. Available at: http://wciom.ru/index.php?id=459&uid=115115 (accessed January 26, 2015)
19. Gulin K.A., Ozornina S.V., Dement'eva I.N., Kozhina T.P. Severo-Zapad Rossii: tendentsii obshchestvennykh nastroenii 2005–2010 gg. [North-West of Russia: Trends in Public Attitudes in 2005–2010]. *Tendentsii i problemy razvitiya regiona: nauchnye trudy: v 4 t. T. 3: Sotsial'nyi imperativ regional'nogo razvitiya: v 2 ch. Ch. II* [Trends and Problems of Regional Development: Proceedings: in 4 Volumes. Vol. 3: Social Imperative of Regional Development: in 2 Parts. Part 2], Vologda: ISERT RAN, 2011. 662 p.
20. Surinov A.E., Shashnov S.A. Ob osnovnykh tendentsiyakh v urovne zhizni i sberegatel'nom povedenii naseleniya Rossii [On the Main Trends in the Living Standard and Saving Behavior of the Population in Russia]. *Ekonomicheskii zhurnal VShE* [HSE Economic Journal], 2002, no. 3, pp. 324-342.
21. Khamraev V. Eiforiya ostavila rossiyan [Euphoria Has Left the Russians]. *Kommersant.ru* [Kommersant.ru]. Available at: http://www.kommersant.ru/doc/2655839
22. Shabunova A.A., Belekhova G.V. Investitsionnoe budushchee sberezhenii naseleniya [Investment in Future Savings]. *Eko* [Eco], 2014, no. 2, pp. 165-178.
23. Shapovalov A. Domokhozyaistva uzhe vse kupili [Households Have Already Bought Everything]. *Kommersant.ru* [Kommersant.ru]. Available at: http://www.kommersant.ru/doc/2655843
24. Shashnov S.A. *O sberegatel'nom povedenii domashnikh khozyaistv v Rossii i problemakh ego statisticheskogo izucheniya* [On Saving Behavior of Households in Russia and Problems of Statistical Learning]. Available at: http://src-h.slav.hokudai.ac.jp/publictn/92/shashnov.pdf
25. Shashnov S.A. Sberezheniya domashnikh khozyaistv i problemy ikh statisticheskogo izucheniya na mikrourovne [Savings of Households and Their Statistical Study at the Micro Level]. *Voprosy statistiki* [Statistical Issues], 2003, no. 1, pp. 13-25.
26. Harvey R. Comparison of Household Saving Ratios: Euro Area/United States/Japan. *Statistics Brief. OECD,* 2004, no. 8. Available at: http://www.oecd.org/std/na/32023442.pdf
27. Household saving. *OCED Factbook 2013*. Available at: http://dx.doi.org/10.1787/factbook-2013-en
28. OECD Factbook 2014. Economic, Environmental and Social Statistics. Household savings. *OECD*. Available at: http://www.oecd-ilibrary.org/docserver/download/3013081ec023.pdf
29. Sauter A.M., Stockdale Ch., McIntyre D. *The 10 Countries Where People Save the Most Money*. Available at: http://www.foxbusiness.com/markets/2011/08/15/10-countries-where-people-save-most-money/
30. The Various Measures of the Saving Rate and Their Interpretation. Statistics directorate OECD. *OECD*. Available at: www.oecd.org/dataoecd/10/34/1953416.doc

Cited works

1. Batrakova A.G. Savings of Households: Essence, Grouping and Role in the Modern Economy. *Money and Credit*, 2006, no. 11, pp. 66-72.
2. Belekhova G.V. Socio-Demographic Peculiarities of Population's Financial Behavior. *Problems of Development of Territories*, 2015, no. 1 (75), pp. 100-115.
3. Burlachkov V. Policy of the Bank of Russia: Trends and Contradictions. *Economist*, 2014, no. 12, pp. 21-26.
4. Grigor'ev, L., Ivashchenko A. Global Imbalances in Savings and Investment. *Issues of Economics*, 2011, no. 6, pp. 4-19.
5. Dement'eva I.N. Experience of the Index Method Use in Sociological Research. *Public Opinion Monitoring*, 2014, no. 4 (122). Available at: http://elibrary.ru/download/25774667.pdf
6. Money for New Economy. *RIA News*. Available at: http://strategy2020.rian.ru/smi/20120131/366256259.html

7. Efimova M.R., Abbas N.Yu. Investment Potential of the Russian Population: Main Aspects of Statistical Learning. *Statistical Issues*, 2011, no. 1, pp. 21-30.
8. Ivanov Yu.N., Khomenko T.A. Problems and Methods of Statistics of the Population's Savings in Accordance with the Tax Account System. *HSE Economic Journal*, 1998, no. 4, pp. 508-515.
9. Kashin Yu. On the Monitoring of the Savings Process. *Issues of Economics,* 2003, no. 6, pp. 100-110.
10. Kondrat'eva Z.A. Application of Basic Methodological Approaches to the Estimation of the Population's Savings and Private Investment. *Financial Analytics: Problems and Solutions*, 2013, no.20 (158), pp. 31-40.
11. Kostomarova A.V. Crisis Tendencies in the Sphere of Population's Savings in the Countries with Developed Market Economies and Russia. *Bulletin of MGIMO*, 2012, no. 4, pp. 237-240.
12. Exchange-Value of Ruble: Fears and Predictions for the Future: Press Release No. 2755. *VTsIOM*. Available at: http://wciom.ru/index.php?id=459&uid=115123
13. Methodological Aspects of Statistics (Issue no. 1, 2, 3, 4, 5). *Federal State Statistics Service of the Russian Federation*. Available at: http://www.gks.ru/bgd/free/B99_10/Main.htm
14. Method of Statistical Surveys of the Population. Household Surveys. Method of Household Budgets Surveys. *Federal State Statistics Service of the Russian Federation*. Available at: http://www.gks.ru/bgd/free/B99_10/IssWWW.exe/Stg/d020/i020460r.htm
15. Nikolaenko S.A. Personal Savings. *HSE Economic Journal*, 1998, no. 4, pp. 500-507.
16. Rossoshanskii A.I., Belekhova G.V. Welfare of the Population as an Indicator of Modernization Potential of the Territory. *Economic and Social Changes: Facts, Trends, Forecast*, 2014, no. 5 (35), pp. 260-275.
17. Rossoshanskii A.I. Revisiting the Regional Differentiation of Population's Life Quality. *Problems of Development of Territories*, 2015, no. 1 (75), pp. 88-99.
18. Savings and Investment: Investing in Real Estate: Press Release No. 2750. *VTsIOM*. Available at: http://wciom.ru/index.php?id=459&uid=115115 (accessed January 26, 2015)
19. Gulin K.A., Ozornina S.V., Dement'eva I.N., Kozhina T.P. North-West of Russia: Trends in Public Attitudes in 2005–2010. *Trends and Problems of Regional Development: Proceedings: in 4 Volumes. Vol. 3: Social Imperative of Regional Development: in 2 Parts. Part 2*, Vologda: ISERT RAN, 2011. 662 p.
20. Surinov A.E., Shashnov S.A. On the Main Trends in the Living Standard and Saving Behavior of the Population in Russia. *HSE Economic Journal*, 2002, no. 3, pp. 324-342.
21. Khamraev V. Euphoria Has Left the Russians. *Kommersant.ru*. Available at: http://www.kommersant.ru/doc/2655839
22. Shabunova A.A., Belekhova G.V. Investment in Future Savings. *Eco*, 2014, no. 2, pp. 165-178.
23. Shapovalov A. Households Have Already Bought Everything. *Kommersant.ru* Available at: http://www.kommersant.ru/doc/2655843
24. Shashnov S.A. *On Saving Behavior of Households in Russia and Problems of Statistical Learning*. Available at: http://src-h.slav.hokudai.ac.jp/publictn/92/shashnov.pdf
25. Shashnov S.A. Savings of Households and Their Statistical Study at the Micro Level. *Statistical Issues*, 2003, no. 1, pp. 13-25.
26. Harvey R. Comparison of Household Saving Ratios: Euro Area/United States/Japan. *Statistics Brief. OECD,* 2004, no. 8. Available at: http://www.oecd.org/std/na/32023442.pdf
27. Household Saving. *OCED Factbook 2013*. Available at: http://dx.doi.org/10.1787/factbook-2013-en
28. OECD Factbook 2014. Economic, Environmental and Social Statistics. Household savings. *OECD*. Available at: http://www.oecd-ilibrary.org/docserver/download/3013081ec023.pdf
29. Sauter A.M., Stockdale Ch., McIntyre D. *The 10 Countries Where People Save the Most Money*. Available at: http://www.foxbusiness.com/markets/2011/08/15/10-countries-where-people-save-most-money/
30. The Various Measures of the Saving Rate and Their Interpretation. Statistics directorate OECD. *OECD*. Available at: www.oecd.org/dataoecd/10/34/1953416.doc

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