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Federal Budgetary Institution of Science Institute of Socio-Economic Development of Territories of Russian Academy of Science (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, international scientific conferences are held on a regular basis; they result in cooperation agreements with different scientific establishments:

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

2008 – 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.

2014 – Cooperation agreement is signed with Jiangxi Academy of Social Sciences (China, 2014).

NEW PUBLICATIONS OF ISEDT RAS

Ilyin V.A., Povarova A.I. *Public Administration Efficiency. 2000–2015. Contradictory Outcomes – an expected result: monograph*.

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

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

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

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

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

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FROM THE CHIEF EDITOR

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State Duma Election 2016
Economic Policy of the President Assessed by the People

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September 2016 will be the time when elections to the State Duma of the Russian Federation will be held; it will undoubtedly be the major event in Russia's domestic political life.

The State Duma elections as well as presidential elections in 2018 are the key steps after which a new political cycle will begin in Russia. This means that the people who come to power after the nationwide vote will have to justify the trust placed in them and implement their campaign promises. By and large, in 2016 and 2018, Russians will vote for not just specific people, but a course for the country's political and economic development for the next decade. Thus, of course, elections are an important milestone in the life of the country, and the preparations to them started long before today.

[1] This, in particular, is proved by the following steps taken by Putin during his third presidential term: restoration of the mixed electoral system that provides for the election of deputies under party lists and single-mandate constituencies (draft Federal Law "On elections of deputies of the State Duma of the Federal Assembly of the Russian Federation" was submitted by the President of the Russian Federation in March, 2013), the law on foreign agents, which has become one of the mechanisms of combating a "fifth column" (Federal Law No. 121 "On amendments to certain legislative acts of the Russian Federation in the part that regulates the activities of non-profit organizations performing the functions of foreign agents" was adopted on July 20, 2012); earlier, during Dmitry Medvedev's presidency, – the extension of the President's term from four to six years and powers of the State Duma from four to five years (Law of the Russian Federation on the amendment to the Constitution of the Russian Federation of December 30, 2008 No. 6-FKZ "On changing the term of powers of the President of the Russian Federation and State Duma"); simplification of procedure of creation of political parties (Federal Law dated April 02, 2012 No. 28 "On amendments to the Federal Law "On political parties").

Since the previous State Duma elections held on December 4, 2011, Russia has lived through many historically significant events, the most important of which are associated with the Ukrainian crisis, accession of Crimea and Sevastopol to the Russian Federation and subsequent aggravation of international relations with the U.S. and its allies.

The Russian society approaches the new political season with "the head proudly raised", but with "empty wallets" and in an environment of openly hostile relations with the U.S. and many Western European countries[2]. In these circumstances, it is very important to carry out a scientific and comprehensive analysis of public opinion on economic policy pursued by the President. What bothers Russians a few months before the beginning of a new political cycle? What motives they will be guided by when they come to the polling stations on September 18?

Socio-economic agenda

The socio-economic agenda has long been a subject of much excitement and even fears for Russians[3]. Once the main events of the "Crimean spring" became the thing of the past, price tags began to irritate citizens more and more, and demands that the authorities find ways to solve internal economic problems have become more and more frequent. Even Russia's successful participation in the Syrian conflict has not been able to provide that psychological effect, which the accession of Crimea and Sevastopol to the Russian Federation had on the Russian people in 2014.

Experts have long been warning us that negative trends in the Russian economy are leading the country toward crisis, and the reason for this is not the sanctions, but the inconsistency between the current economic model and the present-day realities. *"The economy that is experiencing a downward trend"[4]; "the deterioration of the socio-economic situation in general is not*

[2] According to a survey by Levada-Center conducted in October 2015, 33% of Russians believe that Europeans regard our country "with contempt and fear" (source: Zorkaya N., Lezina E. Rossiya i Evropa 2000 – 2015: rezul'taty sovmestnogo proekta Levada-Tsentra i Fonda Fridrikha Naumanna [Russia and Europe 2000 – 2015: results of the joint project of Levada Center and the Friedrich Naumann Foundation]. *Vestnik obshchestvennogo mneniya* [Public opinion herald], 2015, no. 3–4, p. 189). According to a survey conducted by ISEDT RAS in February 2016 in the Vologda Oblast, 45–47% of local residents believe that the attitude toward Russia in the world is "bad" and "biased" (the opposite view is held by 20–23% of people); more than half of respondents (53%) point out that Russia "instils fear" (the opposite opinion is expressed by 22% of people).

[3] As international tension is weakening, Russians are becoming increasingly alarmed with economic problems, crime and natural disasters. In April, there were no major changes in the "map of fears" of Russians (the index of fear shows how high is the probability of a particular problem in the eyes of Russians), while according to most indicators, the situation today looks somewhat more tense than a year ago. Decline in real incomes remains the most relevant topic".

The opinion of S. Lvov, head of VTsIOM monitoring and electoral studies: "The values of each indicator in the "map of fears" are closely connected with current political and socio-economic situation. If the concern about growing prices is a consequence of the "crisis" socio-psychological background, and in this aspect there has been no change since the beginning of the year, then the fears about the spread of international conflicts have been gradually declining for the past six months. This is obviously connected with the foreign policy situation, more specifically – with consistent resolution of the Syrian issue" *(Press-vypusk VTsIOM "Strakhi i opaseniya rossiyan"* [VTsIOM press release "Fears and concerns of the Russians"], 2016, May 16, No. 3105. Available at: http://wciom.ru/index.php?id=236&uid=115690

[4] Mirkin Ya.M. Vnezapnyi povorot [A sudden turn]. *Zhurnal novoi ekonomicheskoi assotsiatsii* [Journal of the New Economic Association], 2015, vol. 26, no. 2, p. 197.

a short-term but a long-term process, so the recovery is impossible to predict"[5]*; "it is not the sanctions but we ourselves that are to be blamed for the current economic troubles of Russia... It is a man-made crisis, it started without any sanctions, without the Maidan, and everything was clear at the end of 2013"*[6] – this is how experts evaluated the dynamics of the situation in the country.

However, the official position of the authorities, broadcast through the media, did not recognize the whole danger of this situation in the economy: the Government said there was no crisis or that it would soon pass; moreover, anti-Russian sanctions will give a new impetus to the growth of domestic market and revive the Russian economy[7].

The policy of "tightening the knots" has led to the fact that the economic crisis interfered with the social and psychological spheres, and the consequences of social maladjustment are eliminated much slower than the economic consequences of crises[8].

The social nature of the 2012–2015 crisis is manifested in social stratification. A telling example is the dynamics of the R/P 10% ratio – the ratio of the average income of the richest 10% to the poorest 10%[9]. According to experts, it is a critical threshold value of R/P 10%[10], the achievement of which demonstrates **"the high level of risk for the functioning of social relations, the threat of transition to highly volatile state, low predictability and, hence, the need for quick intervention by the authorities in order to change the dangerous trends"**[11].

However, in post-Soviet Russia, there was and is no "prompt interference" of the government in addressing social stratification issue. R/P 10% corresponded to the threshold critical value (8) only in 1992. In the 1990s – early 2000s, it was 13–14, in the mid-2000s – 15, and from 2006 to 2015 – 16, i.e. twice as high *(fig. 1)*. And it is only the data of official statistics. But, according to some estimates, **the income gap between the richest 10% and poorest 10%** is "officially 16 times, in fact – 28–36 times, which is not only higher than in

[5] Aganbegyan A.G. Sotsial'no-ekonomicheskoe razvitie Rossii: itogi i perspektivy, sanktsii (materialy otkrytogo seminara) [Socio-economic development of Russia: results and prospects, and sanctions (proceedings of an open seminar)]. *Novosti na ofitsial'nom saite RANKhiGS pri Prezidente Rossiiskoi Federatsii* [News on the official website of Ranepa]. Available at: http://www.emba.ranepa.ru/novosti/seminar-abela-gezevicha-aganbegyana-abel-aganbegyan-naibolshiy-uscherb-ot-sanktsiy-zhdet-rossiu-v-2015-g

[6] Grinberg *R. Krizis v Rossii – delo rukotvornoe: (interv'yu s V. Poznerom)* [Crisis in Russia – a man-made thing: an interview with V. Pozner]. Sait RAN [RAS website]. March 18, 2015. Available at: http://www.ras.ru/news/shownews.aspx?id=22d54502-27d8-4be4-8257-af50146c1fb8

[7] In 2015, this, for example, Dmitry Medvedev spoke about this (at the APEC forum) and A. Ulyukayev (in an interview with V. Pozner).

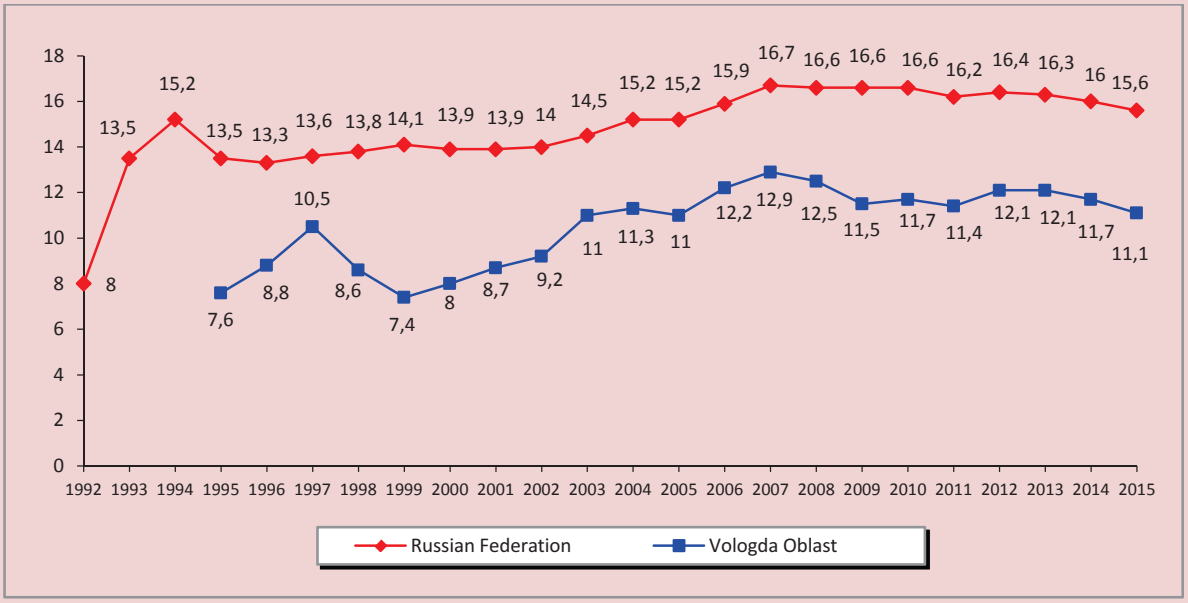
[8] Valiakhmetov T.R. Zdorov'e kak integral'nyi pokazatel' kachestva zhizni [Health as an integral indicator of the quality of life]. *Rossiiskii ekonomicheskii Internet-zhurnal* [Russian economic Internet journal], 2006, no. 4. Available at: http://www.e-rej.ru/Articles/2006/Valiahmetov.pdf

[9] According to the UN recommendations, this figure should not exceed 8–10, "otherwise, the situation in a democratic country is fraught with social cataclysms" (source: Kalabekov I.G. *Rossiiskie reformy v tsifrakh i faktakh* [Russian reforms in facts and figures]. Available at: http://refru.ru/income16.pdf).

[10] Glazyev S.Yu., Lokosov V.V. Otsenka predel'no kriticheskikh znachenii pokazatelei sostoyaniya rossiiskogo obshchestva i ikh ispol'zovanie v upravlenii sotsial'no-ekonomicheskim razvitiem [Estimation of the maximum critical values of indicators of the state of Russian society and their use in the management of socio-economic development]. *Vestnik RAN* [Herald of the Russian Academy of Sciences], 2012, vol.82, no. 7, pp. 587– 614.

[11] Lokosov V.V. Metod predel'no kriticheskikh pokazatelei i otsenka chelovecheskogo potentsiala [Method of threshold critical indicators and the assessment of human potential]. *Ekonomika. Nalogi. Pravo* [Economy. Taxes. Law], 2012, no. 5, p. 72.

Figure 1. Dynamics of R/P 10%, times



Source: Federal State Statistics Service, data for the Vologda Oblast – from 1996.

Western Europe, Japan and the US, but also higher than in many countries of Latin America"[12].

The process of aggravating social differentiation is illustrated by the data of official statistics and findings of sociological research. Thus, according to public opinion monitoring carried out by ISEDT RAS[13], in 2008–2015, the share of negative assessments of the economic situation in the country increased twofold (by 18 p.p., from 18 to 36%), the proportion of pessimistic foecasts about the future of the Russian economy increased almost twice (by 17 p.p., from 19 to 36%; *insert 1*).

The proportion of people who consider themselves to be "poor" and "extremely poor" for the period from 2009 to 2015 increased by 10 p.p. (from 42 to 47%). The beginning of Vladimir Putin's third presidential term has not resulted in any positive changes in the dynamics of social self-identification: in June 2016, just like in 2012, the share of the "poor" and "extremely poor" was 46–47%, while in February 2016 it reached its peak registered in the period from 2009 to June 2016 (i.e. from the time of the global financial crisis; 51%).

[12] Smolin O.N. Ne nadoelo vrat'? Shokiruyushchie priznaniya spetsialista po rossiiskoi statistike [Are you not tired of lying? Shocking revelations of a specialist in Russian statistics]. *Sovetskaya Rossiya* [Soviet Russia], 2011, November 12. Available at: http://www.sovross.ru/modules.php?file=article&name=News&sid=589425

[13] ISEDT RAS public opinion monitoring is held since 1996 once every two months. The volume of the sample population is 1,500 people aged over 18 in the cities of Vologda and Cherepovets, and in Babayevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Kirillovsky, Nikolsky, Tarnogsky and Sheksninsky districts. 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. The method of the survey is a questionnaire poll by place of residence of respondents. Sampling error does not exceed 3%.

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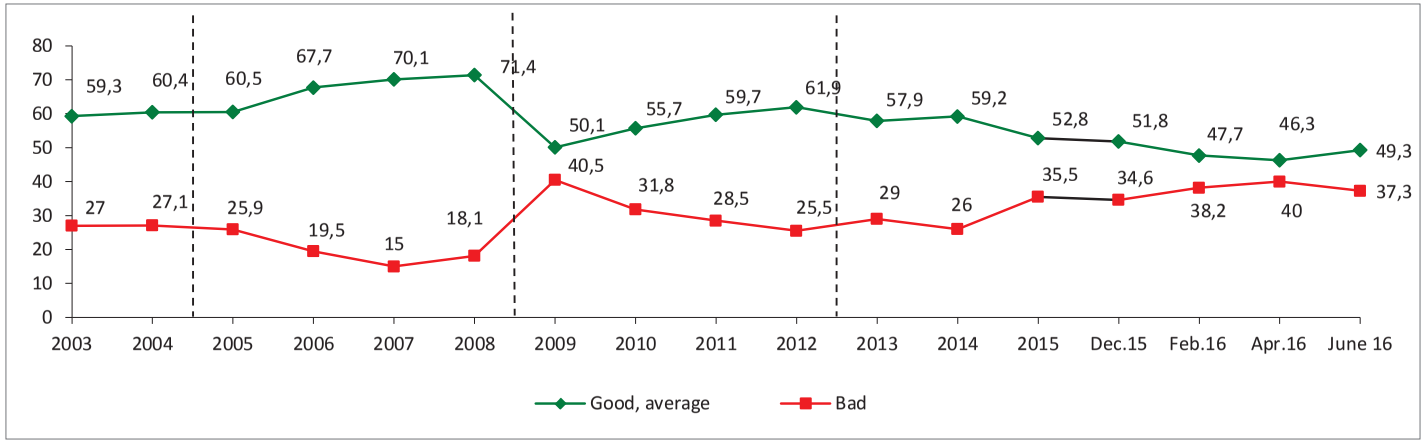
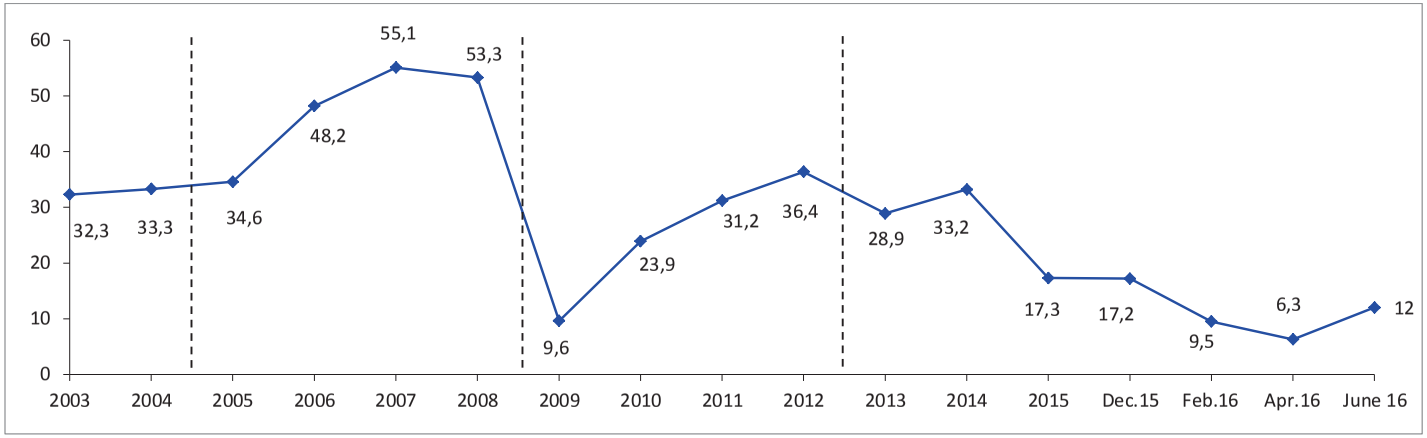


Assessment of economic situation in Russia* (as a percentage of the number of respondents)**



Dynamics of the difference between positive and negative assessments of economic situation of Russia* (in percentage points)***

In 2003–2008 (during Vladimir Putin's first and second presidential terms), the proportion of positive and neutral assessments of economic situation in the country increased by 12 p.p. (from 59 to 71%). The proportion of negative judgments decreased by 9 p.p. (from 27 to 18%). The difference between these indicators reached its maximum in 2007 (+55 p.p.), which meant the most favorable perception of economic situation in the country.

In the most acute phase of the global financial crisis (2009), the proportion of negative characteristics of economic situation in Russia dramatically increased (by 23 p.p., from 18 to 41%, compared to 2008). The share of positive and neutral assessments dropped by 21 p.p. (from 71 to 50%).

In subsequent years, the pre-crisis level in the assessments of public opinion about economic situation in the country was never achieved. Moreover, since 2012 (beginning of Vladimir Putin's third presidential term), the proportion of positive judgments is reducing (by 9 p.p., from 62 to 53% in 2012–2015), and that of negative judgements – increasing (by 6 p.p., from 30 to 36%).

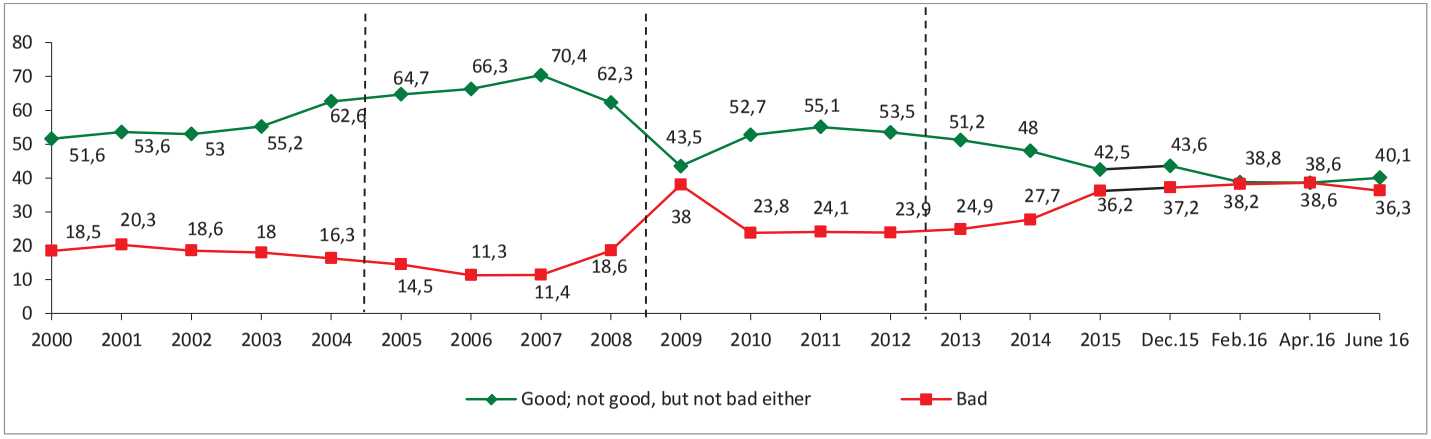
In the short-term dynamics, positive changes are not observed: in February – June 2016 the percentage of positive judgments about economic situation in Russia was 48 – 49%, the percentage of negative ones – 35–37%.

In February 2016, the difference between the proportion of positive and negative assessments reached the same "bottom" as in 2009, i.e. during the most acute period of the global financial crisis (+9.5 p.p.).

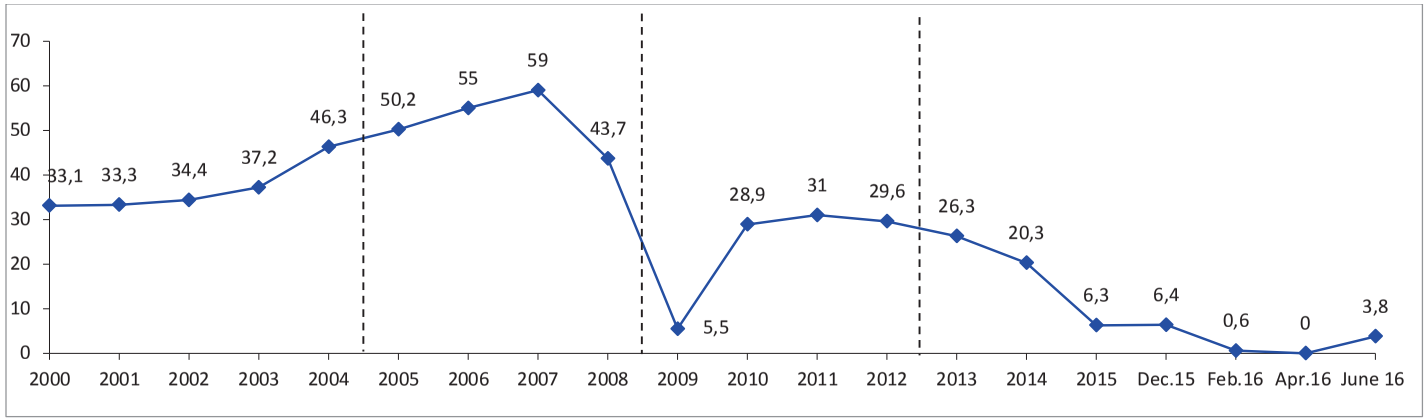
* The dotted lines highlight the presidential terms: January 2000 – May 2004 – the first presidential term of Vladimir Putin; May 2004 – May 2008 – the second presidential term of Vladimir Putin; May 2008 – May 2012 – presidential term of Dmitry Medvedev; May 2012 – present – the third presidential term of Vladimir Putin.

** The question is asked since 2003. The wording of the question: "How would you assess Russia's economic situation?" Possible answers: "very good", "good", "average", "poor", "very poor", "difficult to answer".

*** The decline in the indicator means an increase in the share of negative estimates. If the indicator is below 0, then negative assessments prevail over positive ones.



Assessment of development prospects for economic situation of Russia* (as a percentage of the number of respondents)**



Dynamics of the difference between positive and negative forecasts of development of economic Situation in Russia* (in percentage points)***

In 2000–2008 (Vladimir Putin's first and second presidential terms), the proportion of positive and neutral forecasts of the economic situation in Russia increased by 10 p.p. (from 52 to 62%). The most favourable expectations of the population were noted in 2007 (difference between the proportion of positive and negative predictions has reached its "peak" and amounted to +59 p.p.).

In subsequent years, mainly negative changes were observed in the dynamics of the forecasts of the economic situation in the country. From 2008 to 2012 (Dmitry Medvedev's presidency), the share of optimistic expectations decreased by 8 p.p. (from 62 to 54%). From 2012 to 2015 (Vladimir Putin's third presidential term) – by 11 p.p. (from 54 to 43%).

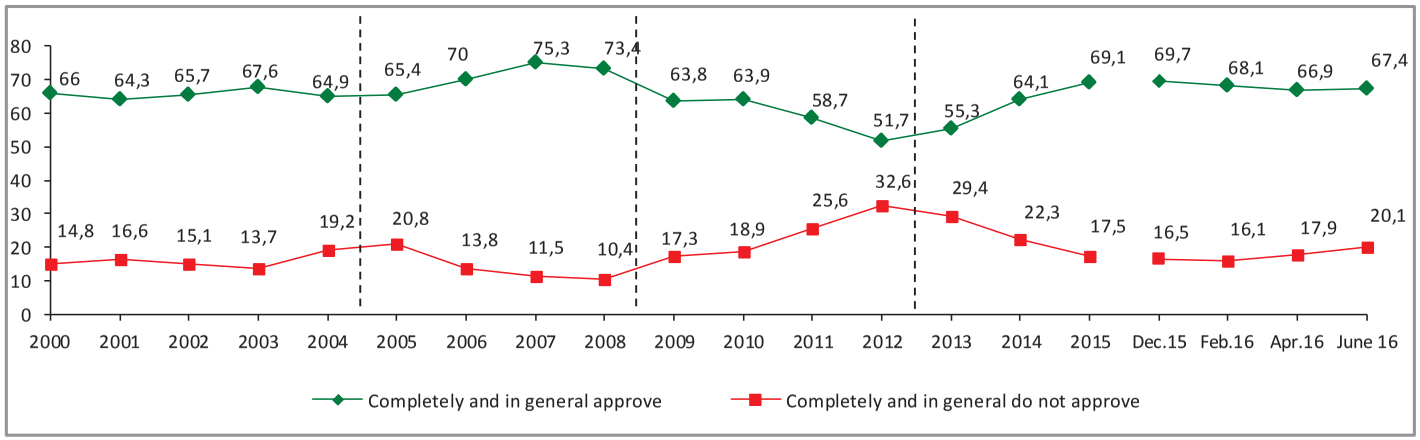
In the short-term dynamics, there are no positive changes in the public opinion: in February – June 2016, the proportion of optimistic forecasts is maintained at the level of 39–40% pessimistic – 36–38%

It should be noted that in April 2016 the percentage of people expecting improvements in economic situation in the country or forecasting the stability of the situation became equal to the share of those who give pessimistic forecasts concerning the future of the Russian economy (39% for both). For the entire period from 2000 to the present, this is the most negative perception of development prospects for the Russian economy. Even in the most acute period of the global financial crisis (2009), the share of positive expectations was slightly higher then the share of negative forecasts (44 and 38% respectively, the difference was +6 p. p.).

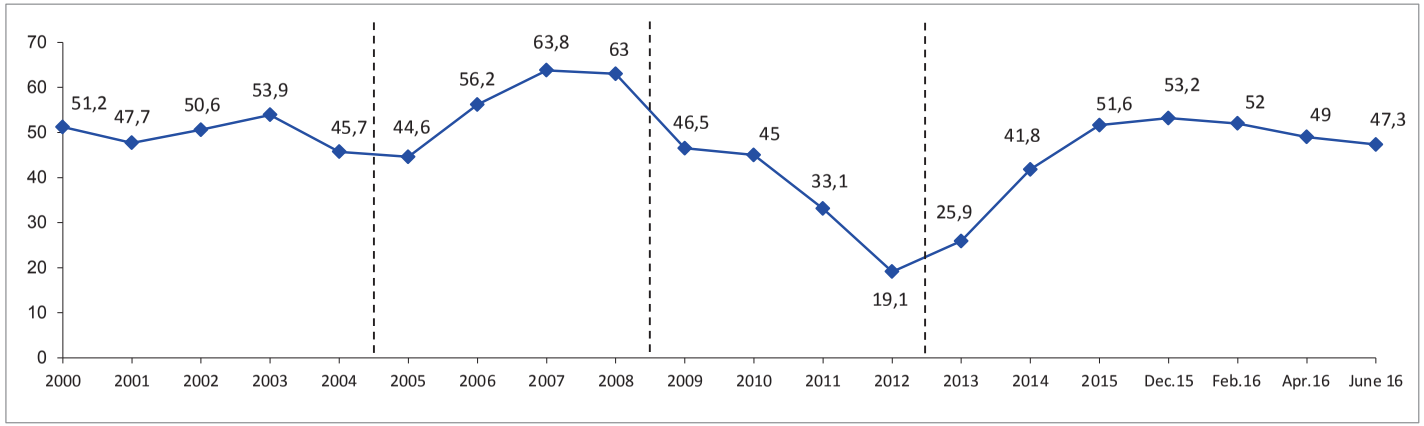
* The dotted lines highlight the presidential terms: January 2000 – May 2004 – the first presidential term of Vladimir Putin; May 2004 – May 2008 – the second presidential term of Vladimir Putin; May 2008 – May 2012 – presidential term of Dmitry Medvedev; May 2012 – present – the third presidential term of Vladimir Putin.

** The wording of the question: "What do you think about the next 12 months: will they be a good, bad or other time for the Russian economy?" Answers: "good", "good, but not in everything", "not good but not bad either", "bad, but not in everything", "bad", "difficult to answer".

*** The decline in the indicator means an increase in the share of negative estimates. If the indicator is below 0, then negative assessments prevail over positive ones.



Assessment of the President's work* (as a percentage of the number of respondents)**



Dynamics of the difference between the share of positive and negative assessments of the President's work* (in percentage points)***

In 2000–2008 (Vladimir Putin's first and second presidential terms), the level of support for the President of the Russian Federation increased by 7 p.p. (from 66 to 73%). In 2007–2008 (the end of Vladimir Putin's second presidency) a "peak" in support for the President's work was observed (difference between the share of positive and negative assessments was +64 p.p.).

In 2008–2012 (Dmitry Medvedev's presidency), the share of positive assessments of the work of the head of the state declined by 21 p.p. (from 73 to 52%). In the last year of Dmitry Medvedev's presidency (2012) we observe the "bottom" of support for the work of the head of the state (difference in the proportion of positive and negative assessments was +19 p.p.).

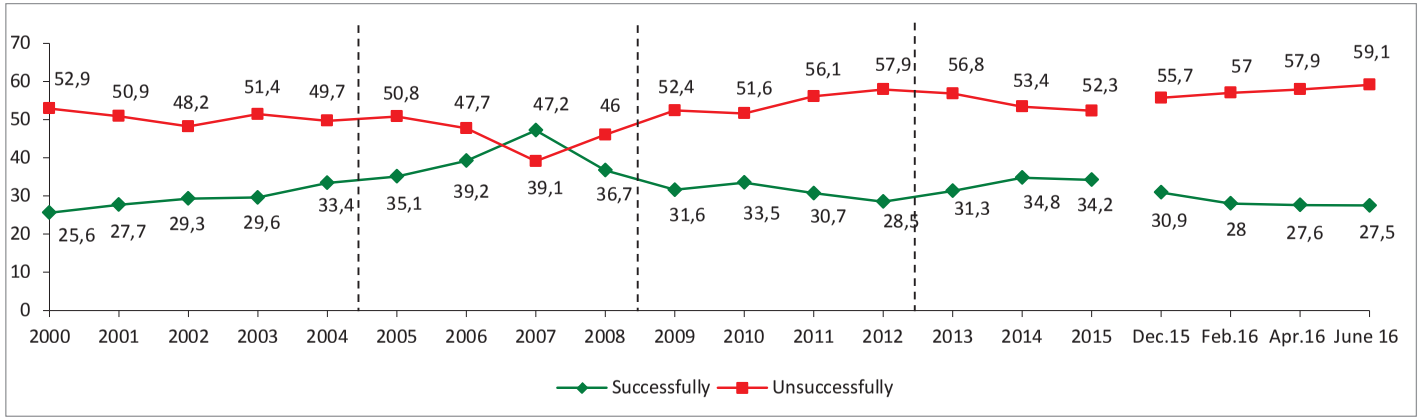
At the beginning of Vladimir Putin's third presidential term, the dynamics of the level of support for the President was again positive: the percentage of positive ratings from 2012 to 2015 increased by 17 p.p. (from 52 to 69%).

At the same time, it should be noted that in the short-term dynamics (from February to June 2016), there was an increase in the percentage of people who negatively evaluating the work of the head of the state – by 4 p.p. (from 16 to 20%).

* The dotted lines highlight the presidential terms: January 2000 – May 2004 – the first presidential term of Vladimir Putin; May 2004 – May 2008 – the second presidential term of Vladimir Putin; May 2008 – May 2012 – presidential term of Dmitry Medvedev; May 2012 – present – the third presidential term of Vladimir Putin.

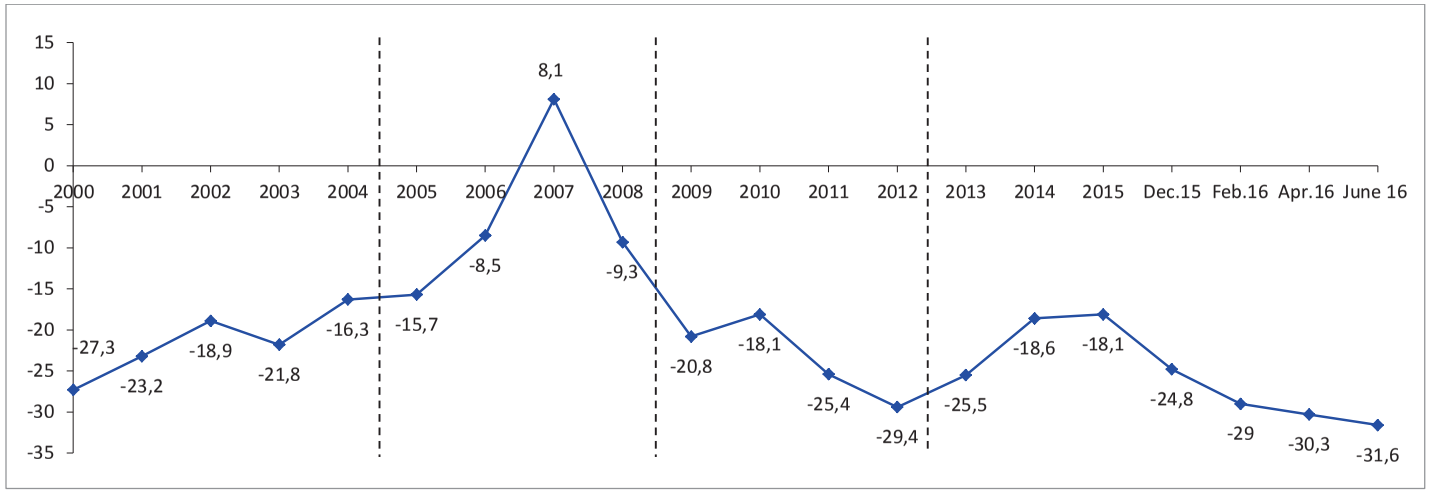
** The wording of the question: "Which category do you belong to, in your opinion?" Answers: "the rich", "with middle income", "the poor", "the extremely poor", "difficult to answer".

*** The decline in the indicator means an increase in the share of negative estimates. If the indicator is below 0, then negative assessments prevail over positive ones.



Assessment of the success with which the President addresses the issue of economic recovery and growth of welfare of citizens*

(as a percentage of the number of respondents)**



Dynamics of the difference between positive and negative assessments of the success of the decision by the President to the problem of economic recovery and growth of welfare of citizens* (in percentage points)***

In 2000–2007 (Vladimir Putin's first and second presidential terms), there was an increase in the share of positive (by 21 p.p., from 26 to 47%) and a decrease in the share of negative (by 14 p.p., from 53 to 39%) assessments of the success with which the President addresses the issue of economic recovery and growth of welfare of citizens. 2007 marks the "peak" of the ratio of the share of positive to negative characteristics (+8 p.p.), which means the most favorable estimates of public opinion.

However, for the entire period from 2000 to the present, 2007 was the only year when the proportion of positive assessments of the President's work on dealing with economic problems of the population was higher than the share of negative judgments (47 and 39%, respectively).

In 2008–2012 (Dmitry Medvedev's presidency), the share of negative assessments increased by 12 p.p. (from 46 to 58%).

In 2012–2015 (Vladimir Putin's third presidency), the dynamics of public opinion has somewhat stabilized, but by and large, there were no significant positive changes: the share of positive assessments of the success of the President's work on economic recovery increased by 5 p.p. (from 29 to 34%), negative – decreased by 6 p.p. (from 58 to 52%).

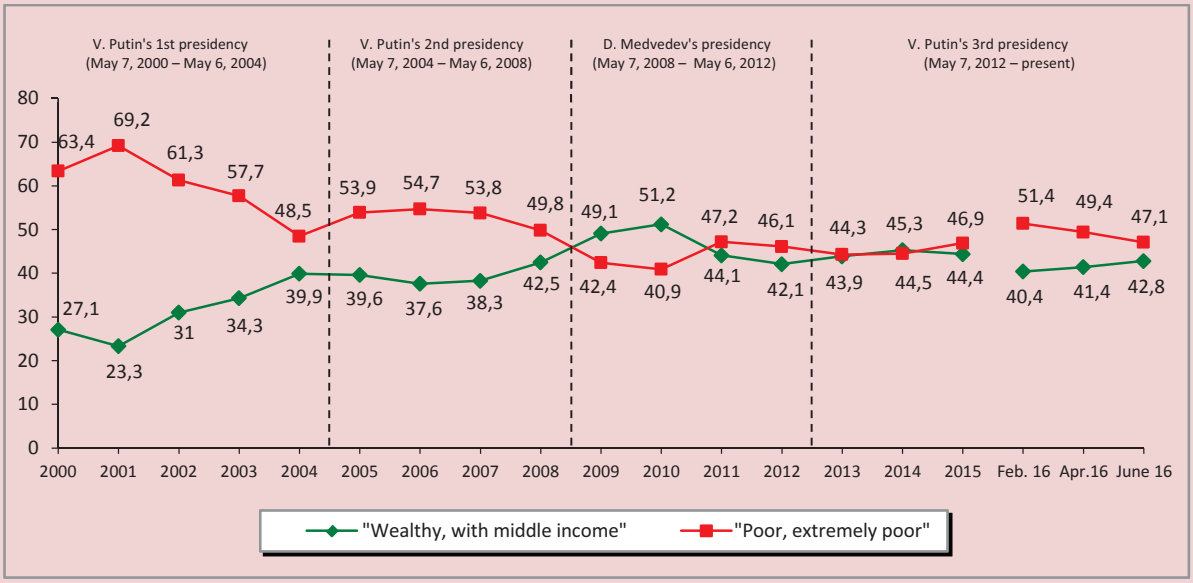
In the short-term dynamics, there remains a disturbing situation: the share of negative judgments is significantly (almost twice) higher than the share of positive assessments (57–59% vs. 28%). According to the latest data (as of June 2016), the deviation of positive and negative assessments reached its "bottom" for the entire period from 2000 to the present (-32 p.p.).

* The dotted lines highlight the presidential terms: January 2000 – May 2004 – the first presidential term of Vladimir Putin; May 2004 – May 2008 – the second presidential term of Vladimir Putin; May 2008 – May 2012 – presidential term of Dmitry Medvedev; May 2012 – present – the third presidential term of Vladimir Putin.

** The wording of the question: "In your opinion, how successful is the RF President in coping with the task of economic recovery and increasing the welfare of citizens"? Answer options: "very successful, fairly successful", "without much success", "absolutely unsuccessful", difficult to answer".

*** The decline in the indicator means an increase in the share of negative estimates. If the indicator is below 0, then negative assessments prevail over positive ones.

Figure 2. Dynamics of social self-identification of the population (proportion of people who consider themselves to be "poor and extremely poor" and "wealthy and with average income", as a percentage of the number of respondents)



According to the latest data (as of June 2016), the proportion of people who consider themselves "poor and extremely poor" is higher by almost 5 p.p. than the share of those who consider themselves "wealthy and with average income" (42 vs. 45%; *fig. 2*).

People's concern about the dynamics of financial position and economic situation is reflected in the assessment of management effectiveness. The results of sociological measurements show that in 2012–2015 in the Russian society there was a growth in support for the President's performance due to the beginning of Vladimir Putin's third presidential term (in 2012), and later – due to the events of the "Crimean spring". During this period, the level of support for the head of state increased by 17 p.p. (from 52 to 69%) and the share of negative assessments decreased nearly twofold (from 33 to 18%; *insert 1*).

However, in the first half of 2016, along with the economic agenda becoming more acute and the relevance of international issues declining in the evaluation of public opinion, the level of approval of performance of the President decreased slightly. It was 70% in December 2015, and 67–68% in February – June 2016.

In 2008–2015, the share of negative judgments about the success of the President's work concerning economic recovery and growth of the welfare of citizens increased by 6 p.p. (from 46 to 52%); by June 2016, it was already 59%. At the same time, the share of positive ratings in 2008–2015 decreased by 3 p.p. (from 37 to 34%), and in February – June 2016 amounted to 28% (see *insert 1*).

It should be noted that the above data reflect the dynamics of public opinion of inhabitants of a particular region (Vologda Oblast). Sociological studies performed at the level of a Russian Federation subject provide important information about assessing the whole of Russian society; allow us to consider the regional specifics of social sentiment more deeply. Especially if such research is based on systematic, scientific approach and carried out in a monitoring mode. In light of this, it should be noted that the data obtained by ISEDT RAS in the course of its 20-year monitoring surveys of the Vologda Oblast residents correlate with nationwide studies conducted by VTsIOM and Levada-Center[14]. Moreover, according to experts, pessimistic views about the future did not emerge yesterday, so today "the absolute dominance of the topic of crisis among Russians is quite logical".[15]

However, along with the increasing negative perception of their own difficulties, the situation in the economy, the growing polarization of the population by income level, Russia has experienced another process: "On the background of the total fall of everything, the profits of large and medium private capital have considerably grown in some "mysterious" way... In 2015, the profit of large and medium businesses grew 1.5-fold in nominal terms, and in real terms, adjusted for Rosstat's official deflator – by 42.2%". Thus, **the phrase "Russian economy is experiencing a severe crisis" – is only a verbal stamp, because in a society divided into classes there is no phenomenon such as economic crisis common for everyone in all its consequences. "This is not a crisis but a pure manifestation of the universal law of capitalist accumulation, which, as Marx wrote, "leads to the accumulation of misery corresponding to the accumulation of capital"**[16].

Growth of profits of large and private capital correlates well with the statements of Government representatives who speak about the absence of crisis in the country; however, it reveals another issue: isolation of the authorities from society. "It is premature to speak about the crisis of confidence, but it is clear that economic difficulties the

[14] Levada-Center data:

One in ten residents of Russia does not have enough money to buy foodstuffs. More than 80% of Russians are sure that the economic crisis in the country will continue. Almost 40% of citizens believe that the economic crisis could last at least another year or even two years. About 20% of respondents believe that "the crisis will be very long, its effects will manifest themselves for many years". 44% of Russians call the crisis Russia's main internal threat. This is a record-breaking figure for the last ten years; it has not risen above 37% before. (Source: Krizis stal absolyutnoi dominantoi dlya rossiyan [The crisis has become an absolute dominant for Russians]. *Nezavisimaya gazeta* [Independent newspaper], 2016, May 25. Available at: http://www.ng.ru/economics/2016-05-25/1_crisis.html)

VTsIOM data:

"Concern about economic problems is growing: for example, the indicator reflecting the fears of Russians about the price rise and devaluation of savings increased to 22 p. in March 2016 (from 13 p. in December 2015)... People's conviction that the crisis is a natural and uncontrollable phenomenon is growing. Price tags in stores are a telling indicator that shows the depth of the crisis to the mass consciousness. Price growth arouses significantly more fears than the possibility of reduction or loss of wages. Ordinary citizens do not know how it is possible to affect the growth of prices and the situation in world politics – and fears emerge primarily in those areas where people do not see opportunities to control the situation personally" (Source: Karta strakhov: vesne navstrechu! [Map of fears: toward the spring!]. *Press-vypusk VTsIOM* [VTsIOM press release], 2016, April 01. Available at: http://wciom.ru/index.php?id=236&uid=115647)

[15] Solov'eva O. Krizis stal absolyutnoi dominantoi dlya rossiyan [Crisis has become the absolute dominant for Russians]. *Nezavisimaya gazeta* [Independent newspaper], 2016, May 25. Available at: http://www.ng.ru/economics/2016-05-25/1_crisis.html

[16] Frolov A. *Pod znakom Marsa. Zapiski obozrevatelya* [Under the sign of Mars. Notes of an explorer]. *Sovetskaya Rossiya* [Soviet Russia]. Available at: http://www.sovross.ru/modules.php?name=News&file=article&sid=603035

country is experiencing today, introduce significant changes in the relationship between the authorities and society. The changes are manifested primarily in the deterioration of trust in the majority of governmental and non-governmental institutions, the growing alienation of citizens from politics..."[17] Probably that is why Russians would like the next Parliament to be, first, more professional (it is not party functionaries and government officials but economists, lawyers, and scientists in other fields of knowledge that are viewed as professionals by our fellow citizens). Second, the Parliament should more adequately represent major social groups and layers of society (teachers, doctors, soldiers, and peasants). Third, in the new Parliament there should be a place for civil activists and public figures well-known in the country, many of which have already gained experience and political "weight"[18].

While Vladimir Putin had to deal with a historically significant task of restoring the sovereignty and status of Russia at the international level almost "from scratch" and, subsequently, to protect the country's interests from its geopolitical rivals, for whom, a strong Russia is, putting it mildly, an inconvenience, individual members of the Government who pursue purely private capital interests "put their hand even deeper into the wallets of wage earners and petty bourgeois, but did not touch large capital profits, although, according to the basic fiscal logic, they ought to have acted the opposite way – after all, the wallets are being emptied out, and profits are growing outrageously.. It was a different logic – the logic of the selfish class interests"[19].

Socio-psychological aspects of the 2012 – 2016 crisis

Unlike the two previous crises that the Russian society went through after the "shock therapy" (1999 and 2008), the specifics of modern economic situation in the country consists in the fact that **the aggravation of the social injustice issue takes place simultaneously with the growth of patriotic sentiment caused by the tense international situation and, in particular, the events of the "Crimean spring"**.

Increasing consolidation of patriotic sentiment in connection with Crimea and Sevastopol joining the Russian Federation have affected all segments of the population. The "Crimean consensus" brought together the businessman and the worker, the housewife and the TV star, the socialist and the liberal... Versatile, deep, vivid emotions that receded and turned into a deep nationwide feeling that is called "Krymnash" ("Crimea is ours"), a feeling that cannot be identified exactly, but that is profoundly embedded in the national consciousness"[20].

[17] *Rossiiskoe obshchestvo vesnoi 2016-go: trevogi i nadezhdy: informatsionno-analiticheskoe rezyume po itogam obshcherossiiskogo sotsiologicheskogo issledovaniya* [Russian society in the spring of 2016: concerns and hopes: the information-analytical summary on the results of a nationwide sociological research]. Moscow: IS RAN, 2016. P. 23.

[18] *Ibidem*, p. 24.

[19] Frolov A. *Pod znakom Marsa. Zapiski obozrevatelya* [Under the sign of Mars. Notes of an explorer]. *Sovetskaya Rossiya* [Soviet Russia]. Available at: http://www.sovross.ru/modules.php?name=News&file=article&sid=603035

[20] Skorobogatyi P. Krymskaya planka [Crimean plank]. *Ekspert* [Expert], 2016, no. 12, p. 40.

The effect of the events of the "Crimean spring" was powerful but short-lived. During this time, economic agenda "faded into the background", but no effective management decisions were made that would allow to bring the dynamics of the standard of living and quality of life to a sustainable positive trend.

The results of sociological research indicate that after the global financial crisis of 2008–2009 there emerged two opposite trends in the Russian society: on the one hand, improvement of emotional state (from 2009 to 2015, the relevant index has increased from 115 to 143. p.) and a consistently low level of protest potential (17–20% since 2007); on the other hand, the increase in the share of people who experience uncertainty about the future (from 48 to 61% in the period from 2013 to 2015), and the decline in the consumer sentiment index (from 92 to 77 p. for the period from 2012; *insert 2*). These seemingly paradoxical data are actually quite logical. They show that **people live for the day and they afraid to look into the future. According to experts, people are getting used to living under an economic crisis and this is the main threat for them**[21].

Russians gradually managed to get used to the idea that the "beautiful far away" can actually be far away"[22], and the uncertainty about the future leads to the desire to satisfy their needs in the present and as quickly as possible. As a result, we are witnessing a crisis of morality, the concrete manifestations of which are almost daily highlighted in the media[23].

Quite recently, people have noted that there is more harmony and cohesion in Russia; that they are willing to come together to achieve common goals. The surge of these sentiments (for obvious reasons) was noted in 2014 after the events of the "Crimean spring". Since then, however, the proportion of those who share this view is becoming smaller: for the period from 2014 to 2016, the proportion of people who consider that today the country has "more cohesion and unity than disagreement, disunity" has fallen by 17 p.p. (from 55 to 38%), while the share of those who "are willing to unite to achieve common goals" – by 7 p.p. (from 29 to 22%; *fig. 3*).

In other words, the crisis phenomena that began in Russia long before the Crimean events and anti-Russian sanctions

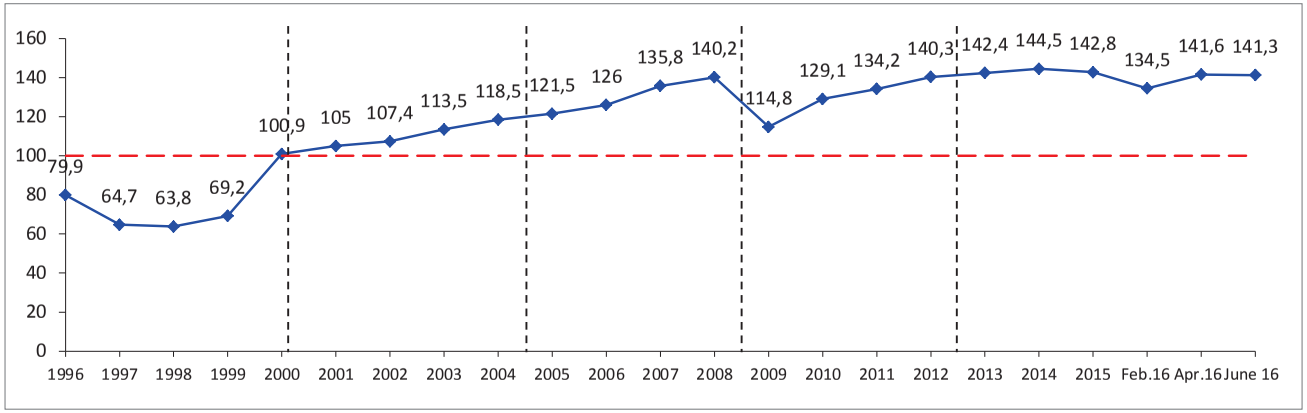
[21] N. Zubarevich: "Adapting to the crisis, people, especially those living in small towns and rural areas, increase reliance on their private subsidiary plots, they plant more potatoes. People are just trying to survive in the given circumstances" (source: Zabelina N. Naselenie privykaet k bednosti [People are getting used to poverty]. *Nezavisimaya gazeta* [Independent newspaper], 2016, January 13. Available at: http://www.ng.ru/economics/2016-01-13/4_prices_2.html). In the article, the author cites statements of various experts about economic situation in the country.

[22] *Rossiiskoe obshchestvo vesnoi 2016-go: trevogi i nadezhdy: informatsionno-analiticheskoe rezyume po itogam obshcherossiiskogo sotsiologicheskogo issledovaniya* [Russian society in the spring of 2016: concerns and hopes: the information-analytical summary on the results of a nationwide sociological research]. Moscow: IS RAN, 2016. P. 3.

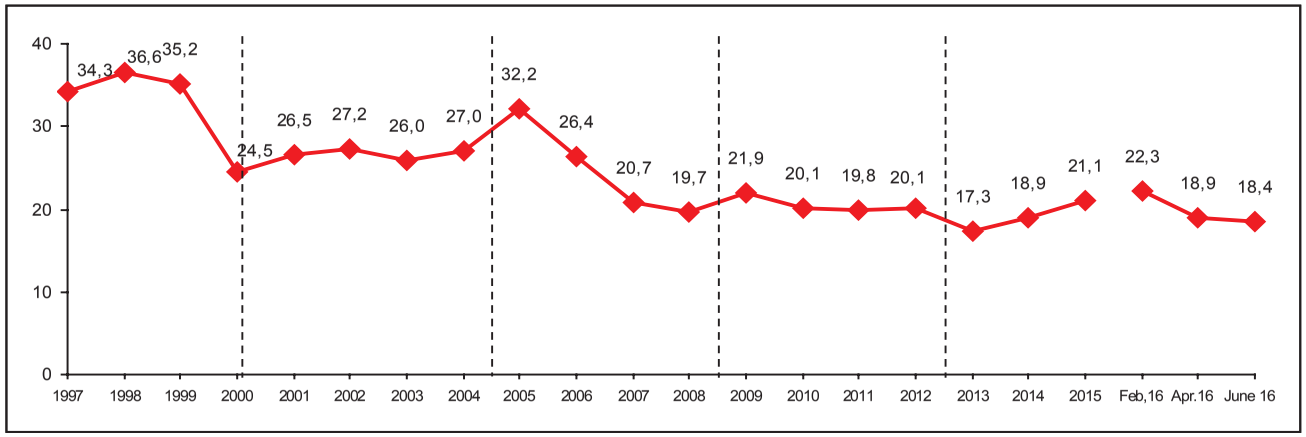
[23] For example: information in the media about the wedding of the son of oligarch Gutseriev, dangerous driving of the son of Transneft's top manager Almazov,a mass brawl during the sharing-out of the territory of Khovansky cemetery, the murder of the family of Colonel A. Gosht, criminal actions of bill collectors, etc.

Insert 2

Dynamics of indicators characterizing the socio-psychological state of the population



Dynamics of the social sentiment index* (in points)**



Dynamics of the protest potential* (as a percentage of the number of respondents)***

In 2000–2008 (Vladimir Putin's first and second presidential terms), the social sentiment index increased by 39 points (from 101 to 140 p.).

A decrease in the index is noted in 2009, that is, in the most acute period of the global financial crisis (compared to 2008 – by 25 points, from 140 to 115 p.).

However, in subsequent years, the positive dynamics of the social sentiment index continued. In 2009–2012 (Dmitry Medvedev's presidential term), it reached a pre-crisis level (an increase by 25 points, from 115 to 140 p.). In 2012–2015 (Vladimir Putin's third presidency), the growth of the index somewhat slowed (by 3 points, from 140 to 143 p.).

As economic issues became more acute, in late 2015 – early 2016, the social mood of the people deteriorated (the index was 135 in February 2016); however, by mid-year, the index returned to an average level of 2015 (141–142 p.).

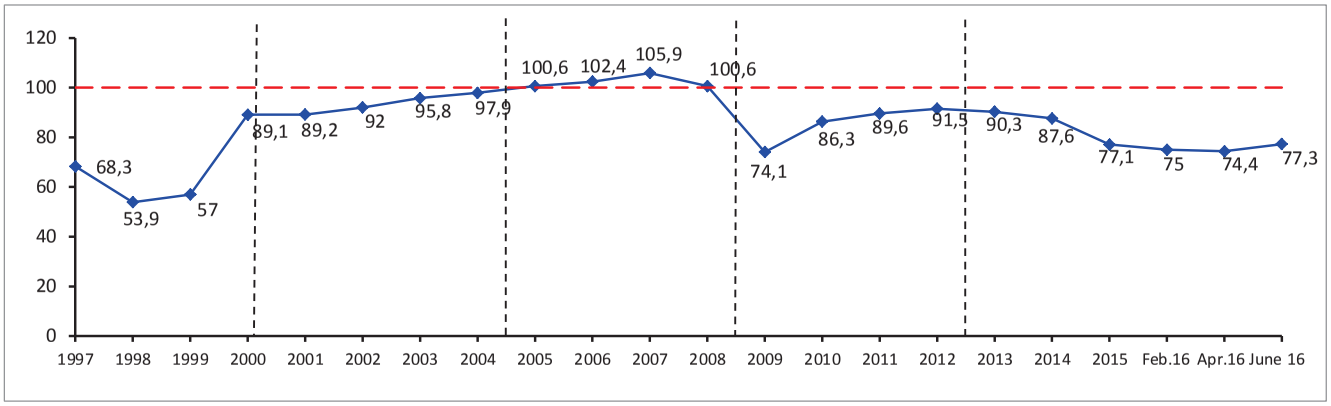
During Vladimir Putin's first and second presidential terms, the level of protest potential decreased by 5 p.p. (from 25 to 20%). A slight increase (by 5 p.p., from 27 to 32%) was observed only in 2005, when the unsuccessful monetization reform was carried out.

In subsequent years (during Dmitry Medvedev's pr4esidency, and Vladimir Putin's third presidency) the level of protest moods did not change substantially and remained in the range of 17–22%.

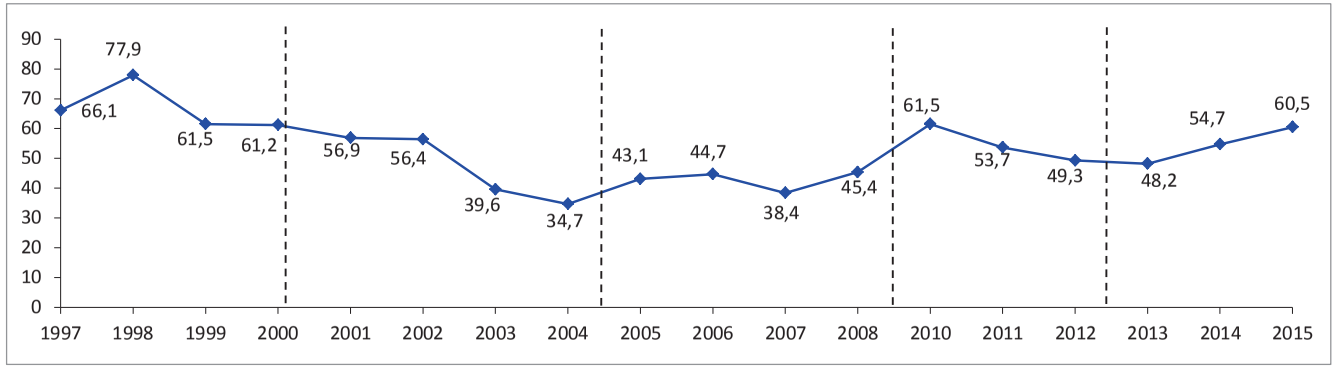
* The dotted lines highlight the presidential terms: January 2000 – May 2004 – the first presidential term of Vladimir Putin; May 2004 – May 2008 – the second presidential term of Vladimir Putin; May 2008 – May 2012 – presidential term of Dmitry Medvedev; May 2012 – present – the third presidential term of Vladimir Putin.

** The wording of the question: "What would you say about your mood in recent days?" Answer options: "good mood", "normal usual condition", "I feel tension, irritation", I feel fear, anguish", "difficult to answer".

*** The wording of the question: "What are you ready to do to protect your interests?" Answer options: "my interests are sufficiently protected", "I will sign a petition to the authorities", "I will come to the rally or demonstration", "I will participate in strikes and other protests", "if necessary, I will take up arms and go to the barricades", "I will do nothing", "difficult to answer".



Dynamics of the consumer sentiment index* (in points)**



Proportion of people who experience a lack of confidence in the future* (as a percentage of the number of respondents)***

Consumer sentiment index (CSI) had a positive trend in 2000–2007 (during Vladimir Putin's first two presidential terms; an increase of 17 points, from 89 to 106 p.).

After the global financial crisis (2009) to the present time, the CSI is in the range of negative values, which indicates the predominance of pessimistic forecasts about the prospects for material well-being.

Moreover, since 2012 (beginning of Vladimir Putin's third presidency) and up to 2015, we observe a decline of CSI (by 15 points, from 92 to 77 p.).

There are no significant positive changes in the short-term dynamics of CSI: in the first half of 2016 (February – June) it was 75–77 p., CSI in April fell to the level of 2009 (74 p.) – the period of the global financial crisis.

In 2000–2008, the proportion of people that have no confidence in the future (Vladimir Putin's first and second presidential terms) declined by 16 p.p. (from 61 to 45%).

In 2008–2012 (Dmitry Medvedev's presidency), the share of people uncertain about their future, increased by 4 p.p. (from 45 to 49%).

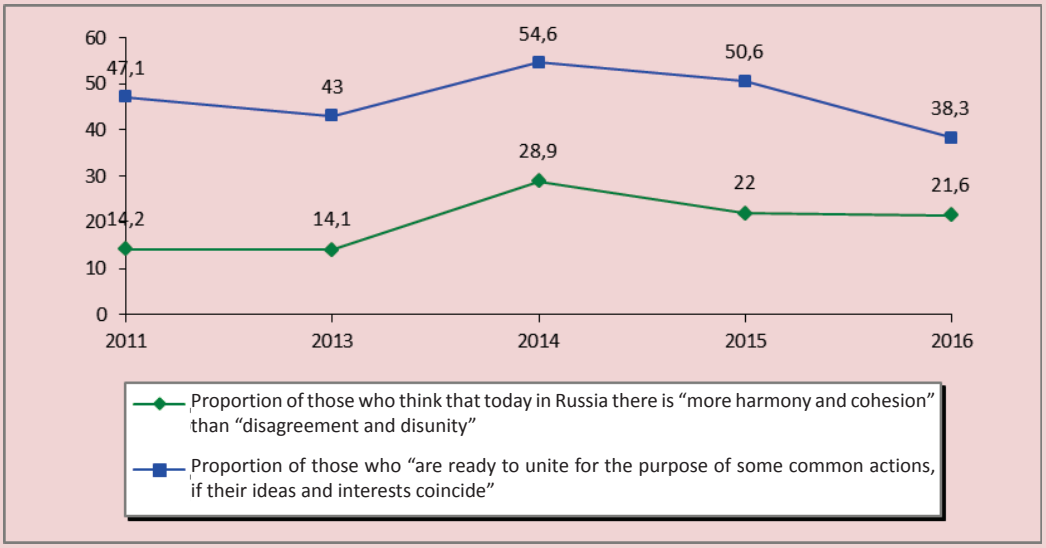
The negative trend continued after the beginning of Vladimir Putin's third presidential term: in 2012–2015, the proportion of those who are experiencing insecurity increased by 12 p.p. (from 49 to 61%), returning to the level of 1999–2000.

* The dotted lines highlight the presidential terms: January 2000 – May 2004 – the first presidential term of Vladimir Putin; May 2004 – May 2008 – the second presidential term of Vladimir Putin; May 2008 – May 2012 – presidential term of Dmitry Medvedev; May 2012 – present – the third presidential term of Vladimir Putin.

** The consumer sentiment index (CSI) is a key indicator of public opinion monitoring; it reflects people's perceptions of the current economic situation in the country and region and their assessments of their personal well-being and expectations about the prospects for its development in the near future.

*** Wording of the question: "Which of the following problems did you have to deal with last year?" Answer option: "lack of confidence in the future". The question is asked once a year, the results of 2015 were assessed in February 2016.

Figure 3. Indicators characterizing the dynamics of social cohesion in society (as a percentage of the number of respondents)



have reached beyond the economy. This years-long process, has acquired comprehensive nature. Its specific feature and danger is the latency of its flow, because, as a rule, the more apparent the "collapse" of various aspects of public life, the sooner and more resolute the measures that are taken. The crisis of recent years has developed in the "shadow" of certain successful international moves of Russia, which were constantly mentioned in the media that regularly referred to mental, moral and patriotic feelings of the population. According to some experts, "what is called the Russian national interests in the international arena today is in fact the interests of Gazprom, Rosneft and a dozen oligarchic monopolies, although the majority of people have not realized it yet"[24]. Because there is "an inseparable connection between capital and war", and only big business is the "sole beneficiary" in military action. And the development of society as a whole, regardless of any "surge" of patriotic sentiment and national identity, cannot have a strong foundation if pressing everyday issues are not resolved and sustainable development of the standard of living and quality of life ensured.

Internal economic policy on the eve of the elections: administration issues and the relevance of effective action.

In medicine, an untimely diagnostics aggravates the diagnosis; the situation is the same with regard to politics and economy:

[24] Frolov A. *Pod znakom Marsa. Zapiski obozrevatelya* [Under the sign of Mars. Notes of an explorer]. Sovetskaya Rossiya [Soviet Russia]. Available at: http://www.sovross.ru/modules.php?name=News&file=article&sid=603035

"tying the knots" eventually leads to a need to make increasingly difficult decisions. In Russia, the necessity of making such decisions is long overdue, but they are not being made, because there is a split of interests in the Russian political elite responsible for the implementation of this task. **It is as if there were two Russias: one is "deeply embedded in the Western world", the other is "a new constellation of Russian statesmen that inevitably accompany the sovereign growth"**[25]. The first group accumulates "quite strong positions of Pro-Western "agents of influence", those comprador forces whose interests and assets are within the sphere of influence of the "collective West" and who at any cost need guarantees from the West that their interests and assets will be preserved. The second group are "ready to get such guarantees "from a position of strength", using Russia's political and military capacity"[26].

> Today, the liberal financial block of Dmitry Medvedev's Government implements the very movement to chaos, which is the core of the policy pursued by ruling elites of the world. As a result of the fall of the ruble, privatization, healthcare and education "reforms", etc. we are getting weaker, not the other way around. It is due to the fact that **the liberals pursue the policy in the interests of those who want us to be weak. In fact, all this simply grants the world hegemon embodied by the United States the advantages in a potential fight with us. While President Putin cannot ignore the desire of some representatives of the Russian elite, who see the meaning and purpose of their life in joining the world elite.** Supporters of these "ideas" strongly torpedo, sabotage and oppose any actions that aim to protect Russia's interests, if they in any way contradict U.S. interests, which from the viewpoint of those striving to "join" the world elite can jeopardize this process and even (what a horrible thing!) make it unrealizable. The President cannot ignore these sentiments of some part of the elite – that explains his tolerance toward the statements and actions of some of the most "striking" representatives of those who want to join the world elite"
>
> (Source: Starikov N. Rossii ne privykat' byt' v avangarde chelovechestva [Russia is no stranger to being at the forefront of the humanity]. Ofitsial'nyi blog N. Starikova [N. Starikov's official blog]. Available at: https://nstarikov.ru/blog/66219)

The struggle between these groups has already been going for over 15 years since Vladimir Putin assumed office as President for the first term and put down to some degree the pro-Western comprador part of the elite that had become rampant in the 1990s. In recent years, this struggle has become increasingly tough and uncompromising, but there have been no actual "breakthroughs" in favor of either group; it prevents the adoption of effective management decisions in economic sphere and ultimately threatens social stability and national security.

A telling example of the inconsistency between the positions in the higher echelons of power may be a dialogue between Russian

[25] Prokhanov A.A. "Gosudarstvo Polyarnoi zvezdy" ["The country of the Polar Star"]. *Gazeta "Zavtra"* [Newspaper "Tomorrow"], 2016, March 17.

[26] Gordeev A. Spor Putina i Kudrina [An argument between Putin and Kudrin]. *Gazeta "Zavtra"* [Newspaper "Tomorrow"], 2016, June 02. Available at: http://zavtra.ru/content/view/nagornyij-2/

President Vladimir Putin and former Finance Minister Alexei Kudrin at the session of the Economic Council on May 25, 2016, when, in response to a proposal of the latter "to reduce the confrontation with the West", which implied even some concessions with regard to the Donbass and Crimea, the President declared that Russia would not trade its sovereignty"[27]. Let us recall that a similar exchange of views between the same persons took place on April 25, 2013 in the live TV phone-in with the President. The difference is that back then "the objections Putin voiced to Kudrin were careful and delicate, and accompanied by continuous compliments toward the "best Finance Minister"[28]. This indicates a lingering and protracted nature of the conflict between the "power" and "comprador" forces of the Russian elite; it also indicates the President strengthened his determination to cross the t's and dot the i's in matters of domestic policy.

In general, the second meeting of the Presidium of the Economic Council under the President of the Russian Federation became a very significant event for the understanding of the current situation in the ruling elite.

• First, the Council was assembled for the first time in two years[29], which shows, on the one hand, that economic issues have come to the fore; on the other hand – that there is no systematic work on resolving them.

• Second, it once again[30] showed the inefficiency of the Government in addressing key economic policy challenges. "In fact, the Stolypin club and the team of Kudrin's associates have become independent centers that work out solutions to economic issues. If Medvedev's Government were able to elaborate satisfactory programs on its own, no parallel structures would be needed"[31].

• Third, at the Council meeting, Vladimir Putin noted that "the reserves and resources that propelled our economy at the beginning of the 2000s, are now inefficient", and he urged "to outline the key priorities of economic policy till 2025, to determine major drivers of economic growth and social development"[32]. Thus, as 10 years ago, Russia's economy faces the task of finding new growth points alternative to oil prices. The only difference is that in 2005–2007 the situation simply **suggested** it, but today's situation **necessitates** it.

[27] *Ibidem*.

[28] *Ibidem*.

[29] The latest meeting of the Presidium of the Economic Council took place January 30, 2014.

[30] "There is an order of the President following the meeting of the State Council on the development of small and medium businesses and following the forum of "OPORA Russia". But the problem is that expert suggestions that have been elaborated thoroughly are not being implemented. For example, according to the results of the State Council, there were 21 orders, but, according to our estimates, only three of them were executed... The Ministry of Labor, Ministry of Economic Development and Ministry of Finance each have their own viewpoints. The government lacks an arbitrator who would make the final decision in the presence of different opinions" (source: Skorobogatyi P., Gavrilenko D. Kto teryaet porucheniya Prezidenta [Who loses the instructions of the President.]. *Ekspert* [Expert], 2016, no. 19, pp. 50–51).

[31] Bashkatova A. Putinu predstoit skrestit' ekonomicheskogo ezha s predvybornym uzhom [Putin will have to interbreed an economic hedgehog with the pre-election snake]. *Nezavisimaya gazeta* [Independent newspaper], 2016, May 21. Available at: http://www.ng.ru/economics/2016-05-24/4_senatory.html

[32] Stenogramma zasedaniya prezidiuma Ekonomicheskogo soveta ot 25 maya 2016 g. [Transcript of the meeting of the Presidium of the Economic Council of May 25, 2016]. *Ofitsial'nyi sait Prezidenta RF* [Official website of the President of Russia]. Available at: http://www.kremlin.ru/events/president/transcripts/51996

• Fourth, the Council session was held "behind closed doors". In other words, the discussion of key issues that arouse concern among the population, was not revealed to the public, despite the fact that the government pays special attention to the declaration of important activities such as "providing opportunities for citizens and public associations of the Russian Federation to participate in the political life of society"[33].

• Fifth (and most important), the result of the Council session was that the President again found himself in a situation when it was necessary to find a compromise solution between the two options of dealing with the economic crisis. "On the one hand, the monetary-incentive program of the Stolypin club, which involves feeding the economy with soft loans; on the other hand, the Kudrin program, the essence of which is to economize and carry out institutional reforms"[34].

Thus, now just like in the middle of the "fat" 2000s, the Russian economy confronts the need to seek new growth points, and the Russian government is faced with the necessity to make management decisions that would objectively help implement basic provisions of the National Security Strategy 2015, which provides for "removing structural imbalances in the economy and its modernization" in order to "prevent threats to national security".[35]

However, the non-economic factors that prevented from implementing appropriate reforms 10 years ago have been preserved:

• solution to the dilemma falls on the period prior to presidential elections;

• there is no doubt concerning the willingness of the U.S. to take advantage of any unstable situation in Russia;

• in addition, the President is still forced to maneuver between the interests of society and those of the part of the liberal wing of the Government that expresses the interests of oligarchic capital.

A difficult choice that Putin will have to make consists on the fact that no matter what efforts he makes in order to "reanimate" the Russian economy and solve the historic task of bringing the country to a positive trend of development, they will be inevitably associated with the risk of growing dissent: "Reforms will imply conflict with the elites or the masses. But

[33] Polozhenie o poryadke provedeniya predvaritel'nogo golosovaniya po kandidaturam dlya posleduyushchego vydvizheniya ot partii "Edinaya Rossiya" kandidatov v deputaty Gosudarstvennoi Dumy Federal'nogo Sobraniya Rossiiskoi Federatsii sed'mogo sozyva [Regulations on the procedure of preliminary voting for candidates for subsequent nomination of candidates from the party "United Russia" for deputies of the State Duma of the Federal Assembly of the Russian Federation of the seventh convocation]. *Ofitsial'nyi sait proekta "Predvaritel'noe golosovanie 22 maya 2016 g."* [Official website of the project "Preliminary vote, May 22, 2016]. Available at: http://pg.er.ru/images/docs/file/polozhenie-o-predvaritelnom-golosovanii.pdf

[34] Bashkatova A. Putinu predstoit skrestit' ekonomicheskogo ezha s predvybornym uzhom [Putin will have to interbreed an economic hedgehog with the pre-election snake]. *Nezavisimaya gazeta* [Independent newspaper], 2016, May 21. Available at: http://www.ng.ru/economics/2016-05-24/4_senatory.html

[35] Strategiya natsional'noi bezopasnosti Rossiiskoi Federatsii (punkt 26): utv. Ukazom Prezidenta Rossiiskoi Federatsii ot 31 dekabrya 2015 goda No. 683 "O Strategii natsional'noi bezopasnosti Rossiiskoi Federatsii" [The national security strategy of the Russian Federation (item 26): approved by the Decree of the President of the Russian Federation of December 31, 2015 No. 683 "On the national security strategy of the Russian Federation"]. *Rossiiskaya gazeta* [Russian newspaper], 2015, December 31. Available at: https://rg.ru/2015/12/31/nac-bezopasnost-site-dok.html

Insert 3

Dynamics of the social self-identification index* (in points)**

Population group	1999			2003			2007			2011			2016			Dynamics + / –, June 2016 to….			
	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	June 2011	June 2007	June 2003	June 1999
Sex																			
Men	72.4	68.3	-4	91.1	88.7	-2	98.5	107.2	+9	93.8	98.8	+5	90.9	98.7	+8	0	-9	+10	+30
Women	67.3	62.3	-5	77.6	80.7	+3	93.8	102.0	+8	90.8	96.0	+5	88.0	90.1	+2	-6	-12	+9	+28
Age																			
Under 30	72.6	74.6	+2	104.7	96.5	-8	106.7	114.5	+8	99.1	103.2	+4	98.6	98.6	0	-5	-16	+2	+24
30-55	72.0	65.1	-7	81.0	85.4	+4	98.7	107.2	+8	92.3	98.4	+6	88.9	96.3	+7	-2	-11	+11	+31
Over 55	61.8	56.2	-6	65.5	68.7	+3	82.0	90.6	+9	85.9	90.7	+5	84.5	87.9	+3	-3	-3	+19	+32
Education																			
Secondary and incomplete secondary	65.3	61.1	-4	70.4	75.4	+5	79.7	91.5	+12	86.1	86.9	+1	84.1	85.5	+1	-1	-6	+10	+24
Secondary vocational	70.2	64.8	-5	85.3	80.9	-4	98.6	109.0	+10	84.3	94.1	+10	87.0	96.9	+10	+3	-12	+16	+32
Higher and incomplete higher	75.0	70.6	-4	92.9	97.5	+5	109.2	113.4	+4	104.9	112.3	+7	98.3	101.6	+3	-11	-12	+4	+31
Income groups																			
20% of the poorest people	49.5	49.1	0	66.4	56.0	-10	62.8	76.2	+13	66.6	75.7	+9	68.2	73.2	+5	-3	-3	+17	+24
60% of the people with median income	66.2	59.4	-7	71.5	81.7	+10	96.7	102.8	+6	88.5	93.9	+5	88.6	93.4	+5	-1	-9	+12	+34
20% of the most prosperous people	104.5	97.9	-7	116.1	114.2	-2	128.7	136.2	+8	124.0	125.0	+1	116.1	119.8	+4	-5	-16	+6	+22
Territories																			
Vologda	65.3	66.5	+1	86.9	89.0	+2	110.6	116.2	+6	91.1	97.0	+6	94.5	97.7	+3	+1	-19	+9	+31
Cherepovets	81.4	72.2	-9	82.0	84.7	+3	109.7	123.1	+13	110.1	113.5	+3	92.5	98.8	+6	-15	-24	+14	+27
Districts	65.7	59.8	-6	82.2	80.8	-1	82.6	89.8	+7	83.5	89.1	+6	84.8	89.3	+5	0	-1	+9	+30
Oblast	69.6	65.0	-5	83.2	83.9	+1	95.9	104.3	+8	92.0	97.4	+5	89.4	93.9	+5	-4	-10	+10	+29

** These are the results of the public opinion monitoring carried out in 1999, 2003, 2007, 2011, 2016 – the years when the elections to the State Duma of the Russian Federation were held.*
*** The index of social self-identification is the difference between the proportion of people who consider themselves to be "wealthy and with average income" and the share of people who consider themselves "poor and extremely poor".*

The index of social self-identification in the majority (8 out of 14) of socio-demographic categories in June 2016 was lower than in June 2011 (by 2–10 points) and June 2007 (by 2–20 p.). **In other words, people's subjective perception of their own financial situation over the few months before the election in 2016 remains more negative than it was in the same period before the previous elections to the State Duma.**

The fact that in the Vologda Oblast in general the index of social self-identification in 2007 and in 2011 was higher than in June 2016 suggests that the deterioration of subjective assessments of financial situation is only partially due to the effects of the global financial crisis.

Dynamics of the consumer sentiment index (in points)

Population group	1999			2003			2007			2011			2016			Dynamics + / – June 2016 to….			
	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	June 2011	June 2007	June 2003	June 1999
Sex																			
Men	46.5	47.2	+1	93.5	99.6	+6	106.2	106.0	0	89.6	91.4	+2	75.2	79.0	+4	-12	-27	-21	+32
Women	45.1	46.4	+1	85.4	93.0	+8	102.5	101.8	-1	87.8	92.9	+5	74.7	75.9	+1	-17	-26	-17	+30
Age																			
Under 30	52.3	54.3	+2	104.7	109.6	+5	115.0	112.8	-2	97.3	97.9	+1	80.6	84.8	+4	-13	-28	-25	+31
30-55	45.0	46.1	+1	87.6	93.6	+6	105.2	105.0	0	87.8	91.2	+3	73.6	75.6	+2	-16	-29	-18	+30
Over 55	41.6	41.5	0	74.4	87.3	+13	93.2	93.4	0	82.6	89.1	+7	73.4	75.1	+2	-14	-18	-12	+34
Education																			
Secondary and incomplete secondary	45.3	43.4	-2	81.1	92.5	+11	97.2	98.1	+1	83.6	85.8	+2	70.5	75.5	+5	-10	-23	-17	+32
Secondary vocational	44.7	47.8	+3	86.9	95.3	+8	101.7	104.1	+2	83.1	90.5	+7	75.2	77.4	+2	-13	-27	-18	+30
Higher and incomplete higher	47.8	50.6	+3	97.8	100.4	+3	113.3	109.9	-3	98.4	101.3	+3	79.8	79.3	-1	-22	-31	-21	+29
Income groups																			
20% of the poorest people	41.3	43.4	+2	75.3	75.3	0	88.8	82.6	-6	71.9	76.5	+5	63.6	67.1	+3	-9	-16	-8	+24
60% of the people with median income	43.7	44.6	+1	82.3	93.5	+11	103.1	104.9	+2	86.7	92.6	+6	73.7	75.9	+2	-17	-29	-18	+31
20% of the most prosperous people	56.2	57.5	+1	109.9	111.6	+2	121.7	121.0	-1	105.8	107.0	+1	90.6	90.6	0	-16	-30	-21	+33
Territories																			
Vologda	46.1	53.4	+7	91.0	105.2	+14	101.8	99.7	-2	92.5	92.9	0	76.2	78.7	+3	-14	-21	-27	+25
Cherepovets	52.4	49.0	-3	88.3	95.8	+8	111.1	115.1	+4	103.7	102.5	-1	74.9	77.9	+3	-25	-37	-18	+29
Districts	42.4	42.2	0	88.0	90.6	+3	101.9	99.9	-2	79.1	86.8	+8	74.3	76.1	+2	-11	-24	-15	+34
Oblast	45.7	46.8	+1	88.8	95.8	+7	104.1	103.7	0	88.6	92.3	+4	75.0	77.3	+2	-15	-26	-19	+31

The consumer sentiment index (CSI) in June 2016 in all socio-demographic groups was significantly (by 15–30 points) lower than in June 2011, 2007 and 2003, **This suggests that in the pre-election period of 2016, people's expectations regarding the prospects of economic situation in the country and the dynamics of development of their own personal financial situation were substantially more pessimistic than before all the Duma elections held Russia for the period from 2000 to the present.**

Dynamics of the index of assessing the President's performance (in points)

Population group	1999			2003			2007			2011			2016			Dynamics + / – June 2016 to….			
	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	June 2011	June 2007	June 2003	June 1999
Sex																			
Men	33.6	29.1	-5	146.2	143.0	-3	164.4	162.9	-2	125.0	133.7	+9	147.8	139.7	-8	+6	-23	-3	+111
Women	31.4	27.8	-4	154.8	150.2	-5	168.5	166.9	-2	141.2	146.1	+5	155.3	153.4	-2	+7	-14	+3	+126
Age																			
Under 30	35.2	26.2	-9	163.9	153.4	-11	170.2	168.9	-1	138.5	137.6	-1	154.5	153.0	-2	+15	-16	0	+127
30-55	30.4	26.5	-4	148.4	144.7	-4	164.1	165.8	+2	124.2	142.4	+18	147.4	144.6	-3	+2	-21	0	+118
Over 55	33.9	34.0	0	143.8	146.6	+3	167.9	160.6	-7	145.9	140.3	-6	156.6	147.6	-9	+7	-13	+1	+114
Education																			
Secondary and incomplete secondary	35.5	34.7	-1	135.2	140.4	+5	156.0	158.3	+2	126.3	134.3	+8	145.2	136.7	-9	+2	-22	-4	+102
Secondary vocational	30.4	27.4	-3	155.3	152.1	-3	166.5	168.6	+2	131.3	143.3	+12	149.9	148.7	-1	+5	-20	-3	+121
Higher and incomplete higher	30.0	19.9	-10	161.7	148.2	-14	177.2	168.8	-8	143.5	144.8	+1	161.8	158.9	-3	+14	-10	+11	+139
Income groups																			
20% of the poorest people	28.0	33.9	+6	136.0	134.3	-2	145.3	142.0	-3	113.5	128.8	+15	126.2	138.6	+12	+10	-3	+4	+105
60% of the people with median income	32.8	27.9	-5	151.2	149.6	-2	172.4	169.3	-3	139.4	141.8	+2	159.7	144.7	-15	+3	-25	-5	+117
20% of the most prosperous people	35.1	25.0	-10	162.4	158.6	-4	178.4	175.3	-3	142.0	153.2	+11	155.9	162.3	+6	+9	-13	+4	+137
Territories																			
Vologda	39.9	30.1	-10	161.1	163.8	+3	162.2	165.8	+4	138.2	138.0	0	150.5	147.5	-3	+10	-18	-16	+117
Cherepovets	28.6	19.3	-9	142.0	119.4	-23	177.5	175.7	-2	147.8	150.4	+3	168.2	160.9	-7	+11	-15	+42	+142
Districts	30.8	32.8	+2	151.6	154.1	+2	163.4	159.6	-4	125.0	136.8	+12	143.4	139.4	-4	+3	-20	-15	+107
Oblast	32.4	28.4	-4	151.2	147.1	-4	166.7	165.2	-1	134.0	140.6	+7	152.0	147.3	-5	+7	-18	0	+119

In all socio-demographic categories of the population, the index of assessment of the President's work in June 2016 was higher than in June 2011 (by 2–15 p.). It is due to the non-economic events that occurred over the period from 2011 to 2016 (accession of Crimea and Sevastopol to the Russian Federation, international success of the President's policy).

However, in February and June 2016, in 12 out of 14 socio-demographic categories, there is a decrease in the index of support for the head of state, which indicates a decrease in the relevance of success of international policy as a factor ensuring stable growth of the level of endorsement of the President. In anticipation of the 2016 election, domestic economic agenda plays a more significant role than the protection of Russia's geopolitical interests.

Dynamics of the index of success with which the President solves the problems of economic recovery and growth of welfare of citizens* (in points)

Population group	2003			2007			2011			2016			Dynamics + / – June 2016 to….		
	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	Feb.	June	June to Feb.	June 2011	June 2007	June 2003
Sex															
Men	78.4	76.2	-2	107.3	110.7	+3	66.4	76.4	+10	72.1	71.6	-1	-5	-39	-5
Women	69.0	71.9	+3	106.1	115.8	+10	75.9	77.6	+2	70.1	65.9	-4	-12	-50	-6
Age															
Under 30	95.0	90.1	-5	122.2	126.6	+4	77.6	77.7	0	70.3	71.8	+2	-6	-55	-18
30-55	65.5	69.0	+3	104.2	116.7	+13	64.0	75.3	+11	72.2	64.9	-7	-10	-52	-4
Over 55	65.7	68.8	+3	97.4	96.6	-1	78.9	79.2	0	69.9	71.3	+1	-8	-25	+3
Education															
Secondary and incomplete secondary	66.1	72.8	+7	92.7	111.2	+19	68.1	71.9	+4	67.9	63.3	-5	-9	-48	-10
Secondary vocational	71.6	74.3	+3	110.7	116.3	+6	69.1	85.2	+16	70.6	67.9	-3	-17	-48	-6
Higher and incomplete higher	80.5	75.0	-5	116.4	113.2	-3	76.9	74.1	-3	75.6	75.6	0	+2	-38	+1
Income groups															
20% of the poorest people	53.4	71.5	+18	93.1	94.4	+1	51.8	73.8	+22	58.6	51.6	-7	-22	-43	-20
60% of the people with median income	65.4	69.1	+4	104.7	112.3	+8	74.2	77.9	+4	67.4	66.9	-1	-11	-45	-2
20% of the most prosperous people	90.6	87.0	-4	132.7	135.4	+3	78.4	78.8	0	85.2	84.0	-1	+5	-51	-3
Territories															
Vologda	90.4	63.4	-27	105.4	101.4	-4	77.0	73.9	-3	76.7	68.1	-9	-6	-33	+5
Cherepovets	61.2	68.9	+8	117.5	136.1	+19	80.0	73.0	-7	65.2	69.1	+4	-4	-67	0
Districts	71.2	82.3	+11	101.9	107.9	+6	64.9	80.7	+16	71.2	68.2	-3	-13	-40	-14
Oblast	72.9	73.8	+1	106.7	113.5	+7	71.6	77.1	+5	71.0	68.4	-3	-9	-45	-5
*Included in the survey since 2000.															

In the majority of socio-demographic categories, the index evaluating the success of the President's coping with the problems of economic recovery and growth of citizens' welfare was significantly lower in June 2016 than in June 2011, 2007 and 2003. **Thus, for the last 16 years (2000–2016), economic issues have never been so relevant for the population a they are now on the eve of the Duma election.**

Only in June 2007 in the majority oft socio-demographic groups, the index was above 100 points, which means the predominance of positive assessments over negative ones. Since that time, the index value did not exceed 90 points in any of the analyzed categories.

if we follow the path of stagnation, then there will be no money for social spending, and sooner or later people will take to the streets"[36].

The fact that the growing dissatisfaction with economic issues in the society and escalation of tension in the relationships within the political elite coincide with the period of the elections to the State Duma is a special catalyzing factor. The results of sociological polls show that in the first half of 2016, representatives of various social segments (including those that differ by income level) assess their financial situation and prospects of its development more negatively than in previous pre-election periods. Thus, the social self-identification index in the majority of socio-demographic groups (in 8 out of 14) was lower in June 2016 than in June 2011 and 2007 (in the Vologda Oblast as a whole – 94, 97 and 104 points, respectively; *insert 3*).

From February to June 2016, social self-identification has improved in almost all socio-demographic categories. However, we cannot interpret this as a completely positive result. These data confirm the opinion of experts that people get used to living in crisis and find new means of subsistence (by mid-year, largely by working at their household plots). At the same time, the forecasts regarding future prospects of their financial well-being, as well as assessments of effectiveness of government policy to tackle economic issues are getting worse and worse.

The dynamics of forecasts about the future of the Russian economy and people's personal wealth is reflected by the consumer sentiment index, which in June 2016 was significantly lower (by 10 – 20 points) than in June 2011, 2007 and 2003 (see *insert 3*). The consumer sentiment index (according to the data as of June 2016) does not exceed 90 points in all the socio-demographic groups. In other words, for the entire period from 2000 to the present, people's expectations have not been so pessimistic as they are today, a few months before the September elections to the State Duma.

Support for the President in all the socio-demographic categories of population remains higher than in 2011; however, according to some experts, this is "the last straw that the mass consciousness holds on to, so as not to sink completely into gloomy pessimism"[37]. At least the fact that the assessment of the President's success in dealing with the issues of economic recovery and growth of welfare of citizens in June 2016 is more negative than in 2011 and 2007 (in the Vologda Oblast as a whole – 68, 77 and 114 points, respectively) clearly indicates that economic issues are a key factor in the upcoming elections.

[36] Papchenkova M., Prokopenko A. Putinu predstoit vybrat' odnu iz dvukh modelei rosta ekonomiki [Putin will have to choose between two models of economic growth]. *Vedomosti* [News], 2016, May 20. Available at: http://www.vedomosti.ru/economics/articles/2016/05/20/641726-putinu-predstoit-vibrat-model-rosta-ekonomiki

[37] Frolov A. *Pod znakom Marsa. Zapiski obozrevatelya* [Under the sign of Mars. Notes of an explorer]. Sovetskaya Rossiya [Soviet Russia]. Available at: http://www.sovross.ru/modules.php?name=News&file=article&sid=603035

It is also important to note that, unlike the previous electoral period (February – June 2011), we observe a deterioration in estimations of public administration efficiency in the first half of 2016 in the majority of socio-demographic groups. This applies both to the evaluation of the President's work in general and his work on dealing with the material issues of the population in particular (see *insert 3*). All this also proves the severity of economic agenda in the estimates of public opinion and indicates that an alarming situation prevails on the eve of the September 2016 elections compared to previous pre-election periods.

If in the near future the Kremlin does not implement the whole set of measures that should have been implemented long ago for the development of Russia's socio-economic potential, elimination of conflict potential between different regions and social groups within the country that has accumulated and is growing, if the open and hidden resistance of the "compradors" is not overcome and neutralized, then this "party of treason" under the "hybrid aggression" by the "collective West" will inevitably play the role of a "fifth column", which will be at the lead of socially discontented Russian masses.

(Source: Gordeev A. Spor Putina i Kudrina [An argument between Putin and Kudrin]. *Gazeta "Zavtra"* [Newspaper "Tomorrow"], 2016, June 02. Available at: http://zavtra.ru/content/view/nagornyij-2/)

Today experts say that the current government will retain their positions in the next Duma and presidential elections, but no one can predict what will happen then, "there are too many unknowns here"[38]. We must not forget that Russia is one of the major players in the international arena; therefore, the Duma and presidential elections in our country is only internal but also external matter. In the context of hybrid warfare, the gap between the government and society can be very convenient for Russia's potential geopolitical rivals (as was the case after the collapse of the USSR). Thus, "...abandonment of a liberal economy is not just a question of preservation and development of the country. It is a question of preserving world peace. And this is no exaggeration...The price of our electoral vote is not the matter of victory of a particular party or candidate. We are talking about war and peace on a planetary scale"[39].

However, the new political cycle must first clarify the situation concerning the solution of internal economic and political issues. It needs to show the extent to which the President's decisions are dictated by the need to maneuver between different groups (to take into account the interests of both the liberal bureaucracy and society) and the

[38] Garmonenko D. Khodorkovskii perenosit datu padeniya rezhima [Khodorkovsky postpones the date of the fall of the regime]. *Nezavisimaya gazeta* [Independent newsaper], 2016, April 28. Available at: http://www.ng.ru/politics/2016-04-28/1_hodor.html (opinion of L.Gudkov, Director of Levada-Center)

[39] Starikov N. Rossii ne privykat' byt' v avangarde chelovechestva [Russia is no stranger to being at the forefront of the humanity]. *Ofitsial'nyi blog N. Starikova* [N. Starikov's official blog]. Available at: https://nstarikov.ru/blog/66219

The Saint Petersburg International Economic Forum held in June 2016 has shown that "officials contradict themselves without figuring out what exactly is happening to the Russian economy. Instead of carrying out a serious analysis, they rely mainly just on the feelings. Speeches at the SPIEF could be compiled in a collection of the most ridiculous official statements.

The anniversary, 20th Saint Petersburg Forum has shown two things. First, Russian authorities have no clear understanding of what is going on in the economy. Their forecasts are often based on their feelings and contradict each other. Second, it seems as if some officials lived in a parallel reality because they put forward such extraordinary innovations that the Russian people can only wonder where these officials get their inspiration.

Source: Bashkatova A. Piterskii forum pereborshchil s nelepymi zayavleniyami [The Saint Petersburg forum went too far with ridiculous statements]. Nezavisimaya gazeta [Independent newspaper], 2016, June 20. Available at: http://www.ng.ru/economics/2016-06-20/1_forum.html

extent to which he adheres to his long-term strategic direction developed back in the late 1990s[40].

The research results show that today the problem of a lingering crisis situation in the economy, the lack of alternative, innovative points of growth and the absence of positive dynamics of the standard of living – all these issues are deeply rooted in the essence of the Russian society, in its social structure and public consciousness. Getting used to crisis can lead to the gravest consequences, because, having learned how to cope with their financial problems on their own, without relying on effective government policy, people can lose interest and trust in the government. And without this trust we cannot speak about social stability and sustainable foundation of people's support necessary to protect Russia's national interests in the international arena.

The change in economic model requires, first of all, a change in the system of public administration. The Saint Petersburg International Economic Forum held in June 2016 has shown that Russian authorities "have no clear understanding of what is going on in the economy. Their forecasts are often based on their feelings and contradict each other. Second, it seems as if some officials lived in a parallel reality because they put forward such extraordinary innovations that the Russian people can only wonder where these officials get their inspiration"[41]. "Among the reformers there must not be any government officials who already were at the helm of the previous "raw-material-based" economic model. Despite their professional experience, they will be influenced by the old principles, dogmas

[40] It is about Vladimir Putin's article "Russia at the Turn of Centuries", published in "Rossiyskaya Gazeta" Newspaper in its issue of December 30, 1999. An author's view of this document is given in more detail in the previous issue of the Journal (Ilyin V.A. Tret'ya chetyrekhletka prezidenta V.V. Putina: protivorechivye itogi – zakonomernyi rezul'tat [President Vladimir Putin's Third Four-Year Term: Contradictory Outcomes – an Expected Result]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and social changes: facts, trends, forecast], 2016, no. 2, pp. 9–21).

[41] Bashkatova A. Piterskii forum pereborshchil s nelepymi zayavleniyami [The Saint Petersburg forum went too far with ridiculous statements]. *Nezavisimaya gazeta* [Independent newspaper], 2016, June 20. Available at: http://www.ng.ru/economics/2016-06-20/1_forum.html

and fears... The country's development management, in our opinion, should be in the hands of people who have experience in creating new productions, managing investment, and developing entrepreneurial environment"[42].

It is unknown what decisions the President will make, but we think that it is safe to say that if the confusion noted by experts in the management system remains, it will continue to hamper the efficient solution of domestic economic problems. This means that class inequality and social stratification will only increase, and what is called a crisis today, can go into a deeper phase tomorrow.

Judging by expert assessments and the dynamics of sociological polls reflecting public opinion, it should be noted that three months before the elections economic agenda in the Russian society is of such a great current interest as it has never been before. Probably it will be a key factor that will influence voters' preferences on September 18, 2016.

Apparently, the election results could seriously affect the dynamics of socio-economic processes and public sentiment; it is obvious that if the President does not take steps to bring the country to a positive rate of development, then it will be impossible to avoid the aggravation of social tension and, therefore, it will be impossible to ensure national security in the international arena.

First and foremost, it is the head of state that bears the burden of responsibility for the situation in the country, and it is he on whom the society pins great hopes and who currently has a high level of trust in all segments of the population.

Due to the difficult situation concerning the Russian political elite, the cautiousness and precision of administrative decisions taken by Vladimir Putin is understandable and explainable, but, in our view, it can be called effective only up to a certain stage – until the moment when the recession of the Russian economy started.

Unfortunately, in the power vertical there is no effective system of self-regulating mechanisms; there are no organizational structures and effective tools that not only could, but would be required together with the President to formulate and implement an adequate response of the Russian economy to the external and internal challenges is faces. There is no clear system of planning and forecasting, there is no personal responsibility of top-level officials for the achievement of target indicators, the same can be said about all the rest levels of government.

In many cases, the deputies of the Federal Assembly, who see the outrageous facts in the economic or political life, do not have sufficient powers in order to intervene in time, because the system of parliamentary investigations is functioning inefficiently, the procedures of personal approval in

[42] Papchenkova M., Prokopenko A. Putinu predstoit vybrat' odnu iz dvukh modelei rosta ekonomiki [Putin will have to choose between two models of economic growth]. *Vedomosti [News]*, 2016, May 20. Available at: http://www.vedomosti.ru/economics/articles/2016/05/20/641726-putinu-predstoit-vibrat-model-rosta-ekonomiki

the committees and at the meetings of the Federal Assembly of all members of the Cabinet of Ministers are not formalized in legislation (so far, they are approved in a single batch).

Despite the strengthening of the authority of the All-Russian People's Front, the system of public control remains poorly organized, and this system could be an additional means of increasing the efficiency of work of the authorities at all levels. Only if organization at the federal level is systemic in its nature, the effectiveness of the results of civil investigation will be achieved in all areas of domestic policy.

The unchanging nature of the questions that Russians ask the President during his annual live TV phone-ins (about the state of roads, tariffs, administrative barriers to business, the inability to "reach out" to officials, etc.), suggests that the pressing problems of people are not solved efficiently by the competent authorities: people from different regions of Russia have to apply directly to the head of the state with their complaints of authorities of lower levels.

The speed at which urgent problems in government and in society will be solved, the effectiveness of the President's decisions – all this will largely depend on the result of the upcoming elections. And not only on their final result, but also on the transparency of voting procedures at all stages of the electoral process that can cause a wide public resonance both in a positive and negative way.

* * *

People's support, which the President of the Russian Federation still has, opens a "window" of opportunities for the implementation of measures aimed at improving the efficiency of public administration in the new political season. But how long will the trust of the population in the head of state remain high? Will it be possible to use the foundation of people's support for the purpose of restoring order in the management system and ensure its conformity with the interests of national security? The answers to these questions depend on the President's political will.

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Public Opinion Monitoring of the State of the Russian Society

As in the previous issues, we publish the results of the public opinion monitoring of the state of the Russian society conducted by ISEDT RAS in the Vologda Oblast[1].

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 April – June 2016, and also on average for the last six polls (August 2015 – June 2016). These data are compared with the data for 2007 (the last year of Vladimir Putin's second presidential term, when the assessment of the President's work was the highest) and for 2011 (the last year of Dmitry Medvedev's presidency). The yearly dynamics of the data is presented beginning from 2013.

Estimation of performance of the authorities

In April – June 2016, the assessment of work of the President of the Russian Federation did not change significantly (67%). Approval of the President's work remains stable since the beginning of the year, and it is higher than in 2011 – 2014 (59–64%). However, in August 2015 – June 2016 (latest six surveys), we note insignificant negative changes: the percentage of positive ratings of the President's work decreased by five percentage points (from 72 to 67%).

Similar dynamics of public opinion is noted in the assessment of the work of the Chairman of the Government of the Russian Federation: from February to June 2016, it remains stable (53–55%), however, for the period from August 2015 to June 2016, we note a decrease in the proportion of positive judgments (by eight percentage points, from 61 to 53%).

[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/

In the first half of 2016, there has been a consistent increase in the proportion of negative assessments of work of the President (in February –16%, in April – 18%, in June – 20% total – by four percentage points) and the Government (in February – 23% in April – 26% in June – 29%, total – by six percentage points).

For reference: the nationwide level of approval of the RF President's performance is 81–82% according to VTsIOM (for April – first part of June 2016) and Levada-Center (for April – May). The share of negative assessments of the President's work according to VTsIOM is 12–13%, and in it 17–19% according to Levada-Center. In general, the results of nationwide polls have not changed substantially since the beginning of the year.

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

Answer option	2007	2011	2013	2014	2015	Aug. 2015	Oct. 2015	Dec. 2015	Feb. 2016	Apr. 2016	June 2016	Average for the latest 6 surveys	Dynamics (+/-) the latest 6 surveys in comparison with…		
													2015	2011	2007
RF President															
I approve	75.3	58.7	55.3	64.1	69.1	72.0	69.3	69.7	68.1	66.9	67.4	68.9	0	+10	-6
I don't approve	11.5	25.6	29.4	22.3	17.5	17.8	18.1	16.5	16.1	17.9	20.1	17.8	0	-8	+6
Chairman of the RF Government*															
I approve	-	59.3	48.9	54.2	58.1	60.7	58.1	57.9	54.9	53.5	52.8	56.3	-2	-3	-
I don't approve	-	24.7	32.8	27.6	21.7	22.5	21.0	21.7	22.6	25.7	28.6	23.7	+2	-1	-
Governor															
I approve	55.8	45.7	44.4	40.1	39.3	41.5	38.7	39.7	35.1	34.9	38.2	38.0	-1	-8	-18
I don't approve	22.2	30.5	33.2	38.9	36.2	35.4	36.0	35.3	38.2	39.6	40.3	37.5	+1	+7	+15
* Included into the survey since 2008.															

In April – June 2016, the assessment of success of the President's actions in addressing the key problems of the country did not change significantly:

– the share of the Vologda Oblast residents who think that the President successfully copes with the task of strengthening international positions of Russia is 51–52%;

– the share of the Vologda Oblast residents who think that the President successfully copes with the task of restoring order in the country is 48–50%;

– the share of those who believe that the President is successful in protecting democracy and strengthening citizens' freedoms is 36–38%;

– the share of those who believe that the President successfully copes with the task of economic recovery and promotes the increase in the welfare of citizens is 28%.

For the first half of 2016 (February – June), people's estimates remain stable. However, in comparison with the average for 2014 – 2015, there has been a noticeable deterioration of public opinion that concerns the work of the head of state in addressing the issues of economic recovery and growth of citizens' welfare: in 2014 and 2015, the proportion of positive judgments was 34–35% in February – June 2016 – 28%.

For the latest six surveys (from August 2015 to June 2016), the share of negative assessments of effectiveness of the President's work in coping with economic problems in the country increased by six percentage points (from 53 to 59%); from the beginning of 2016 – by two percentage points (from 57 to 59%).

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	2015	Aug. 2015	Oct. 2015	Dec. 2015	Feb. 2016	Apr. 2016	June 2016	Average for the latest 6 surveys	Dynamics (+/-) the latest 6 surveys in comparison with…		
													2015	2011	2007
Strengthening Russia's international standing															
Successful	58.4	46.2	45.7	50.4	51.7	52.2	50.7	53.2	50.9	50.7	52.2	51.7	0	+5	-7
Unsuccessful	24.9	33.7	36.2	32.4	31.3	32.4	33.1	31.5	29.1	30.9	29.0	31.0	0	-3	+6
Index of success	*133.5*	*112.5*	*109.5*	*118.0*	*120.4*	*119.8*	*117.6*	*121.7*	*121.8*	*119.8*	*123.2*	*120.7*	*0*	*+8*	*-13*
Imposing order in the country															
Successful	53.2	36.6	39.4	48.0	50.2	51.7	48.6	50.5	47.7	48.1	49.7	49.4	-1	+13	-4
Unsuccessful	34.0	50.0	47.5	39.1	37.9	37.9	38.7	38.0	37.2	38.2	37.5	37.9	0	-12	+4
Index of success	*119.2*	*86.6*	*91.9*	*108.9*	*112.3*	*113.8*	*109.9*	*112.5*	*110.5*	*109.9*	*112.2*	*111.5*	*-1*	*+25*	*-8*
Protecting democracy and strengthening the citizens' freedoms															
Successful	44.4	32.4	31.8	37.5	40.4	42.6	38.1	41.0	36.9	35.6	38.3	38.8	-2	+6	-6
Unsuccessful	37.0	48.3	51.0	45.4	41.5	41.7	44.3	43.7	44.3	45.3	42.2	43.6	+2	-5	+7
Index of success	*107.4*	*84.1*	*80.8*	*92.1*	*99.0*	*100.9*	*93.8*	*97.3*	*92.6*	*90.3*	*96.1*	*95.2*	*-4*	*+11*	*-12*
Economic recovery and increase in the citizens' welfare															
Successful	47.2	30.7	31.3	34.8	34.2	36.6	32.1	30.9	28.0	27.6	27.5	30.5	-4	0	-17
Unsuccessful	39.1	56.1	56.8	53.4	52.3	52.6	54.3	55.7	57.0	57.9	59.1	56.1	+4	0	+17
Index of success	*108.1*	*74.6*	*74.5*	*81.4*	*81.8*	*84.0*	*77.8*	*75.2*	*71.0*	*69.7*	*68.4*	*74.4*	*-7*	*0*	*-34*

* Ranked according to the average value of the index of success for 2015.

Over the past two months, the structure of the Russians' preferences concerning political parties did not see any significant changes and it has remained stable since the beginning of 2016. The "United Russia" is supported by 35–36%, LDPR – by 7–10%, KPRF – by 7–9%, the "Just Russia" – by 3–4%. In comparison to 2015, we note a decrease of support for the "United Russia" (by three percentage points, from 39 to 36%) and the growth in the number of supporters of LDPR (by four percentage points, from 6 to 10%).

In April – June 2016, the proportion of those who believe that today no party expresses their interests decreased (by 5 p.p., from 35 to 30%), which is, probably, connected with the growth of excitement concerning the "United Russia" primary election.

If we compare this period to previous election periods, we should note that in June 2016, the proportion of people whose interests are not expressed by any major political party is about the same level as in 2011 (29%), but remains significantly higher than in 2007 (almost twofold, 30% in 2016 vs. 18% in 2007).

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	2015	Aug. 2015	Oct. 2015	Dec. 2015	Feb. 2016	Apr. 2016	June 2016	Average for the latest 6 surveys	Dynamics (+/-) the latest 6 surveys in comparison with…		
															2015	2011	2007
United Russia	30.2	60.5	31.1	33.4	29.4	32.8	38.8	38.5	38.0	39.0	35.1	34.1	36.0	36.8	-2	+6	+7
LDPR	7.5	11.0	7.8	15.4	7.2	7.6	6.2	5.9	6.1	7.1	6.9	8.2	10.3	7.4	+1	0	0
KPRF	7.0	9.3	10.3	16.8	11.3	9.7	7.1	7.1	6.9	6.5	9.4	7.2	8.0	7.5	0	-3	+1
Just Russia	7.8	8.8	5.6	27.2	4.6	3.5	3.6	3.5	3.3	3.7	2.7	2.7	4.0	3.3	0	-2	-4
Other	1.8	–	1.9	–	0.6	0.3	0.2	0.1	0.1	0.4	0.5	0.2	0.3	0.3	0	-2	-2
No party	17.8	–	29.4	–	34.9	34.4	31.8	33.8	32.3	30.5	31.7	34.9	29.7	32.2	0	+3	+14
It is difficult to answer	21.2	–	13.2	–	10.2	11.7	12.2	11.1	13.3	12.9	13.7	12.7	11.7	12.6	0	-1	-9

Assessments of social feeling in April – June 2016 did not change significantly:

– the proportion of people who describe their mood as "normal, good" remains at the level of 67–68%);

– the proportion of those who say that "everything is not so bad; it's difficult to live, but it's possible to stand it" is 76–78%.

Compared to the beginning of the year, there was a slight increase in the proportion of the Vologda Oblast residents who consider themselves "rich" or "with average income" (by 3 p.p., from 40% in February to 43% in June 2016, which corresponds to the average figures for 2013–2014). The proportion of people who consider themselves "poor and extremely poor" decreased by four percentage points (from 51% in February to 47% in June 2016).

The consumer sentiment index for the period from April to June 2016 increased by three points (from 74 to 77 p., which corresponds to the average value for 2015).

However, despite some positive developments in April – June 2016, we cannot assert that there is a positive picture of self-assessments of social feeling, financial situation and forecasts:

– for the latest six surveys (from August 2015 to June 2016), the share of negative assessments of social mood and stock of patience increased by three percentage points (from 24 to 27% and from 13 to 16% respectively);

– the proportion of "the poor and extremely poor" is still greater than the proportion of those who consider themselves "wealthy and with average income" (as of June 2016 – 47% vs. 43%);

– the consumer sentiment index (77 p.) remains significantly below 100 points, which means that negative estimates prevail in people's assessments of their financial situation and prospects of its development.

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

Answer option	2007	2011	2013	2014	2015	Aug. 2015	Oct. 2015	Dec. 2015	Feb. 2016	Apr. 2016	June 2016	Average for the latest 6 surveys	Dynamics (+/-) the latest 6 surveys in comparison with…		
													2015	2011	2007
Mood															
Usual condition, good mood	63.6	63.1	68.6	69.4	68.7	73.1	70.4	69.6	63.4	67.0	68.0	68.6	0	+5	+5
I feel stress, anger, fear, depression	27.8	28.9	26.2	24.9	25.9	23.5	25.4	24.3	28.9	25.4	26.7	25.7	0	-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	78.4	82.2	78.2	78.0	73.1	77.5	78.2	77.9	-1	+3	+4
It's impossible to bear such plight	13.6	15.3	14.2	12.6	14.5	13.3	13.9	12.7	16.1	16.4	15.7	14.7	0	-1	+1
Social self-identification*															
The share of people who consider themselves to have average income	48.2	43.1	43.9	43.2	38.7	39.9	39.2	38.9	39.9	40.9	42.8	40.3	+2	-3	-8
The share of people who consider themselves to be poor and extremely poor	42.4	44.3	46.9	49.1	50.7	50.5	50.2	50.5	51.4	49.4	47.1	49.9	-1	+6	+7
Consumer sentiment index															
Index value, points	105.9	89.6	90.3	87.6	77.1	77.9	77.7	77.7	75.0	74.4	77.3	76.7	0	-13	-29

* Question: "Which category do you belong to, in your opinion?"

In the past two months, the percentage of those who describe their social mood as being positive did not change in 9 out of 14 socio-demographic categories of the population.

In some groups there is a growth of positive moods from April to June:

– among men (by four percentage points, from 66 to 70%);

– among people under the age of 30 (by six percentage points, from 75 to 81%);

– among people who, according to their own assessments of their incomes, fall into the category of 20% of the most well-off inhabitants of the Vologda Oblast (by four percentage points, from 81 to 85%).

Moreover, in April – June 2016 there is a decrease in the share of positive assessments of social sentiment among people over 55 (by 4 p.p., from 64 to 60%).

In general, compared with the beginning of the year, improvement of emotional state is observed in all socio-demographic groups (except for those older than 55).

From August 2015 to June 2016, in all socio-demographic categories of the population (except for 20% of the wealthiest residents of the Vologda Oblast and people under the age of 30 years) there is a slight (by 1–6 p.p.) decrease in the proportion of positive assessments of social mood.

On average for the latest six surveys in all the groups of the population, the proportion of those who characterize their mood as "normal, fine", corresponds to the average value over the past three years (2013–2015).

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

Population group	2007	2011	2013	2014	2015	Aug. 2015	Oct. 2015	Dec. 2015	Feb. 2016	Apr. 2016	June 2016	Average for the latest 6 surveys	Dynamics (+/-) the latest 6 surveys in comparison with…		
													2015	2011	2007
Sex															
Men	65.9	64.5	69.9	68.9	69.5	75.2	69.8	69.9	63.9	66.5	70.0	69.2	0	+5	+3
Women	61.7	62.0	67.5	69.8	68.0	71.3	70.9	69.2	63.1	67.5	66.5	68.1	0	+6	+6
Age															
Under 30	71.3	70.0	75.5	75.1	77.1	78.9	82.8	76.9	69.9	75.4	81.2	77.5	0	+8	+6
30–55	64.8	62.5	69.2	69.5	67.2	72.1	68.0	69.0	62.1	66.0	68.3	67.6	0	+5	+3
Over 55	54.8	58.3	62.4	65.4	65.5	70.8	66.0	65.9	61.5	63.7	59.8	64.6	-1	+6	+10
Education															
Secondary and incomplete secondary	58.4	57.4	60.6	62.5	63.6	70.2	65.7	64.6	57.8	62.4	62.9	63.9	0	+7	+6
Secondary vocational	64.6	63.6	68.1	70.4	70.1	75.3	70.3	67.7	60.7	67.3	69.3	68.4	-2	+5	+4
Higher and incomplete higher	68.6	68.3	77.4	76.2	72.7	74.1	75.8	76.9	72.9	71.5	73.3	74.1	+1	+6	+5
Income groups															
20% of the poorest people	51.6	45.3	46.2	50.8	51.8	55.7	54.2	49.8	42.6	51.3	52.0	50.9	-1	+6	-1
60% of the people with median income	62.9	65.3	71.9	72.3	71.0	77.7	70.1	72.2	66.3	67.6	69.3	70.5	0	+5	+8
20% of the most prosperous people	74.9	75.3	83.3	84.8	82.0	85.1	87.1	78.8	77.9	81.0	85.2	82.5	+1	+7	+8
Territories															
Vologda	63.1	67.1	75.0	76.4	73.9	77.9	77.6	73.6	65.1	69.1	71.5	72.5	-1	+5	+9
Cherepovets	68.1	71.2	75.3	76.3	70.6	74.9	71.4	73.2	66.4	70.5	72.5	71.5	+1	0	+3
Districts	61.6	57.1	61.6	61.8	64.6	69.4	65.9	65.0	60.9	63.9	63.7	64.8	0	+8	+3
Oblast	63.6	63.1	68.6	69.4	68.7	73.1	70.4	69.5	63.5	67.1	68.1	68.6	0	+6	+5

Conclusion

By mid-2016, after a significant deterioration in December 2015 – February 2016, social feeling has somewhat stabilized. Improvement is observed in assessment of social mood and stock of patience; people's perception of their financial situation and prospects of its development has become more positive.

However, we cannot say that there are significant positive changes in people's perception of their well-being and economic situation in the country. People more often consider themselves "poor and extremely poor" than "well-off and with median income" (47 and 43% respectively); the consumer sentiment index remains below 100 points (77 p.), which means the predominance of pessimistic forecasts of the welfare and prospects of the Russian economy. Thus, financial issues remain critical and they are a key factor in shaping people's attitude toward the work of the authorities.

Slight positive changes that took place in April – June 2016 did not improve public opinion about the efficiency of public administration. The level of support for the President and the Government remains stable (67 and 53%, respectively), as well as the evaluation of the success of the President coping with the key issues of the country. At the same time, economic policy pursued by the President is still evaluated negatively (the share of negative assessments of the President's work on coping with the issues of economic recovery and growth of welfare exceeds twofold the proportion of positive assessments – 59 and 28%, respectively). People get used to the crisis and, according to some experts, it can become "the most serious consequence of the crisis"[2].

The excitement around the primary election conducted by the "United Russia" on May 22, 2016 somewhat reduced people's political apathy (the number of those who believed that the key political parties in the country do not express their point of view decreased from 35 to 30%), but this had virtually no effect on the support of the ruling party (it remained at the level of 34–36%). It is therefore obvious that the closer the September elections to the State Duma, the more important the role of economic issue as a factor influencing the electoral preferences of the population. And if the general population do not feel that inflation is reduced and the growth of Russia's economy is resumed, which is expected by the government "in the near future"[3], this may significantly complicate the situation at the polling stations.

[2] Zabelina N. Naselenie privykaet k bednosti [People get used to poverty]. *Nezavisimaya gazeta* [Independent newspaper], 2016, January 13. Available at: http://www.ng.ru/economics/2016-01-13/4_prices_2.html

[3] Stenogramma vystupleniya V. Putina na plenarnom zasedanii Peterburgskogo mezhdunarodnogo ekonomicheskogo foruma 17 iyunya 2016 g. [Transcript of Vladimir Putin's speech at the plenary session of the Saint Petersburg International Economic Forum on June 17, 2016]. *Ofitsial'nyi sait Prezidenta RF* [Official website of RF President]. Available at: http://www.kremlin.ru/events/president/news/52178

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UDC [323/324+338](470+571)''2015'':316.653, LBC 65.9(2Rus+66.3(2Rus)+60.52(2Rus)

Our Journal regularly published the results of the surveys conducted by ISEDT RAS in the Vologda Oblast. As a rule, these results are compared with those obtained in the research carried out by major federal sociological centers: Levada-Center, Russia Public Opinion Research Center (VTsIOM), Public Opinion Foundation (FOM), Institute of Sociology of the Russian Academy of Sciences (ISRAS), Institute of Socio-Political Research under the Russian Academy of Sciences (ISPR RAS), etc. In this paper, Valery Fedorov, Director General of VTsIOM, provides a detailed coverage of the results of nationwide sociological surveys conducted by VtsIOM in 2015. The article's original structure, wording, etc. have been retained.

Russian Society in 2015: What We Learned About It from Sociological Polls

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Abstract. Modern socio-political history of Russia can be quite clearly divided into several important periods, each of which is characterized by particular political environment and specific social consciousness. The accession of Crimea and Sevastopol to the Russian Federation in March 2014 is one of the landmark events, a milestone that marks the transition from one phase of this history to the next. This event (or rather, process that started, according to some estimates, in the autumn of 2013, or in February 2014) indicated a sharp turn in Russian foreign policy and in its relations with the West and East. The accession of Crimea has led to phenomenal growth and expansion of support for the policy pursued by Vladimir Putin and for his personality: without exaggeration, he has become not just a political leader but the leader of the nation. The trend set by the accession of Crimea was evolving in 2014–2015; a special feature of this development was that Russia obtained the positive effect almost immediately, and negative consequences followed only after a while. And the farther our life from March 2014, the more pronounced these deferred negative consequences; while the benefits gained are being partly exhausted and partly forgotten as they recede into a background. Negative consequences include the conflict with the West and the efforts of several influential countries to isolate Russia in the international arena, the war in Ukraine and the collapse of Russian-Ukrainian relations in all areas, Western sanctions against the financial and commodity sectors of Russia's economy, the weakening of the Russian currency and growth of prices for imported goods and then – for food and non-food commodities. Thus, in the course of time, the price paid by Russian society for the accession of Crimea grew rather than fell.

Key words: public opinion poll, Russia, crisis, politics, economy.

The world oil market crisis that began in the autumn of 2014 was an additional and very heavy blow for Russia; it was followed by a slowdown of China's economy, which resulted in a dramatic worldwide decline in the price of raw materials – from metals to coal. The entire 2015 was marked by crisis phenomena affecting virtually all raw materials extracting countries, among which Russia found itself in a particularly grave situation (in 2015, our country has lost 3.7% of GDP vs its 0.6% growth in 2014).

The main intrigue of the year in this regard was the question how stable Vladimir Putin's regime would remain. His policy has recently received such a powerful "Crimean" impetus for its strengthening in a situation of economic crisis, falling incomes, high inflation, and decline in the standard of living. And all this has been going on against the background of the lingering conflict with the West and low economic efficiency of the Kremlin's policy pursuing the development of cooperation with the East. The level of prices, the exchange rate of the ruble and the price of a barrel of oil – these are telling indicators, the dramatic dynamics of which electrified social atmosphere in 2015. They shifted the value priorities of the Russians, reduced sensitivity to the global role and mission of our country, and made people think more about their incomes, jobs, prices etc.

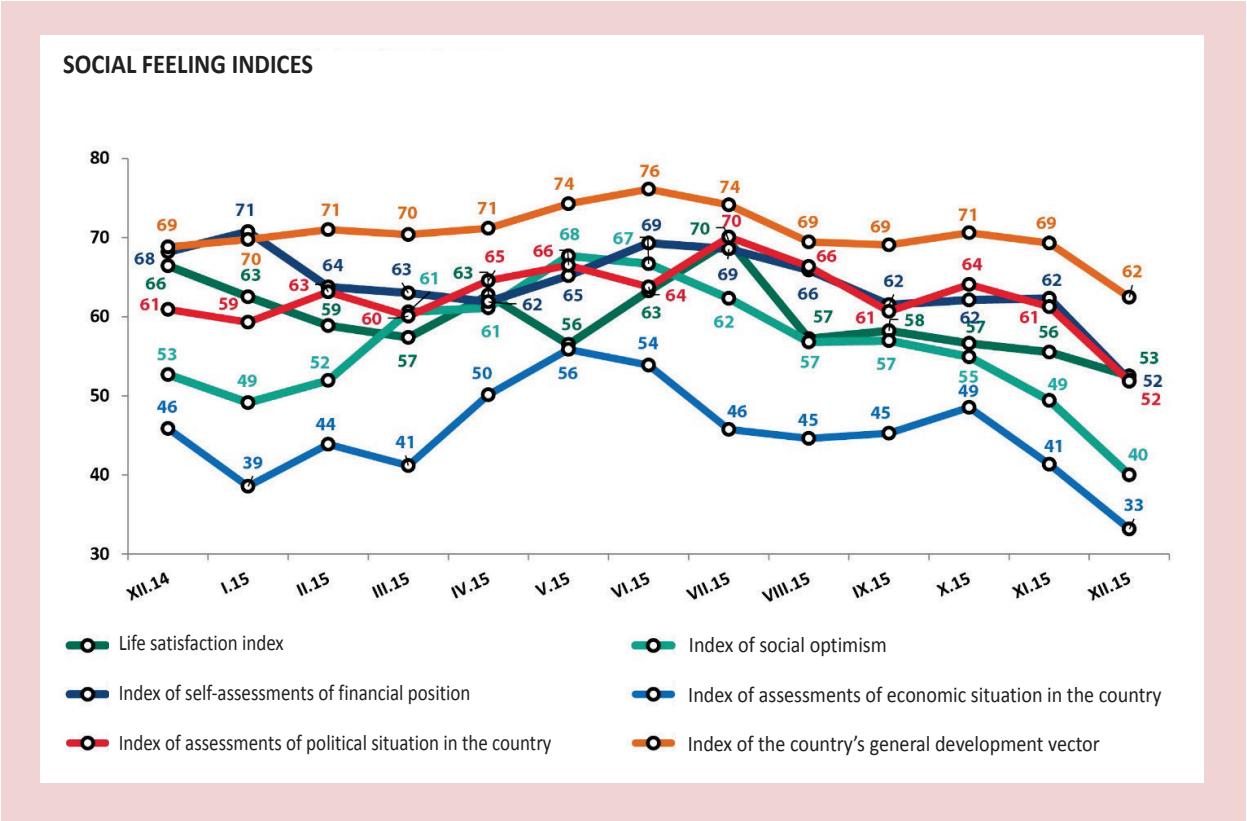
Taking into account State Duma elections scheduled for September 2016, "the ruling party" is now forced to reconsider their ideology and rhetoric and adapt them to a rapidly deteriorating geopolitical and socio-economic environment. On the contrary, the opposition had an opportunity to use the crisis to strengthen their position before the election and move away from showing too openly their support of Putin's policy, at least in domestic affairs.

In this article we will consider the results of several public opinion polls conducted by VTsIOM using the all-Russian representative sample in 2015 to understand how the ideas of the Russians on topical issues evolved, how their political attitudes and preferences changed, how the Russians responded to the main challenges and threats of the past year and how it has affected and may affect the political course of the Russian leadership.

Social well-being

The Russians entered the new year of 2015 with mixed emotions; then, after twelve months, the polls clearly showed a decline in almost all aspects of social well-being. For instance, general satisfaction with life in the course of the year fell from 66 to 52 points, assessment of people's own financial situation – from 68 to 52 points, and the index of social optimism – from 53 to 40 points. This means that indicators characterizing private lives of the Russians for the year went down in average by 13–16 points.

An approximately similar decline is observed in indicators describing people's perceptions of the situation in the country as a whole, but we must bear in mind that by the beginning of 2015 they have already lagged considerably behind the others. The index of assessments of the economic situation in the country decreased from 46 to 33 points, the index of assessments of the



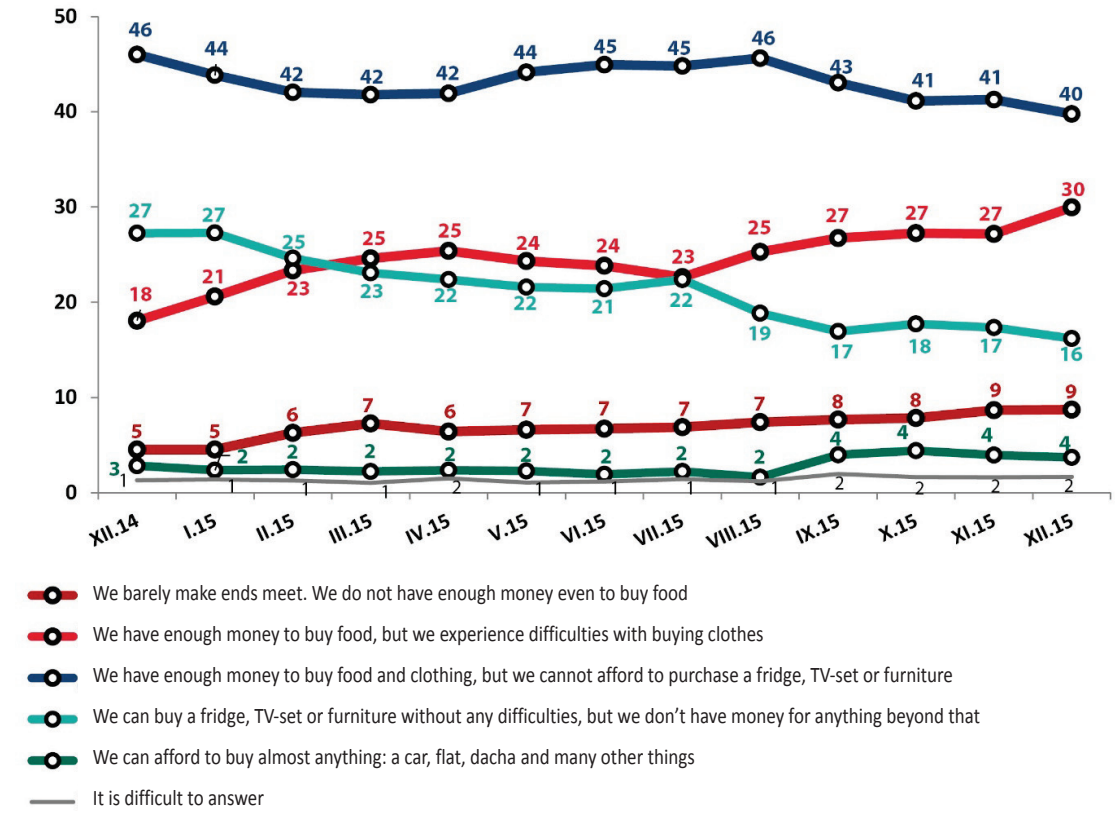
political situation – from 61 to 52 points, the index of correctness of the general direction of development of the country – from 69 to 62 points.

As we can see, social well-being of the Russians in 2015 deteriorated significantly, but this obvious conclusion requires two important points to be clarified. First, even after they decreased, most indicators remain at historically high levels and there is still a significant margin of safety compared to the mid-2000s. Second, we do not see the picture of successive decline in all indicators throughout the year – on the contrary, from January to May inclusive, we observe an upward trend; and only in the summer, when hopes for the end of the crisis were not confirmed by economic reality, the growth stopped. The main decline was in the period from August to December, which correlates well with two processes: a new round of the global oil crisis (and a new round of weakening of the ruble) and direct entry of Russia in the Syrian conflict (whereas in early 2015 the "Minsk-2" agreement raised hopes for peace in the Donbass and thereby had a positive impact on social feeling of the Russians).

Economy and life

The year 2015 started with great hopes for economic stability and end of the war in Ukraine, but it resulted in big disappointment – because of a new war and a new wave of the crisis. Let us examine individual components of this disappointment and begin with the material factor. It was not the most important in the deterioration of social well-being of the Russians (in this capacity, economic crisis competes with the fears generated by military threat), but it has

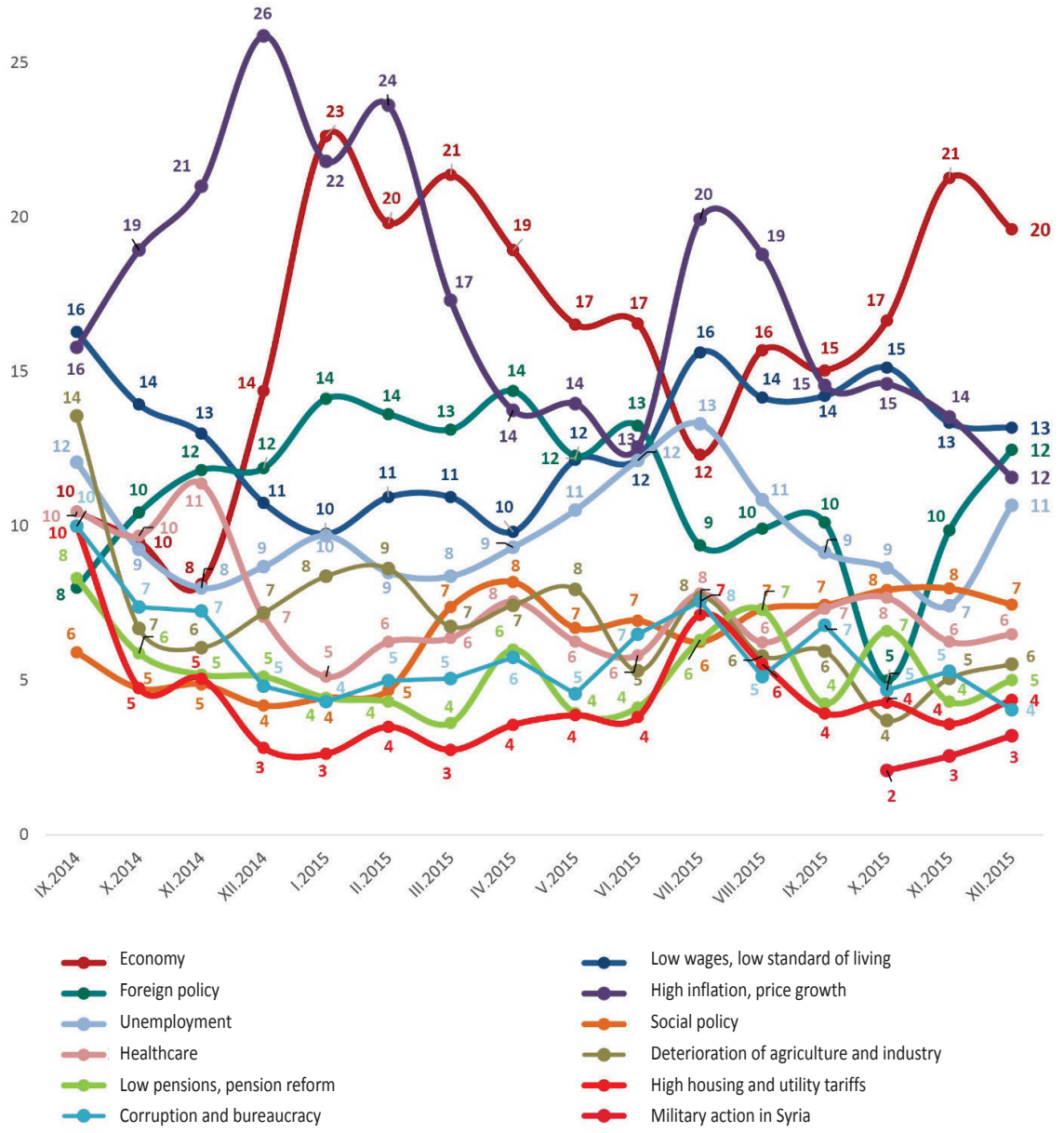
What group of the population do you think you belong to? (Closed-ended question, one answer)



made a great contribution to it. Opinion polls show that during the year there was a considerable growth in the number of the two of the poorest groups of the Russians – those who barely make ends meet and their incomes are barely enough to buy food (5 to 9%), and those who have enough money to buy food, but have difficulties with buying clothes (from 18 to 30%). At the same time, there was a decline in the share of "medium" and "pre-medium" groups of consumers – those who can purchase food and clothing, but cannot afford to purchase household appliances (from 46 to 40%), and those who cannot afford to buy a car, an apartment and a dacha (from 27 to 16%).

Such changes indicate a profound decline in the real incomes of the population (Rosstat assessed their fall by 10% in 2015), and even more – the decline in social optimism, in willingness to take loans and "act long-term" amid the increase in economic instability. It is no coincidence that by the end of the year the situation in the economy has become a major problem in the country, according to opinions of the Russians (the number of those who mentioned it among the five most important

What issues do you consider to be most important for the country as a whole? (Open-ended question, not more than five answers. Twelve most frequent answers are presented)

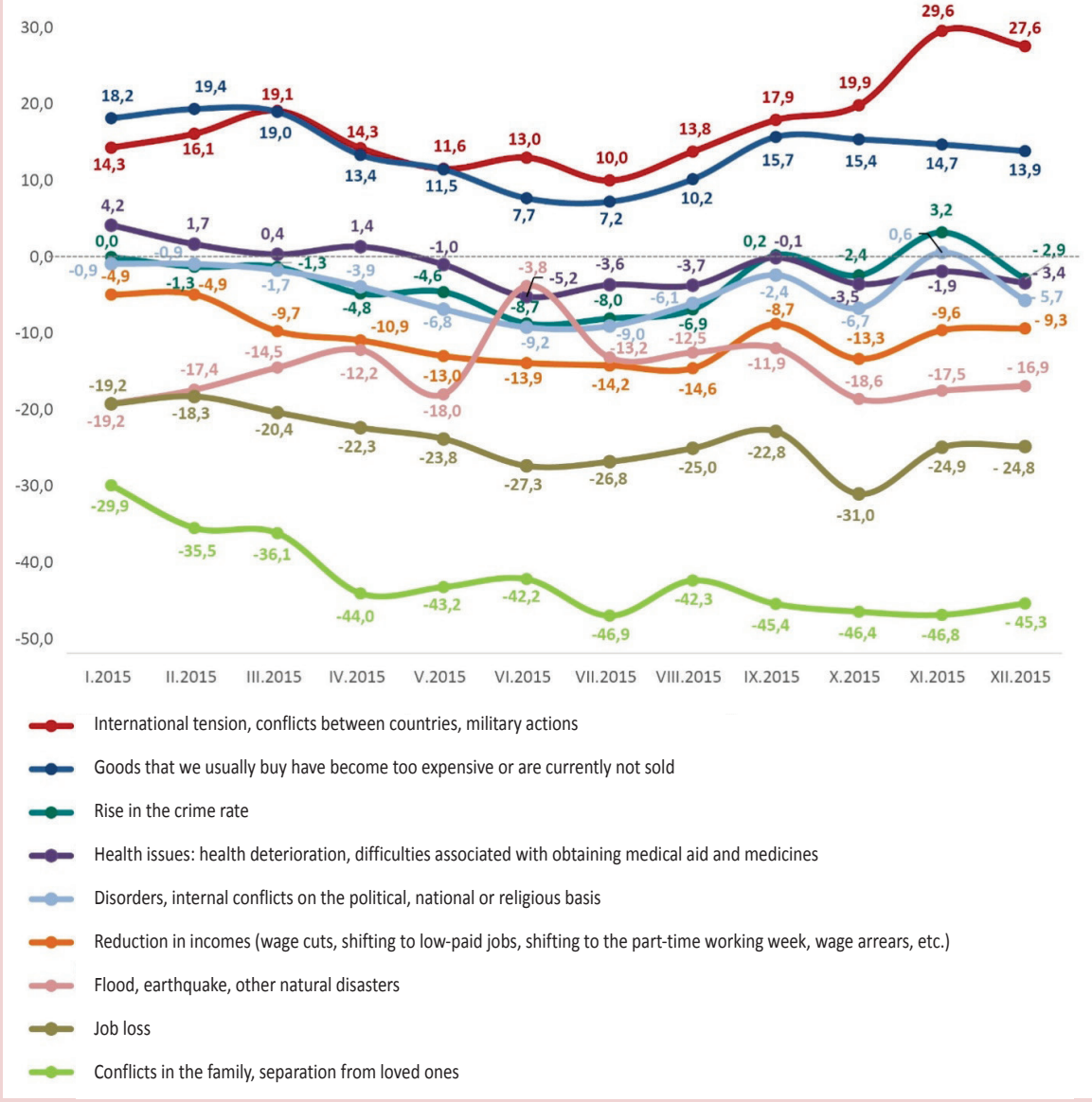


problems of Russia has grown from 10 to 20% in twelve months). The other two places in the top three issues of the rating are occupied by two related issues – low wages, low standard of living (13%), inflation, rising prices (12%). It should be pointed out that at that time the inflationary shock experienced in the spring of 2015 came to naught by December: the population adapted to the new level of prices and rate of inflation (during the year it reached almost 13%).

Another socio-economic problem – unemployment – ranks fourth with 11% of the respondents who feel concern about it. All the rest issues (political, social and others) became much less relevant to the residents of our country in 2015, but mostly not because of some positive changes in their decision, but in view of deteriorating socio-economic situation. It is this fact that pushed into the background those "advanced" concerns, typical for the "fat" years.

Map of fears

Another research tool used by VTsIOM, a "Map of fears" shows a slightly different placement of priorities by the Russians regarding their concerns for the near future. First place in the list is occupied by the fear

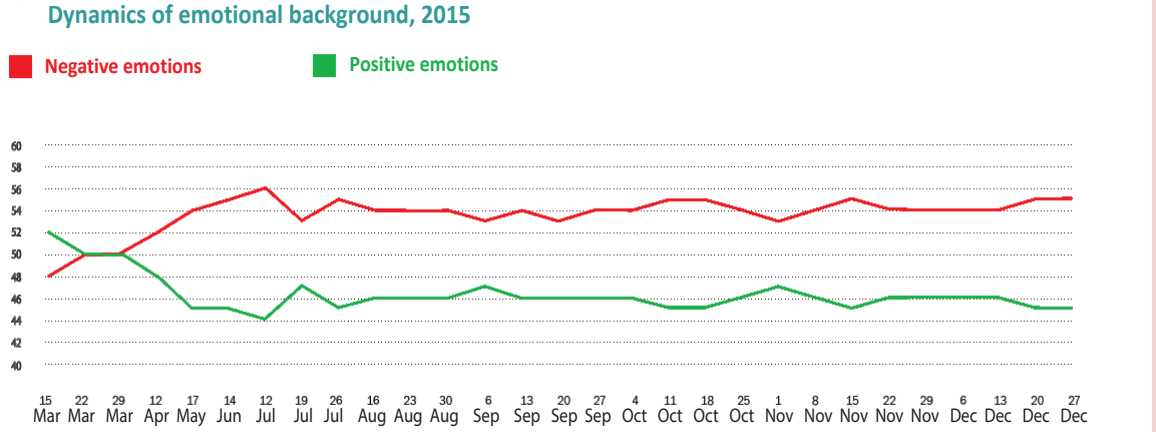


of rising international tension and conflicts, including military conflicts, between countries. This fear was consistently growing throughout the year (from 14 to 28 points), and the maximum point (30 points) was registered in November 2015 marked by the shootdown of a Sukhoi Su-24 bomber aircraft in the airspace of Syria by Turkish Air Forces. Fear of international conflicts that was decreasing along with the cessation of military clashes in the Donbass again grew after the Russian military aircraft started bombing Syria (late September) and peaked at the time when the conflict between Russia and Turkey was provoked by these circumstances.

Against such a dramatic background, an excessive fear of rising prices, which in January 2015 topped the ranking of Russians' fears (18 points against 14 points for the fear of military conflicts), already moved to the second place by mid-year, and, despite the high growth rate of inflation recorded by Rosstat (almost 13% in the course of the year) declined even more by December (to 14 points, i.e. twice less than the fear of military tension in the same month). We should point out that the Russians are concerned little with the loss of job (-19 points in January, -25 in December 2015) and decrease in income (-5 in January, -9 in December); this concern has not increased, but, on the contrary, decreased as the crisis is progressing. What is happening is due to the effect of the famous Maslow law, according to which as the primary needs (safety) come to the fore, the secondary needs (welfare) become less significant. And that is exactly what happens in the moment when experiencing economic difficulties the country is on the verge of war with a powerful neighbor (Turkey).

Another important indicator of the state of the Russian society is the dynamics of its emotional background. The VTsIOM assessments show that from March 2015 onwards the negative emotions experienced

Dynamics of emotional background, 2015



The indicators were calculated on the basis of a color test developed by E. Dorofeeva. In this test, the sequence of the colors chosen by the respondent indicated his/her emotional state. Negative emotions comprise depression, anxiety, anger. Positive emotions include joy, benevolence, sorrow.

by our respondents consistently exceed the positive ones, and this "margin" to the end of the year reached 12%. The number of "optimists" who keep their spirits up in the face of an international confrontation while there exists a possibility of Russia entering a major war does not exceed 46%. Thus, the year 2015 marked by numerous domestic and external challenges was emotionally difficult, and its consequences are in store for next year.

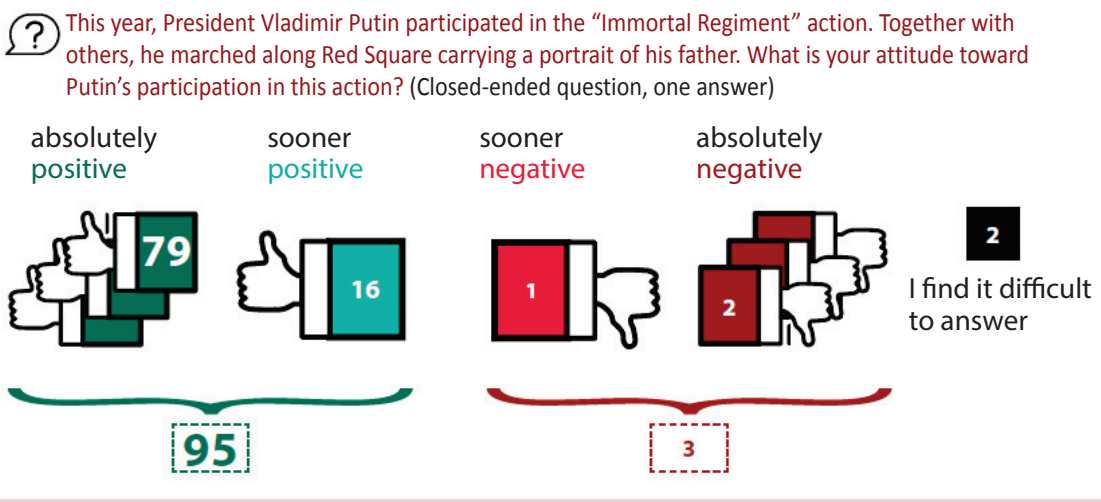
From the Great Victory to the war in Syria

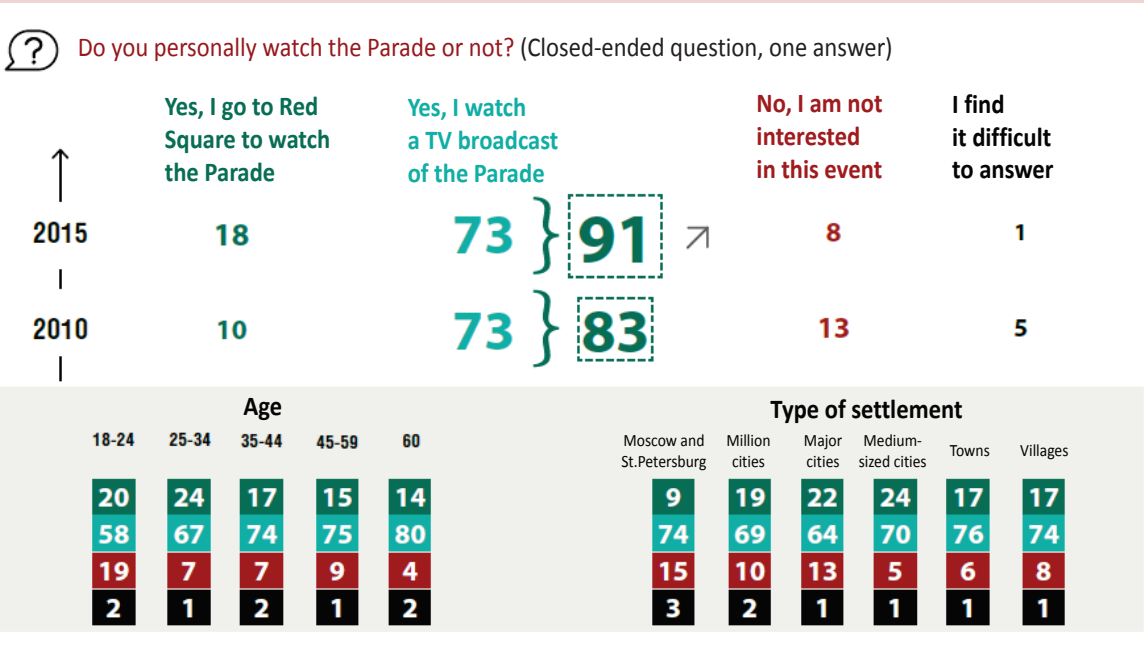
However, we can name at least one unifying and positive event that has received a huge response among the Russians and provided a great impetus to the consolidation of the Russian society under increasing difficulties. This event is the 70th Anniversary of the Victory in the Great Patriotic War 1941–1945; the anniversary is best remembered not only for its traditional military parade, but also for the "Immortal Regiment" march – an action unprecedented in the number of participants and emotional intensity when the Russians marched in Moscow along Red Square carrying portraits of their relatives who participated in the Great Patriotic War.

Ninety three percent of the Russians aged 18 and older (including 89% in the youngest group – aged 18–24) know what the "Immortal Regiment" is. This action

In your opinion, what is the goal of the "Immortal Regiment" action? (Open-ended question, any number of answers is possible)

73	**MEMORY** ("the action is devoted to the memory of relatives who perished in the war", "so that people remembered the Great Patriotic War", "to show respect to the veterans and to remember them", "so that we could remember our heroes")
5	**EDUCATION OF YOUNG PEOPLE** ("for the purpose of educating the rising generation", "to educate young people", "young generation ought to know about those who perished in the war", "so that our children knew the history of Russia")
4	**TO RAISE THE LEVEL OF PATRIOTISM** ("patriotic education", "for strengthening patriotism", "to enhance patriotic feelings", "this is a patriotic movement")
4	**TO PAY TRIBUTE TO THOSE WHO PARTICIPATED IN THE WAR** ("gratitude for the Victory", "to do honor to the victors", "to pay tribute to victorious soldiers", "honor and glory to our soldiers")
2	**TO UNITE PEOPLE** ("to unite the people", "for the cohesion of the people", "to consolidate our society", "it unites people")
1	**FOR VETERANS** ("it pleases the veterans", "to support the veterans", "for the veterans")
1	**SO THAT THERE SHOULD BE NO MORE WAR** ("to show the world that war is bad", "so that there should be no more war, that people should learn from mistakes", "in order to prevent new wars", "so that such thing should not be repeated")
1	**SO THAT HISTORY SHOULD NOT BE DISTORTED** ("to support the historical truth", "to show everyone that history cannot be rewritten", "so that the whole world should know that the war was won by the Soviet Union", "so that lies about this war should not be conceived")
<1	**TO RAISE OUR SPIRITS** ("to keep up people's morale", "for raising the spirits of the Russians", "support to the country, to the Russian spirit", "in order to raise the spirits of the Russians")
<1	**TO DISTRACT PEOPLE FROM PROBLEMS** ("to distract people from problems", "to distract people from economic problems and made them love Putin", "a cult is created and people are distracted from economic problems", "to scramble people's brains")
4	**OTHER** ("power propaganda", "to commemorate the 70th Anniversary of the Victory", "to find relations", "to write off money")
12	**I FIND IT DIFFICULT TO ANSWER**





was assessed as positive by 96% of the respondents (including 81% of those who assessed it "definitely positively"). The proposal to make the "Immortal Regiment" march an important permanent part of the celebration of the great Victory was backed by 93%. Vladimir Putin's personal participation in the march was approved by 95% of the respondents; this fact indicates a huge political success of those who initiated the "Immortal Regiment", who managed to turn a mourning event into the demonstration of the unity of the Russian nation, the nation united not only by the memory of its victories and losses but also by its political leader.

May 9, Moscow and other Russian cities will host the Victory Parade. In your opinion, what is the meaning of the Parade? (Open-ended question, any number of answers)

2010	2015		
31	47	↗	SO AS NOT TO FORGET THE HISTORY OF THE COUNTRY, THE MEMORY OF THE PEOPLE'S HEROIC DEED ("memory", "victory", "celebration of the Victory")
20	15	↘	TO PAY TRIBUTE TO THOSE WHO PERISHED IN THE WAR, A SIGN OF GRATITUDE TO OUR ANCESTORS ("tribute to those who perished", "express gratitude to those who perished", "memory of those who fought in the war")
9	12	↗	TO PLEASE THE VETERANS WHO SURVIVED, TO CONGRATULATE THEM ("to make the veterans happy", "to pay tribute to the veterans", "to congratulate the veterans")
18	12	↘	TO SHOW THE COUNTRY'S MILITARY POWER ("demonstration of the country's military power", "to demonstrate new weaponry", "to show our strength to other countries")
11	11		TO CULTIVATE PATRIOTISM IN YOUNG PEOPLE, A WAY TO TELL THE HISTORY OF THE COUNTRY ("education of young people", "growth of patriotism", "to tell young people about the Great Victory")
–	5	↗	TO BE PROUD OF OUR COUNTRY AND OUR VICTORY ("pride", "joy for the Victory", "pride in our country and Victory")
8	3	↘	CONSOLIDATION OF THE PEOPLE, GENERATIONS, A REASON FOR BEING PROUD OF THE COUNTRY ("consolidation of generations", "unity of the people", "solidarity")
4	3		IT IS JUST A GOOD TRADITION ("tradition" "national holiday", "70th Anniversary of the Victory")
2	1		A MEANINGLESS EVENT, A SHOW-OFF ("a show-off", "nobody appreciates the veterans anymore", "I see no point in this")
>1	1		OTHER
15	12		I FIND IT DIFFICULT TO ANSWER

The Russians tend to regard with skepticism the participation of political activists and political parties leaders in civil actions, seeing in it a desire of these people to "worm themselves into the trust of the public", satisfy their own interests and obtain political benefits they have not earned. However, Vladimir Putin, participating in the "Immortal Regiment" march and carrying a portrait of his father, a Great Patriotic War veteran, was viewed quite naturally as "one of us" rather than as a stranger from the cynical world of politics.

A more familiar element in the celebration is a military parade on Red Square aims to show the country and the world the might of the Russian army and its combat readiness and to confirm the ambitions of Russia as a great power. This feature of the parade is usually criticized by domestic pro-Western liberals, while pro-Eurasian traditionalists, on the contrary, are proud of it. Polls show that the 2015 parade became the highest-rated event watched by nine out of every ten Russians (91% vs. 83% five years ago).

Still more important is the fact that the parade has not divided, but united our society due to the pride we take in our Armed Forces, respect we feel toward the

Which of the statements is close to your point of view? (Closed-ended question, one answer)

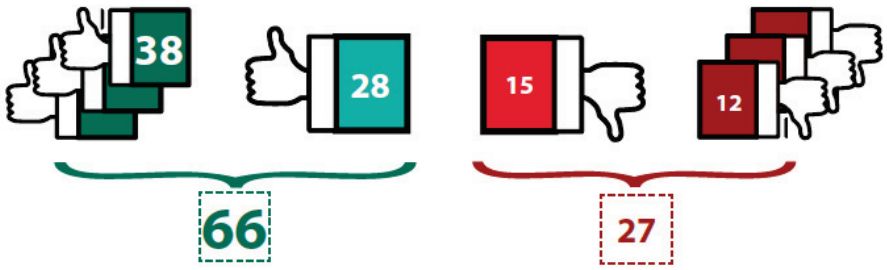
Russia **MUST FIRMLY STAND ITS GROUND** even if this can lead to deterioration of relations with Western countries

Russia must **MAINTAIN GOOD RELATIONS** with Western countries, even if it has to make concessions in some issues

10

I FIND IT DIFFICULT TO ANSWER

How do you assess President Putin's decision to send Russian military air forces to Syria to fight against the terrorist organization "The Islamic State of Iraq and the Levant" (Closed-ended question, one answer)



What kind of aid should be provided to Syria? (Closed-ended question, not more than three answers, % of those who think Russia should back one of the sides in the Syrian conflict)

44	DIPLOMATIC
41	HUMANITARIAN, ECONOMIC
40	AID OF MILITARY AIR FORCES, AIR STRIKES
24	SUPPLYING ARMS AND AMMUNITION
17	SENDING ADVISORS
5	AID OF THE ARMY (LAND OPERATION)
11	I FIND IT DIFFICULT TO ANSWER

army and readiness to deal with geopolitical and military challenges. Given the fact that the confrontation with the West since, at least, the spring of 2014 has been the cornerstone of Putin's policy, the parade and emotions the Russians felt in this connection definitely helped strengthen his authority and enhanced the support of his course of action. The emerging desire of the upper and lower classes of the Russian society to mitigate the negative consequences and reduce the intensity of heat in the confrontation with the West has not turned into a willingness to change the course radically, to stop supporting the Donbass, to return Crimea to Ukraine and to make far-reaching concessions to the West in other areas of the bilateral confrontation.

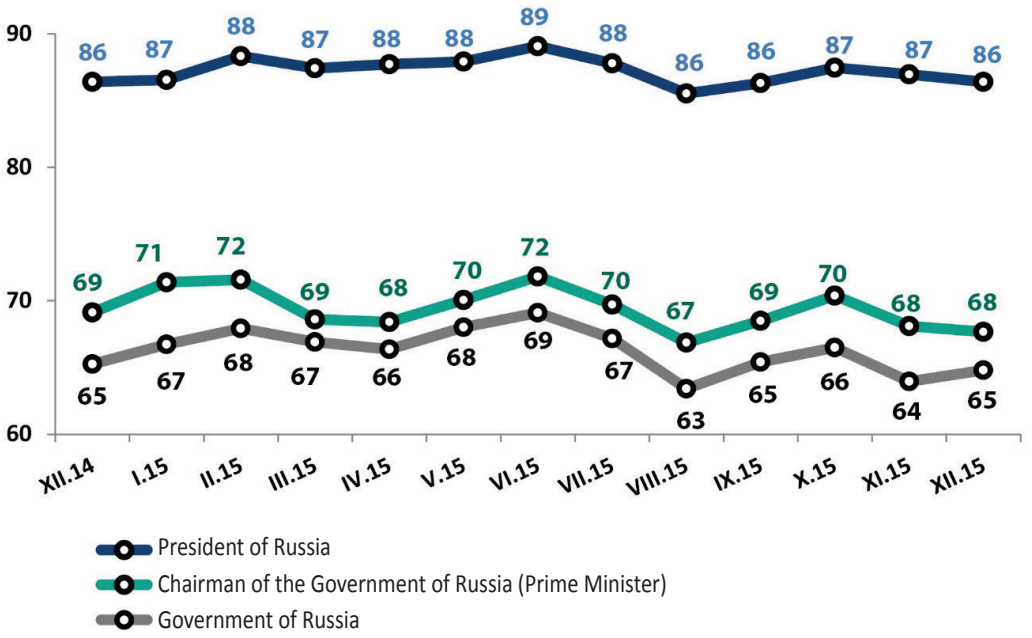
The number of supporters of new "turn to the West", if it is a generalized concept, seems to be significant (22%), though it is three times less than the number of adherents of the previous course (68%). But when it comes to possible concrete concessions, it becomes apparent that neither concept gains even such level of support: only 3–5% or a maximum of 7% of the respondents are willing to return Crimea to Ukraine and stop supporting the Donbass and so on.

Thus, the depth of the crisis and the decline in the popularity of the regime are still far from the threshold at which the geopolitical positions are surrendered under the indifferent connivance of society. In contrast to the period of 1989–1991, when Soviet people rather calmly observed the Soviet Union losing its influence in Eastern Europe and the world, the present-day Russians are determined to fight hard for the preservation of their country's dominance in the Post-Soviet space in spite of any actions of the West.

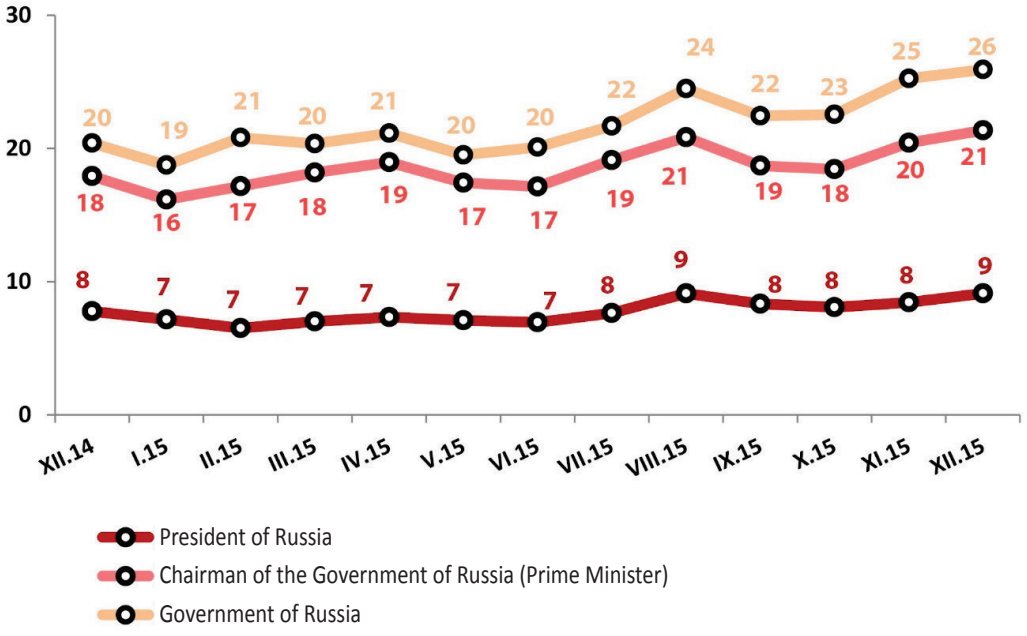
In this context, it becomes clear why our society approves of Russia's participation in the war in Syria: it is perceived as a proof of growing geopolitical power of Russia, the fact that makes other countries, especially the U.S., to reckon with it not just in this issue, but in other matters as well. The President's decision to send military aircraft to Syria was supported by two-thirds of the respondents, and 27% were against this decision.

The "Afghan syndrome" that plagued our society in 1980–1990 is not yet found in the attitude of the Russians toward the aid to Syria, but there are several severe restrictions that President Putin must observe, if he does not want Russia's participate in the Syrian war to undermine people's trust in him. We are talking about the fact that Russian troops must not participate in ground operations of Bashar al-Assad's army (only 5% of the Russians would approve of this measure). If these requirements are complied with, then the new war in the Middle East will not provide domestic critics of Putin with new serious arguments.

In general, you **approve** of the work of: (Closed-ended question, one answer)



In general, you do **not approve** of the work of: (Closed-ended question, one answer)

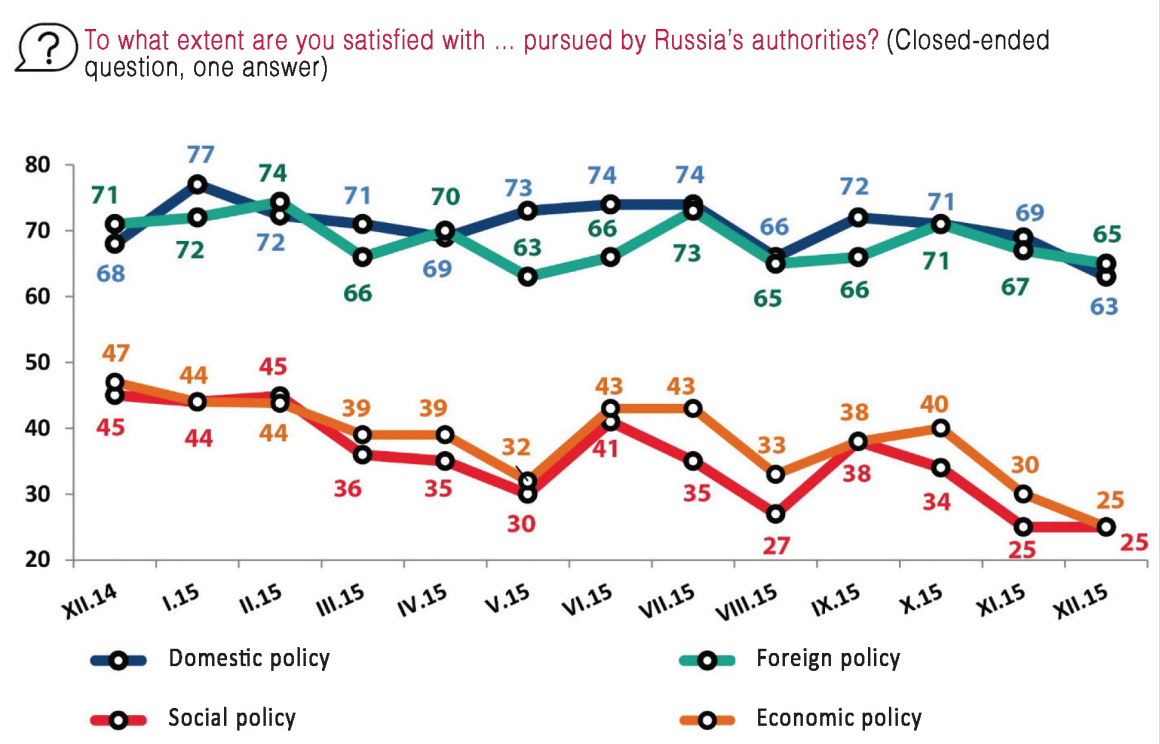


Towards the 2016 elections

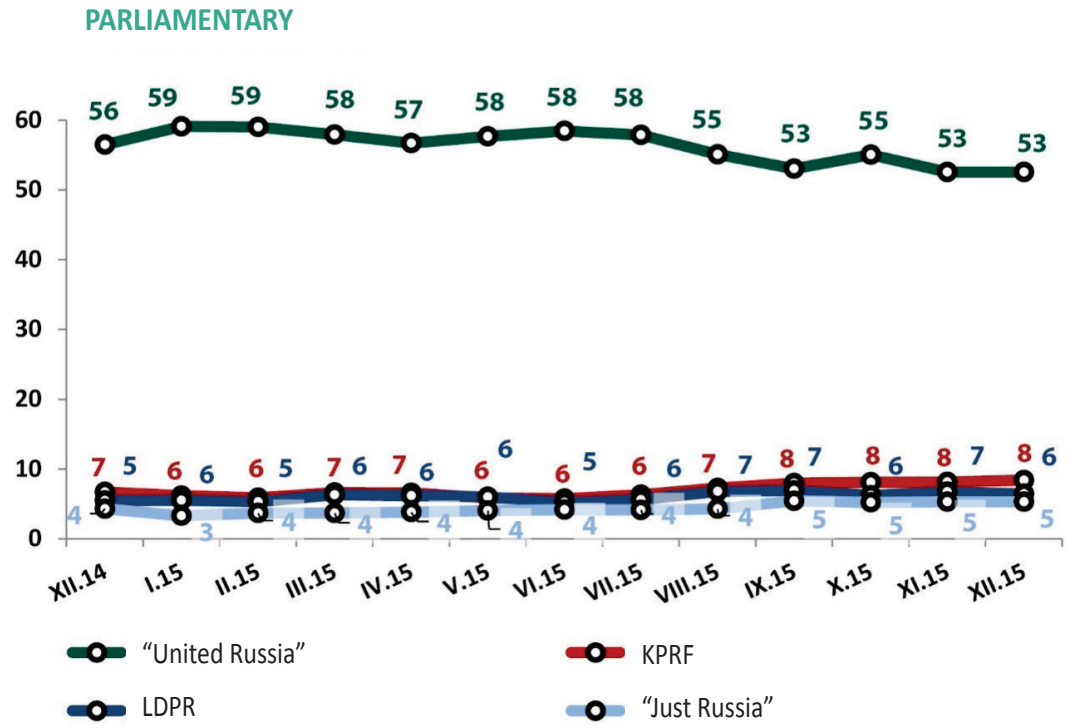
Economic crisis, confrontation with the West, Russia's involvement in the new and dangerous conflict in the Middle East along with the unsettled situation in the Donbass – all these factors had a downward effect on the rating of President Putin and other key political institutions of his regime. However, this impact was mainly offset by Putin's skillful policy, a significant stock of credibility he gained and support of the overwhelming majority of the Russians that he now possesses. The average level of approval of Putin's work as head of state did not fall below 86% during the year, and the proportion of those who do not approve of his work remained at the level of 7–9%.

The level of approval of Prime Minster Dmitry Medvedev remains stable, although at a lower level and with somewhat greater fluctuation (67–72%); the same can be said about the Government in general (63-69%). The Prime Minister and the Cabinet continue to enjoy the protection of "the President's umbrella" and Putin's charisma, and the latter does not see the need to sacrifice the Cabinet in order to save his own position.

Nevertheless, the pressure points of the President's course and Government policy were revealed throughout 2015, which creates a high probability of decline in the rating of the President, Prime Minister and Cabinet as the 2016 State Duma



If the State Duma election took place on the coming Sunday, then which of Russia's political parties would you, most probably, vote for? (Closed-ended question, one answer)



election campaign is deployed. Foreign and domestic policies as such are the most popular aspects of the regime, forming its "citadel": the former was supported by 71% of the Russians in January 2015 (by 65% – in December), the latter by – 68% (by 63% – in December,). For the year, both aspects have lost part of their supporters, but continue are still approved by two-thirds of the Russians. The situation is much more serious with regard to economic policy (47% approved of it in January, 25% – in December) and social policy (45 and 25%, respectively) – these are the most weak and vulnerable points in the defense of the regime.

It is not the President, but the Government that is responsible for the economy and social sphere in Russia; and it has been announced that Prime Minister Medvedev will head the candidate list of the ruling party in the parliamentary elections of 2016. It turns out that Prime Minister, who is responsible for socio-economic setbacks of recent times, is intended to explain to his voters the reasons for current difficulties and inspire them to vote for "United Russia" again. Meanwhile, the proportion of people supporting this party was reducing as the "Crimean effect" declined and economic crisis became more profound: during the

year, the number of those who planned to vote for this party dropped from 59 to 53% (mean monthly values).

And although the level of support for the opposition parties – both parliamentary and those not yet represented in the Duma – has not increased over the year; it is clear that they will benefit from the weakening of the "United Russia". According to preliminary estimates, the ruling party is unlikely to improve its rating by September 2016 compared to the previous 2011 election (49%), and it may become even worse on the background of the unfolding crisis and coordinated attack that the opposition forces launch against the "United Russia".

However, the general political stability is highly unlikely to be affected owing to three important factors. First, the number of deputy seats for the "United Russia" and its ally, the All-Russia People's Front, may not reduce, but grow due to the fact that for the first time since 2007, deputies will be elected not only on the lists but also on the majoritarian districts (and here, the "ruling party" maintains a significant advantage). Second, the parliamentary opposition competes with the "United Russia", but recognizes the unconditional leadership of Vladimir Putin, and under the current Constitution the powers of the State Duma are considerably limited and much inferior to presidential powers. Third, the "non-systemic opposition", i.e. politicians who are firmly opposed to Putin will not have any serious voter support and are unlikely to obtain it by September 2016.

Hence, the Putin regime will pass the test of the election, despite the negative informational, emotional and economic background. At the same time, the incipient weakening of the "United Russia" in case it is fixed by the election results will force the regime to act more carefully, to maneuver, to enter into coalition with the parties of the systemic opposition, to update the composition of the Government and to adjust its policy in certain aspects so that it would be ready for the 2018 presidential election and ensure Putin's re-election to a new six-year term.

Information about the Author

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About the Prospects for Development of the Region on the Basis of Interregional Cooperation*

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Abstract. The paper considers issues related to the development of interregional economic cooperation. The primary hypothesis is the thesis that the strengthening of interregional relations is an important factor in regional economic development. This thesis is confirmed by analysis and generalization of several scientific theories. Using an industrialized region of Russia (Vologda Oblast) as a case study, the authors test their own methodological tools of activization of interregional cooperation as a factor in the development of economy in an industrialized region. The general logic of using this tool involves three main interrelated steps: informational-analytic, target and implementation. The information-analytical step involves collection, systematization and analysis of the materials that constitute the necessary information base. The target step defines possible solutions to the problems related to interregional cooperation of the Vologda

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Oblast, forms the targets and objectives (taking into account national goals and regional tasks of industrial development), highlights the priorities of work in this area and calculates possible consequences of their implementation. The mechanism for this activity is formed at the implementation phase, which includes a specific set of tools that are selected in accordance with the current conditions and opportunities of the government. The paper puts forward a methodological approach to forecasting the development of regional industry taking into account changes in the economy in connection with the planned modernization and implementation of major investment projects and the possible subsequent growth of regional supplies of industrial products. The approach is based on the principles of the theory of general economic equilibrium, "input-output" balance method and methodology of the system of national accounts. The tools proposed by the authors can be used by regional authorities in developing strategies for economic and social development, assessing the direction and degree of influence of interregional cooperation on the development of the territory. The paper outlines the goals, objectives and directions of development of interregional relations.

Key words: region, regional cooperation, prospects, regulation mechanism, forecasting, input-output balance.

Addressing a most urgent task concerning the development of the regional socio-economic system makes it necessary to search for sources of its growth. Regional integration based on the development and enhancement of economic interaction of Russian constituent entities is one of these sources. Interregional economic interaction provides the market with goods that are not produced in the region and local producers – with sustainable supply of raw materials and components; this interaction boosts the development of the internal market of goods and enhances domestic demand for products, helps diversify the economy, eliminate territorial barriers that impede the transfer of production, investment and labor resources between regions.

At the same time, interregional relationships that had existed within the country and between former USSR republics were almost completely destroyed in the course of economic reforms that Russia went through. This fact, as well as significant decline in economic activity and production decrease, led to a deep economic recession in the regions and the country in the mid 1990s, which, in turn, resulted in a sharp deterioration in the welfare of the population [4].

The majority of economists and politicians recognize the fallacy of the current policy, the need to strengthen the regulatory role of the government, among other things, with regard to the development of interregional cooperation. Meanwhile, regional public authorities do not pay due attention to these issues and do not make efficient use of the tools to influence economic entities that generate interregional flows of goods and services. The impact of interregional cooperation on the economies of these regions is not assessed. Regional laws aimed at its

development do not provide for specific methods and levers for its stimulation. Target programs elaborated in the regions are usually focused on separate directions or sectors and are often formal in nature; besides, they do not get enough financing, and the implementation of their measures is controlled insufficiently [10]. Moreover, available forecasts of socio-economic development and industrial development do not consider the strengthening of interregional ties properly.

In view of the above, the development of methods for their activation as one of the effective factors in economic development of the region comes to the fore as an important task. The reproductive approach to economy management proves that production needs economic resources not only available in the region but also imported from other regions; besides other territories should have a demand for the products manufactured in this region [23]. This leads to the dependence of regions on interregional economic integration and makes economic cooperation between them an essential factor in their industrial development. The importance of interregional cooperation is confirmed by several scientific theories.

Fundamentals of the theory of interregional cooperation were laid in the 18th century in the theory of absolute and comparative advantage (A. Smith, D. Ricardo), the essence of which consists in the idea that some countries (regions) can produce goods more efficiently and at a lower price than others and on this basis they have an absolute advantage implemented through trade [18].

The classical theories of accommodation such as J.H. von Thünen's location theory, W. Christaller's central place theory, and V. Launhardt and A. Weber's industrial location theory made a significant contribution to the development of the theory of interregional cooperation. In framework of these theories key attention was paid to geographical (distance) and economic (amount and structure of costs) factors that determine the efficiency of location and functioning of an economic entity (enterprise, city, area). Location theories were further developed in the territorial integration concept as a tool for enhancing competitiveness of countries (regions) in the face of competition for space and resources; in particular, this served as an argument in favor of integrational association of European countries (the concept of Middle Europe developed by Friedrich Naumann [5]). In addition, these theories became the basis for the formation of the majority of modern spatial theories of development [34], which began to develop rapidly in the 1930s and were based on the principle of general rather than partial equilibrium, in contrast to classical location theories.

Spatial economic equilibrium theory developed by August Lösch is a model of territorial self-organization of society and its economic life. He created the concept of

economic landscape, in which the crucial factor is the market area, forming a network of economic regions, the main role is given to profits maximization rather than costs (commodities and transport) reduction [1].

According to economic geography theories (represented mainly by Soviet scientists: N.N. Baranskii, N.N. Kolosovskii, M.K. Bandman, etc.), the strengthening of interregional economic interaction is a driving force of regional competitiveness because it promotes technological specialization, cooperation and agglomeration effect [17].

In general, the major provisions of the interregional interaction theory are as follows:

1. Wealth of population in different territories is based on the division of labor and subsequent exchange of its results.

2. Sources of economic specialization in a given territory are spatial growth, uneven allocation of resources, and a growing competition.

3. There is a direct correlation between the efficiency of allocation of production factors (territorial and sectoral organization of the economy) and performance.

In the mid-twentieth century, economists revised the factors that determine the direction and pattern of trade flows between countries and regions. For instance, Swedish scientists E. Heckscher and B. Ohlin supplemented the theory of comparative advantage: they put forward the theorem of "equalization of prices of production factors". Its essence lies in the fact that each country (region) specializes on the production of those goods for which the ratio of its own production factors is most favorable. In other words, a country (region) exports those goods, for the production of which the total value of all costs is lower than in other countries (regions), and their sales bring profit.

In 1948, Paul Samuelson and Wolfgang Stolper put forward their theorem that represented an improved proof of the Heckscher–Ohlin theorem: in case of homogeneous production factors, perfect competition, identical technology and complete mobility, the exchange of goods equalizes the price of production factors between countries (regions). The concepts of trade that are based on the works of D. Ricardo, E. Heckscher, B. Ohlin and P. Samuelson consider trade not only as mutually beneficial exchange, but also as an instrument to reduce development disparities between territories.

The second half of the 20th century was marked by a sweeping growth of world trade and an increased competition between countries and regions. As a result, competitive advantage theories for individual territories began to emerge. In particular, Michael Porter has identified consistent patterns in competition between areas: the more developed competition in the domestic market, the greater the likelihood of success of this country (region) on international markets (and vice versa, the weakening of

competition on the national market can lead to a loss of competitive advantage) [31].

Investigating trade interaction of territories, Paul Krugman notes that international trade assumes more and more the nature of interregional trade, because production factors and competences in strategic decision-making are gradually shifting to the regional level. The driving force of trade when there is competition and when production factors are similar is the benefit that countries obtain as a result of differentiation of product supply and economies of scale; competitiveness of countries and regions that experience a shortage of production factors is determined by the advantage of using special forms of organization and concentration of production [24; 27; 28].

The final thesis was elaborated in cluster development theories and concepts. They studied the structure and forms in which economic activities were organized in space (vertically and horizontally integrated organizations, clusters, networks), drivers of competitiveness of economic agents, ways of their interaction [33]. Major representatives of these scientific theories are M. Porter, M. Enright, J. Humphrey, H. Schmitz, and M. Storper. The cluster form of production organization:

– increases productivity and boosts innovation process by creating favorable conditions [31];

– contributes to a more efficient use of benefits of proximity (concentration), to create favorable conditions for the manifestation of economies of scale, reduce transaction costs [14];

– helps optimize value chains, which, in turn, enhances reproduction structure of the regional economy.

As well as their foreign colleagues, Russian scientists focus on the development of interregional cooperation between territories. During the Soviet era, their research aimed to solve the problem of rational territorial organization of economy and find methods for planning and regulating economic development. V.S. Nemchinov, A.E. Probst, R.I. Shniper, A.G. Granberg are among the most prominent domestic researchers engaged in regional studies. A.I. Tatarkin [19-21], S.Yu. Glazyev [3], P.A. Minakir [11], O.A. Romanova [15], R.A. Latypov [8], I.M. Rukina [16], and K.V. Pavlov [13] carried out their research on the formation and development of interregional economic relations, coordinated functioning of regions in the major economic areas (i.e. federal districts) under modern Russian conditions.

However, many aspects of the methodology for the formation of regional policy in the sphere of interregional relations and methods of its implementation still do not have sufficient scientific substantiation. They include critical issues such as linking the regional component to the national policy, defining state support priorities, the sequence of implementation

of program activities in the regions, coordinating their implementation in economic sectors.

General logic of boosting interregional economic interaction involves three main interrelated steps: information-analytical, target, and implementation *(tab. 1)*.

The information-analytical step involves collecting, systematization and analysis of the materials that form the information base for the development of interregional cooperation and include the data provided by statistical agencies; data provided by corresponding structural divisions of the authorities; data provided by expert estimates and obtained in the course of special surveys.

In our opinion, the range of issues dealt with at this stage should include: assessment of the current state, main trends and regularities in the development of interregional relations; analysis of industrial market environment in the region; identification and systematization of prerequisites for, limitations on and problems in the development of interregional links.

In practice, diagnostics of the current state of interregional relations of the region and their development trends is carried out with the help of an extensive range of various methods and approaches: comparison; bringing the indicators to a comparable form; application of relative and average values [9]; grouping of information; factor, correlation, multivariate comparative analysis methods [25; 26; 35]; expert diagnostics methods [36], and others. For the purpose of analyzing the situation on the industrial market in the region, taking into

Table 1. Principles of interregional cooperation development *

Principle	Essence
Purposefulness	Elaboration of policy in the sphere of interregional cooperation should be based on a system of strategic and tactical goals for industrial development of the region
Complexity	Necessity to take into account economic, social, environmental, political and other factors in the development of the region when elaborating and implementing the policy in the sphere of interregional cooperation
Systemacy	Setting out targets and objectives for industrial development in the region and mechanisms of its implementation should take into consideration the relations characterizing the mutual dependence of its development on other regions and the country as a whole
Adaptability	Formation of policy in the sphere of interregional cooperation should take into account possible changes in external environment, which may cause the necessity to adjust the objectives, tasks, main directions and mechanisms of their implementation
Effectiveness	Necessity to prove that the very set of goals, objectives, key areas selected as priority ones, and a set of regulatory tools for policy implementation will help achieve the desired result
Consensus of interests	Necessity to identify and meet the needs of all businesses and management entities that enter into economic relations when the policy in the field of interregional cooperation is elaborated and implemented
* Compiled with the use of [12].	

account the capacity of regional statistics, one uses the indicators that characterize the direction, structure and volume of supply and demand for the products of intraregional, interregional and foreign markets [12].

The target step defines possible solutions to the problems of interregional relations of the region, sets out the targets and tasks of development of interregional cooperation (taking into account national objectives and regional tasks of industrial development), highlights priorities in this sphere, and calculates the possible consequences of their implementation.

Methods used in SWOT and PEST analyses can serve as a methodological basis at this stage. This makes it possible to characterize the status and assess the impact of external environment on the object under consideration for the purpose of developing methods and ways of adaptation and response to changes in external environment, as well as to aggregate the results of detailed investigations and justifications in the judgments on the object's advantages or disadvantages.

In order to highlight the purposes, tasks and directions of development of interregional cooperation of the region, the methodological approach [2; 22] can be used; it is based on the construction of matrices that show the prospects of development of interregional trade and economic cooperation of the region on the basis of portfolio analysis methodology. This approach will help diagnose the status of interregional relations, develop a system of differentiated areas of their development in the context of groups of consumer regions and goods supplied.

To determine potential opportunities for increasing the interregional export of products of industrial enterprises of the region, we use the following algorithm [10]:

– analyze the structure of the region's industrial complex, identify key products produced there, and explore the possibilities of increasing their production volumes;

– evaluate the existing national, regional and sectoral strategies and programs for development of the industry concerning the possible participation of the region's enterprises in them (as suppliers of products and modernization objects);

– define contractors for supplies (this should take into account the geography of their location, existing volumes of supply and those required by contractors);

– assess the potential increase in the volumes of interregional export taking into account specific goods and industries in general.

The data obtained can be used to assess the effects of implementation of the policy in the field of interregional cooperation. The change in the industrial production output in the region taking into account interregional supplies is a quantitative characteristic of this policy. The impact of interregional activities on industrial production in the region can be assessed

with the help of input-output models[1] [4; 29; 30; 32]. They use a basic input-output equation, which in its matrix form is as follows:

$$x = Ax + y, \quad (1)$$

where x is the vector of output; A – the matrix of coefficients of direct costs; y – the vector of the final product.

Using this equation it is possible to calculate the output x in all the sectors of economy in the region if the final demand y is planned to be changed. The calculation algorithm is as follows:

1. Based on the data of the table of goods and services usage[2] the A matrix of direct costs of the product/industry type is calculated. For this purpose, we determine the proportion of direct costs F_{ij} in the output X_j:

$$a_{ij} = F_{ij} / X_j . \quad (2)$$

The element aij of the matrix A shows the consumption of the product i directly under the unit of production of industry j.

2. Based on the data presented in the table of resources of goods and services[3] we calculate the W correction matrix of the industry/product type. The W matrix is used to transform the A matrix of direct costs of the product/industry type into a symmetric matrix of direct costs $A \cdot W$. For this purpose, we calculate the share of costs X_{ij} in the output X_j:

$$w_{ij} = X_{ij} / X_j . \quad (3)$$

3. We calculate the $A \cdot W$ symmetric matrix of direct costs of the product/product type.

4. We calculate the symmetric matrix of total costs:

$$B = (E - A \cdot W)^{-1} . \quad (4)$$

The element b_{ij} of the B matrix characterizes the demand for the gross output of the industry i, which is required to obtain a unit of the final product of industry j. in the process of material production This enables us to consider the gross output of industries x_i as a function of the planned values y_j of the final products of industries:

$$x_i = f(y_1, y_2, ..., y_n) = \sum_{j=1}^{n} b_{ij} y_j . \quad (5)$$

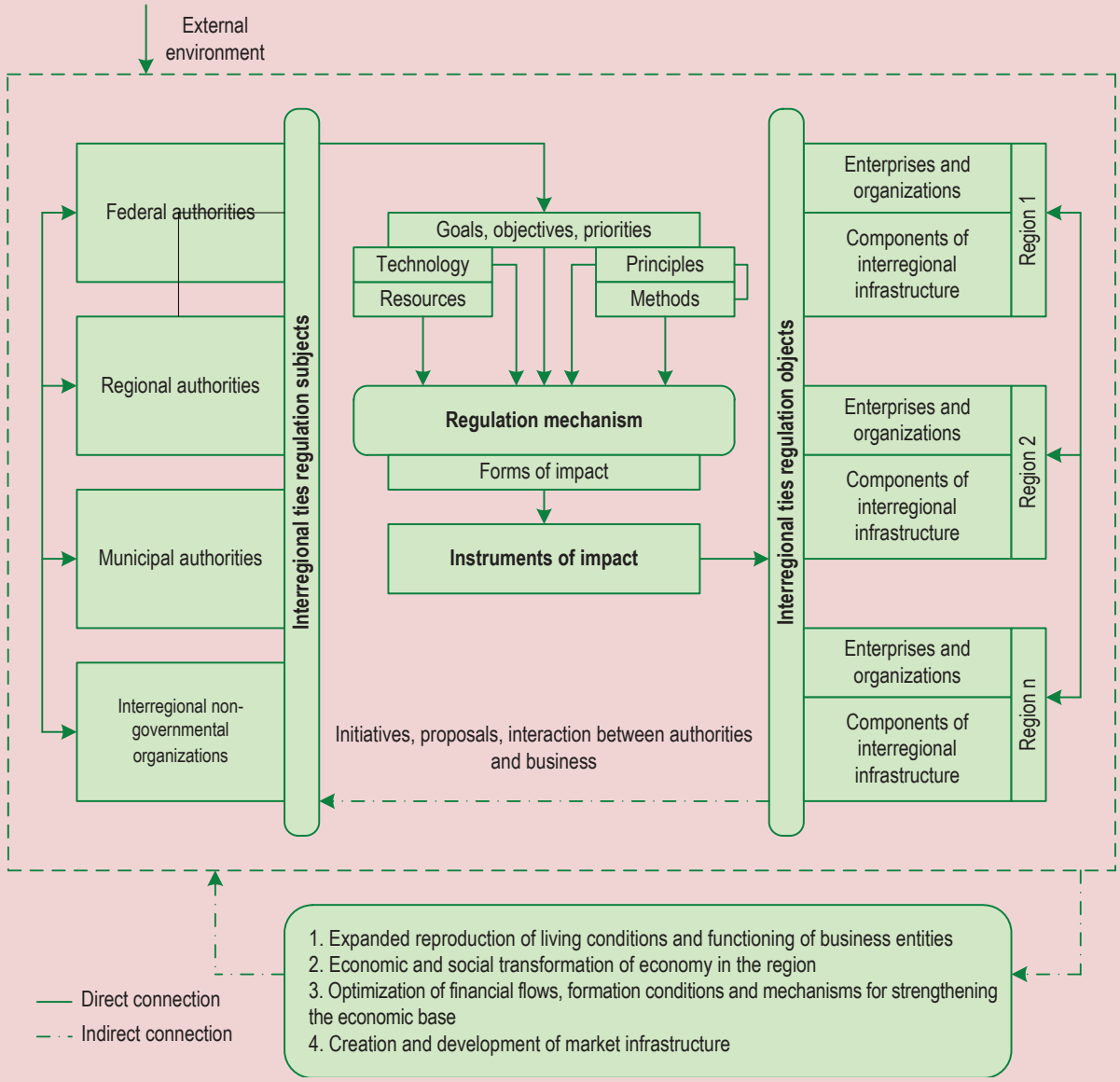
[1] Under the planned economy, input-output balances (IOB) were used to assess the effect of interregional interaction on the economy. According to the last reporting IOB for economic regions of the USSR for the year 1987, the share of interregional export in the structure of supply of goods manufactured in 11 economic regions was 20–26%, the share of interregional imports in the consumption was 23–32%. According to calculations, if interregional relations are changed by 1%, then the change of domestic end product in regions varies from 0.49 to 0.92% (source: Mantsev D.A. *SNG: mezhgosudarstvennoe regulirovanie ekonomicheskoi integratsii* [CIS: interstate regulation of economic integration]. Moscow: RAGS, 2003. 238 p).

In the 1990s, the Institute of Economics and Industrial Engineering, Siberian Branch of RAS and the Council on Study of Productive Forces developed models of economic cooperation of regions and interregional optimization models to assess the impact of interregional relations.

[2] The table of goods and services usage characterizes the use of goods and services for intermediate consumption in industries and final consumption, gross capital formation and exports; it is part of the system of "costs-output" tables.

[3] The table of resources of goods and services shows the formation of resources of goods and services through domestic production and imports and also the main components of formations of purchasers' prices by product group; it is part of the system of "costs-output" tables.

Figure 1. Conceptual scheme of the mechanism for managing interregional economic relations in the region



5. By multiplying the matrix of total costs of the product/product type and the vector of final consumption (y) we calculate the volume of commodity output for each product produced in the economy:

$$x = (E - B \cdot W)^{-1} \cdot y \,. \qquad (6)$$

Based on the matrix dependencies obtained, we can estimate the volume of production in all industries in the region, at a forecasted growth of demand in other regions to produce goods.

The *implementation stage* focuses on the formation of a mechanism for the implementation of activities in the field of interregional cooperation and includes a specific set of applicable tools that are selected in accordance with the current

Table 2. Description of regulation methods for interregional cooperation

Regulation methods	Essence	Main spheres of regulation
Resource	Methods of direct impact on the object, they provide regional economic entities with reproductive resources to meet the challenges of their effective functioning	Direct financing; economic regulation (instruments of tax, credit, foreign trade policy, state regulation of prices and tariffs)
Institutional	Methods aimed to form an organizational-economic and legal environment corresponding to market principles and objectives of industrial development of the territory	Legal regulation; administrative-economic regulation; development of property relations; development of new organizational and legal forms
Information	Methods that aim to provide management authorities with complete, timely and accurate information on interregional cooperation	Monitoring of the region's industrial development; evaluation of options and prospects of functioning of branches; development of recommendations
Program-target	Methods aimed to form and implement development programs in accordance with the goals and objectives defined, resource capabilities and limitations	Programs for development of interregional relations; program for development of branch-wise complexes; programs addressing individual problems in their development

conditions and opportunities of public administration. A conceptual diagram of the mechanism is shown in *Figure 1*.

Analysis of approaches to this issue [6; 7] helps make a typology of the tools for implementing the policy in the sphere of interregional cooperation according to several features:

– spatial feature – methods used at the macro, meso and micro level;

– orientation of impact of the objects – administrative, legal, economic and program-oriented methods;

– nature of the impact of objects – direct and indirect methods;

– content function of control method – macroeconomic, resource, institutional, and informational methods.

With regard to the regional level, in our opinion, one can use the classification based on the substantial function of methods of implementation of policy in *the sphere of interregional cooperation (tab. 2)*. At that, we propose to consider the program-target method as a separate unit; this method is a form of policy implementation, which is based on establishing links between goals and development objectives and resource capabilities and constraints to their implementation.

Thus, the algorithm to boost interregional economic cooperation as a driver of economic development in the region can be represented as a diagram that consists of three phases: information-analytic, target and implementation. It is also important to develop a feedback system that helps assess the impact that the measures have on industrial development, to assess the effectiveness and impact of the policies under implementation. This algorithm was tested on materials of the Vologda Oblast.

Industry in the Vologda Oblast is a diversified complex that produces critically important products for the national economy: 17.7% of the national output of rolled ferrous metals; 7.5% of synthetic ammonia; 6.9 % of lumber; 6.6% of steel pipes; 2% – of whole milk products. The industry branches form over 38% of gross regional product, about 26% of the workforce employed in the economy, and almost 40% of tax revenues in budgets of all levels.

Interaction with other regions is of great importance for the work of the regional industry. The results of the survey of managers of large and medium industrial enterprises of the Vologda Oblast that we conduct on a regular basis show that the vast majority of enterprises (94%) cooperate with Russian regions. Cooperation is effected mainly in the form of trade: sales of ready products (79%), supply of raw materials (61%), and purchase of raw materials (21%). Advanced forms of cooperation such as industrial cooperation (20%), technology transfer (14%), investment activity (12%) and involvement of specialists from other regions (9%) are used not so widely.

A significant part of products produced by the Vologda Oblast industry is sold on the domestic market. High dependence on markets of other Russian regions is typical of the production of steel pipes, rolled ferrous metals, timber, and dairy products *(tab. 3)*.

The amount of products that the region sells to other Russian regions considerably exceeds the amount it purchases: export exceeds import in 1.5–2 times (in the pre-crisis years – in 2.5 times). In recent years, the interregional commodity turnover of the Vologda Oblast shows a negative trend. Products used for industrial and technology purposes form the basis of commodity turnover (from 82 to 90% in different years). Interregional relations of the Vologda Oblast are based mainly on resources; moreover, in its export there is a strong monostructural aspect – 80–85% of export is formed by

Table 3. Pattern of supplies of key commodities produced in the Vologda Oblast in 2014, % of total*

Type of product	Own territory	Other RF subjects	Export
Rolled ferrous metals	13.7	43.9	42.4
Steel pipes	10.0	81.3	8.7
Mineral fertilizers	4.0	19.2	76.8
Industrial wood	53.5	40.4	6.1
Lumber	33.4	11.2	55.4
Meat	75.1	24.9	0
Whole milk products	61.6	38.4	0

* Compiled with the use of the following source: *Vvoz i vyvoz potrebitel'skikh tovarov i produktsii proizvodstvenno-tekhnicheskogo naznacheniya po Vologodskoi oblasti v 2014 godu: stat. byulleten'* [Import and export of consumer goods and products for industrial purposes in the Vologda Oblast in 2014: statistics bulletin]. Vologdastat. Vologda, 2015. 211 p.

metallurgical products of low processing stages. Other important items of supply are the products of chemical and timber sectors, and food products of dairy and beef cattle breeding. A recent-year trend is to reorient the supplies of the region's industrial enterprises from external to internal markets. It is typical of industrial timber, lumber, paper, rolled ferrous metals, and steel pipes. Mineral fertilizers are an exception here, their share of regional supplies decreased slightly.

However, the capacity for interregional cooperation is not used fully. The main problems that hamper the development of interregional trade and economic activities in the Vologda Oblast and do not allow its potential to be used for the purposes of industrial development include the following.

1. Unbalanced industry structure. During the years of reforms it did not see any positive changes. In 2014, the share of production of machinery and equipment in the total volume of shipped products was only 4.5%, whereas the share of metallurgical production was 56%.

2. A high degree of obsolescence and physical depreciation of industrial assets. The wear rate in the whole industry in 2014 was 45.9%.

3. The narrow range of products the Vologda Oblast exports, which is based on a small group of goods with a low degree of processing. The Oblast is represented in the national market mainly by raw materials and products of low processing. It becomes the reason why the regional economy is vulnerable to external shocks.

Development of the region's industry largely depends on the changes in the situation on the domestic and foreign markets. In recent years, the development of the industrial sector of economy in the Vologda Oblast and in Russia as a whole is characterized by a negative trend associated with compression of the current commodity markets due to several reasons.

First, the markets sank sharply after the global financial crisis of 2008–2009.

Second, there was a significant drop in prices for basic goods exported by the Vologda Oblast (rolled steel and fertilizers).

Third, there was a significant reduction in the Russian domestic market of consumer goods that occurred due to the influence of several factors – the loss of people's savings as a result of significant inflation and a reduction in current incomes due to production recession and increase in the scale of non-payment.

These factors resulted in reduced demand and a slower growth or decline in production in virtually all the interrelated sectors of the region's industrial complex *(tab. 4)*.

The current situation in the industrial market and the trends of its development necessitate the formation and implementation of effective policy to strengthen interregional cooperation. For this purpose, it is important to identify

Table 4. Index of physical volume of production in key branches of industry in the Vologda Oblast, % to the previous year*

Industry	2008	2009	2010	2011	2012	2013	2014	2014 to 2008, %
Industrial production as a whole	95.3	90.5	111.8	105.6	101.3	102.5	103.7	115.0
Metallurgy	92.2	87.3	114.5	107.6	98.9	106.5	101.7	115.2
Chemical production	97.4	106.8	103.5	102.4	105.0	99.9	109.0	129.4
Woodworking	96.9	94.3	106.8	113.9	104.6	106.4	103.0	131.5
Food industry	101.4	98.5	113.5	100.0	99.7	99.3	103.1	114.1
Mechanical engineering	112.0	68.3	116.7	104.0	114.3	86.6	106.9	87.7

*Compiled with the use of the following source: *Promyshlennoe proizvodstvo Vologodskoi oblasti: stat. sbornik* [Industrial production in the Vologda Oblast: statistics collection]. Vologdastat. Vologda, 2015. 146 p.

the targets and main directions of its development in the long and medium term, and to develop appropriate forms and methods of their implementation.

Development of interregional relations of the Vologda Oblast in the medium and long term pursues the following goals: improvement of inter- and intraindustry structure of interregional relations; use of sustainable flows of goods to attract financial resources from regional partners; improvement of the territorial-geographical structure of interregional relations.

Substantiation of priorities and main directions of strengthening interregional cooperation as a factor in the development of the regional industrial complex and organization and promotion of its effective functioning involves the necessity to determine the development prospects of such cooperation. Assessing the plans for development of Russian industry helps forecast the state of domestic demand and the possibilities of increasing the supply of products by the region's enterprises to international markets.

We provide such an assessment as applied to the metallurgical industry of the Vologda Oblast. This industry is a major participant in the national market. Domestic demand for its products in recent years is growing quite actively, the supplies of products that used to be exported are being redirected to the Russian market. Key enterprises of the Vologda Oblast – Cherepovets Steel Mill OAO Severstal (coke, cast iron, steel, long and flat rolled sheet with polymeric coating), JSC Severstal-metiz (rolled steel, profile, wire, rope, mesh, nails), OOO Severstal TPZ-Sheksna (pipes for construction industry and engineering).

The energy strategy of Russia clearly reflected the situation concerning the demand for metallurgical products (oil and gas pipelines, ports and transportation

infrastructure) on the part of several infrastructural projects of the fuel and energy complex. The machine-building complex makes the greatest contribution to the development of the industry. The automotive industry development strategy identified long-term demand for high quality rolled metal *(tab. 5)*. Target indicators contained in the Strategy for transport engineering development and in the Strategy for development of railway transport for production of rolling stock and transport infrastructure elements can help form a long-term forecast of the market and make substantiated investment in the development of modern production facilities.

Automobile manufacturers located in Saint Petersburg, Kaliningrad, Moscow, Kaluga, Nizhny Novgorod, Ulyanovsk, Tolyatti; heavy engineering enterprises located in Elektrostal, Podolsk, Syzran,

Table 5. Forecast of development of engineering products market in Russia, thousand units*

Market segment	Year								2020 to 2013, %
	2013	2014	2015	2016	2017	2018	2019	2020	
Motor cars	1964	2093	2235	2397	2690	2907	3048	3150	160.4
Light commercial vehicles	203	204	210	220	243	261	272	280	137.9
Trucks	158	175	192	209	237	257	270	280	177.2
Buses	29	28	28	28	31	33	34	35	120.7
Tractors	16.1	16.8	17.6	18.4	19.3	20.2	21.1	21.9	136.0
Combine harvesters	6.4	6.6	6.8	7.0	7.2	7.4	7.7	7.9	123.4
Forage harvesters	1.1	1.1	1.2	1.2	1.3	1.4	1.4	1.5	136.4
Bulldozers	1.9	2.4	2.8	3.0	3.2	3.5	3.7	4.0	2.1-fold
Excavators	2.5	3.0	3.6	3.8	4.0	4.3	4.7	5.0	2.0-fold
Motor graders	1.0	1.3	1.5	1.8	2.0	2.3	2.5	2.8	2.8-fold
Construction loader	0.5	0.8	1.5	2.5	3.0	3.5	4.0	4.5	9.0-fold
Shunting diesel locomotives	0.26	0.26	0.26	0.23	0.25	0.28	0.30	0.42	161.5
Mainline locomotives	60	60	150	180	190	220	290	320	5.3-fold
Freight cars	62.8	63.2	59.6	65	62.4	64	65	65	103.5
Passenger cars	0.30	0.35	0.55	0.62	0.62	0.75	0.92	0.98	3.3-fold
Mainline electric locomotives	0.45	0.45	0.45	0.50	0.50	0.55	0.63	0.7	156.7
Metal-cutting machine tools	4.0	4.9	5.1	5.4	5.6	5.9	6.2	6.5	162.5
Compression-type machines	2.3	2.5	2.7	2.8	3.0	3.1	3.3	3.4	147.8

* Compiled with the use of the following source: RF automotive industry development strategy up to 2020; Transport strategy of the Russian Federation for the period till 2030; Strategy for development of railway transport in the Russian Federation till 2030.

Orsk, Yekaterinburg, Krasnoyarsk, Irkutsk; transport engineering enterprises located in Moscow, Sochi, etc. – these are potential consumers of metallurgical products produced in the Vologda Oblast.

The growth in the amount of products manufactured at metallurgical enterprises of the Vologda Oblast and supplied on the Russian market is hampered by lack of competitiveness of the products because they do not always meet the requirements of steel consuming industries (machine building, construction sector, oil and gas industry, railway transport). In this regard, to increase competitiveness by improving the technological status of major enterprises of the region will be a priority in the development of the metallurgical complex. The Strategy for socio-economic development of the Northwestern Federal District until 2020 contains several measures that aim to solve this problem. They are as follows: extension of the lease of modern equipment, development of credit cooperation between metallurgical enterprises and banks of the Northwestern Federal District, a more efficient support of investment projects and creation of conditions for attracting investments (including tax incentives), provision of support to research and design in the metallurgical complex and to a special education system based on the expansion of cooperation with enterprises.

The Strategy for development of metallurgical industry in Russia until 2020 provides for reconstruction and modernization of production at metallurgical enterprises in order to ensure that their products be competitive and with a high added value.

On the whole, in line with the strategies for development of separate industries in the Russian Federation in the medium term, it is forecast that the capacity of the domestic market of ferrous metallurgy can increase by 30–40% *(tab. 6)* and, hence, there can be a proportional increase in the supply of metal products manufactured in the Vologda Oblast.

The trends identified in economic interaction of regions and the forecast data presented in the strategic and tactical documents on the development of the

Table 6. **Forecast of metal consumption in Russia**, million tons*

Type of production	2013	2020	2025	2030	2020 to 2013, %
Cast iron	45.9	48.9	50.9	52.0	106.5
Finished rolled iron, including:	38.0	50.4	57.8	62.0	132.6
profiled	19.1	23.8	26.8	28.5	124.6
листовой	19.3	26.6	31.0	33.5	137.8
Steel pipes, million tons	9.0	13.1	14.7	16.2	145.6

* Compiled with the use of the following source: Strategy for development of metallurgical industry in Russia for 2014–2020 and for a long term till 2030

Russian Federation, its regions and economic branches help determine the prospects for development of interregional links and formulate major directions and tasks for their implementation.

First. It is possible to increase the supply of steel products to the domestic market. This increase will be due to the enhancement of the products quality and competitiveness of metal products by improving the technological level of production at leading enterprises and the expected growth of production in almost all major steel consuming sectors (primarily in engineering) of Russia's economy. Promotion of new effective types of production with high added value, and conclusion of long-term agreements with partners are perspective areas in which the supply of metallurgical products in the domestic market can be expended. Stable demand on the domestic market can be formed and supply on the foreign market – preserved, if the following conditions are met:

– increase in the competitiveness of products by increasing the share of modern high-tech metallurgical products in it;

– strengthening positions in priority markets – mechanical engineering and fuel and energy.

Second. The expansion of inter-regional deliveries of chemical industry products will be constrained by the likely increase in their self-cost and decrease in their competitiveness in connection with the rise in prices for products of natural monopolies and deterioration of technology and facilities of the enterprises. We see the prospects for development of the chemical industry in the creation of new competitive industries based on modern equipment, and in expanding the list of products manufactured. The priority tasks are as follows:

– increase in production of fertilizers and phosphoric acid, modernization of sulfuric acid manufacturing enterprises;

– diversification of the industry by increasing the production of polymer materials and liquefied gases and by creating enterprises producing gas chemical products, i.e. goods, that will enjoy steady demand in both domestic and foreign markets;

– expanding the range of products tailored to the needs of internal and external markets;

– organization of effective marketing of the products.

Third. The prospects of increasing the supply of products of light industry and food industry will be associated with a growing demand for these types of goods within the region and beyond. This primarily relates to food, namely, dairy and meat products. The growth of income and effective demand in other regions of Russia will provide opportunities for the growth of supplies of non-food products manufactured from metal, wood and flax.

The capacity and competitive advantages of light industry in the region can be implemented if the following is done:

– technological breakthrough is achieved that would provide the quality upgrade of product range, technological re-equipment, improvement of technological base of production, improvement of labor organization;

– implementation of a set of measures to organize the distribution network.

It is necessary to do the following for the development of food industry:

– formation of vertically integrated structures engaged in the production, processing and marketing of agricultural products and foodstuffs, which will help reduce total costs during the movement of the product toward the consumer;

– use of modern technologies for raw materials processing, use of energy- saving technologies, implementation of effective systems of quality control that will improve the competitiveness of the products.

Fourth. Improving the competitiveness and technological level of products of machine-building industry in the region (by means of modernization and introduction of quality management systems based on ISO 9000 and ISO 14000 standards at the enterprises) will be a crucial factor in their export. Revitalization of machine-building enterprises in the Oblast in the domestic market will facilitate the increase in the volumes of their supply. At the same time, their commodity structure in the future will remain traditional (frictionless bearings, optical instruments, high- and low-voltage electrical equipment, wood- and metalworking machines). In view of the above, the tasks of functioning of the branch are as follows:

– restoration of science and technology potential;

– use of modern science-based technology (electron-ion-plasma technologies, robotic systems, etc.) and new materials (composites, polymers, special alloys, etc.);

– manufacturing products that are competitive in world markets and have improved consumer properties.

Fifth. The prospects for increasing regional supplies of timber products to a certain extent depend on the development of woodworking industries (that are major consumer of raw wood) and the spheres of final consumption of wood products – civil construction (mostly wooden housing construction).

The woodworking industry should be developed to ensure the efficient use of forest potential of the region, and to establish a sustainable timber industry complex. Thus, the main objectives should be as follows:

– deepening the degree of processing of raw wood at the expense of technological re-equipment of existing production facilities;

– development of industrial cooperation between loggers and timber processing enterprises in the region;

Table 7. Forecast of industrial production in the Vologda Oblast up to 2020 (in the prices of 2013)

Industry	Unit of measurement	2013	2015	2017	2020
Industry as a whole	Billion rubles	429.9	479.9	542.9	637.4
	% to 2013	100.0	111.6	126.3	148.3
Ferrous metallurgy	Billion rubles	245.4	257.6	274.8	294.4
	% to 2013	100.0	105.0	112.0	120.0
Chemical	Billion rubles	66.2	82.7	102.5	125.7
	% to 2013	100.0	125.0	155.0	190.0
Food	Billion rubles	30.7	34.1	39.9	49.1
	% to 2013	100.0	111.0	130.0	160.0
Woodworking	Billion rubles	20.7	24.9	31.1	38.3
	% to 2013	100.0	120.0	150.0	185.0
Mechanical engineering	Billion rubles	18.8	23.5	30.1	37.6
	% to 2013	100.0	125.0	160.0	200.0
Electrical power engineering	Billion rubles	32.2	33.8	35.8	38.0
	% to 2013	100.0	105.0	111.0	118.0
Other	Billion rubles	15.3	23.3	28.8	54.2
	% to 2013	100.0	152.3	188.2	354.2

– establishment of production that process low-grade wood and waste for energy purposes;

– development of transport infrastructure taking into account the location of timber production and processing enterprises.

Table 7 shows industrial production output in industrial sectors of the Vologda Oblast for the period up to 2020, the output is forecast on the basis of the input-output model[4] taking into account the assessment of the prospects for development of interregional supplies.

When intensifying the work on strengthening interregional cooperation, four industries, namely, ferrous metallurgy, timber industry, mechanical engineering, and chemical industry are promising "engines" of growth of industrial production in the region. It is these industries that will show the largest growth in absolute production output due to its modern structure and the availability of raw materials, facilities, and financial resources. The impact of these industries on the regional economy will be direct (increase in production output and replenishment of the budget) and multiplicative (increase in employment and wages of the population, redistribution of investment flows).

We should also point out the most significant reserves for development of

[4] While carrying out the calculations, we have made a number of assumptions. Due to the absence of statistical data, the matrix of coefficients of total costs for the Vologda Oblast went through expert assessment on the basis of the matrix of coefficients of total costs for Russia as a whole. The breakdown of value added for the industries in the Oblast was conducted on the basis of nationwide data and available data on the structure of production in the Vologda Oblast.

industries in the Vologda Oblast: for metallurgy it is expected to increase the production of steel, high quality roll products, and high-tech products of mechanical engineering; for chemical industry – new types of mineral fertilizers; for the timber industry it is expected to increase the production of furniture, plywood and paper; for mechanical engineering – products for metallurgy, heavy engineering, and other industries; the maximum increase in the food industry is expected in the dairy and meat sub-sectors.

Industrial production development will be accompanied by continuous growth of labor productivity, increase in the salaries of employees, acceleration of investment processes, introduction of innovation, and increase in enterprises' profits.

When in 2020 the production output reaches the volumes stated above, the industry structure of the region will change significantly. The share of metallurgy will decrease to 46% (vs. 57% in 2013), but there will be a corresponding increase in the share of products of other industries that will significantly diversify production structure and strengthen regional economic and budgetary security. Moreover, the data presented are considered as essential and yet as quite realistic. Excluding the essentially inertial (pessimistic) scenario, they suggest a possibility of shifting to the optimistic scenario, under which the industrial production output will grow in 1.6–1.7 times over a seven-year period.

The calculations presented above show the effectiveness of enhancement of interregional ties for the development of regional industry. The implementation of the directions highlighted in this sphere will be based on a combination of stimulating effects (by means of methods and forms of regulation), which should be chosen and implemented taking into account current socio-economic situation in the region and possibilities of government regulation of the economy. It is possible to recommend the following activities for the Vologda Oblast:

– elaboration and implementation of bilateral programs development for interregional economic relations development;

– participation in the work and development of the autonomous nonprofit organization "Strategic partnership on economic and social development of the Northwestern Federal District";

– establishment of cooperative relationships between participants of the same production process;

– promotion of exhibition and fair business, involvement of enterprises in participation in Russian and international exhibitions;

– creation of an information-organizational system of interregional relations and making it available on the Internet.

If the above tasks and other measures are implemented, it will boost interregional economic cooperation.

Thus, enhancing economic cooperation between regions is an important factor in their development as they undergo economic modernization and acquire significant independence in decision-making. This cooperation helps provide the intraregional market with consumer goods and products of production-and-technological purpose, and ensure sustainable import of raw materials and components for producers; it also stimulates the domestic market and increases domestic demand, contributes to economic diversification and reduced barriers to resources transfer.

The intensification of economic cooperation between regions should be based on institutional and regulatory support of this process, on the development of transport, information and other infrastructure, on the use of strategic planning of socio-economic development, forecasting and modeling of domestic demand, and a number of other economic instruments. All this will help develop a concept for the mechanism of state regulation of interregional cooperation. Its implementation will strengthen interregional links and help overcome negative trends in their development.

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Strategic Management of Development of the Military-Industrial Complex Enterprises with the Use of Dual Technologies under the Resource-Based Approach

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Abstract. The main goal of the present study is to consider the specifics of current state and strategic management of development of enterprises within the military-industrial complex in the dynamic environment of the global market and determine the most effective ways of their development on the example of Russian helicopter industry. Methodology and tools of the study are based on the comparison and comparative evaluation of major Russian and foreign corporations engaged in development and production of helicopters. The authors analyze current state and strategic management of the helicopter industry on the basis of information available in the public domain. The source of the main problems of functioning of military-industrial complex enterprises, in particular, in the helicopter industry, can be found in the specifics of strategic management of its development, which is determined by major holdings under the close supervision of the government. One of the most important ways to develop enterprises of this industry

is to diversify civil production in order to increase the output and improve the financial situation and, on the other hand, to reduce the dependence of enterprises on the state defense order. The development of dual-use technology and production of dual-use products makes it possible not only to maintain a powerful military-industrial complex, but also to accelerate the development of the economy as a whole. The authors of the paper put forward an algorithm of formation of an optimum strategy for diversification of production through the use of "dual technologies". The profit obtained from the sales of products produced on the basis of "dual-use technology" will compensate for some of the military expenditures.

Key words: military-industrial complex, core competencies, resources of enterprises, helicopter industry, resource-based approach, diversification.

Introduction. Modern conditions of economic development in Russia, which are characterized by stochasticity and instability of socio-economic processes caused by increased competition in global markets, determine the need for new solutions in the field of strategic development of industrial enterprises. This issue is especially critical for companies within the military-industrial complex (MIC), which is the basis for the high-technology industrial sector.

A tool to improve economic efficiency of domestic industrial enterprises within the military-industrial complex is the use of the resource-based approach in the management of their strategic development.

So far, many theoretical and practical aspects of formation, selection and effective implementation of a strategy for development of defense industry enterprises with the help of the resource-based approach remain poorly tested, poorly designed, and require further research.

The goal of this study is to explore the specifics of the current state and strategic management of development of enterprises within the defense industry, in the context of dynamic environment of the global market; one more goal is to identify the most effective ways of their development taking Russian helicopter industry as a case study.

Specific features of functioning and strategic management of development of the Russian military-industrial complex were considered in works of V.L. Makarov and A.E. Varshavskii [3], B.N. Kuzyk [5], V.N. Rassadin [8], A.V. Sokolov [9] and others. However, due to the fact that the problem of strategic management of the defense industry is complex and multidimensional, there still remain numerous issues that require further elaboration. One of the theoretical approaches in the methodology for strategic management of enterprises is the resource-based approach, the foundations of which

were laid in the works of foreign researchers such as J. Schumpeter [13], E. Penrose [17], B. Wernerfelt [20] K. Prahalad and G. Hamel [18], R. Grant [15], D. Collis [14], D. Teece [19]. This approach as a way of managing enterprises was considered in the works of V.S. Kat'kalo [4], V.S. Efremov and I.A. Khanykov [1, 2] and others. However, specific features of strategic management at the military-industrial complex enterprises have a pronounced effect on the use of the resource-based approach in their management and actualize further research in this direction.

Methods and methodology. Methodology and tools of the present study are based on comparison and comparative evaluation of major corporations in Russia and foreign countries involved in the helicopter industry. The main methods of research are economic-statistical, comparative analysis (when comparing performance indicators of the companies under analysis), graphic description, economic and financial analysis (when assessing economic performance indicators of enterprises).

Current status and development trends of the military-industrial complex enterprises in modern Russia and foreign countries. In the high-tech sector of the Russian economy, the military-industrial complex is characterized by high knowledge intensity, significant capital intensity, complexity of products, good prospects in modernization of the national economy. MIC is an integral element in the national defense enhancement system, ensuring national security. The share of production of military products at MIC enterprises exceeds the production of civilian products.

Analysis shows that global companies within the military-industrial complex have the following trends in their development:

– manifold increase in recent decades in the cost of development and production of high-tech equipment, hence the need for an enterprise to have access to cheap and long-term capital, and sufficient manufacturing capacity;

– rising cost of products and enhancement of their functionality lead to a reduction in the supply of military products, which forcing producers to expand their activity in the civil market segments, which includes the use of "dual technology";

– increase of requirements to the quality of products and the rise in their price caused the transition to the sales of a product's life cycle rather than the separate product.

These trends have changed the model of management of strategic development of enterprises within the military-industrial complex: in Russia and abroad, we observe a concentration of manufacturers of high-tech defense products, particularly aircraft manufacturers. For example, Boeing, a leading U.S. aircraft corporation, acquired several helicopter companies: the Vertol Aircraft Corporation in 1960, Rockwell Corporation in 1996, and McDonnell

Douglas in 1997, which itself prior to that had taken over the Douglas Aircraft Company and an aircraft division of the Hughes Aircraft Company (developer of the AH-64 "Apache" helicopter). A similar trend is observed in Europe. For example, BAE Systems, Inc., the world's second company in terms of sales, was founded in 1960 as the British Aircraft Corporation by combining major aircraft companies of the UK. In 1977, it was transformed into the state corporation "British Aerospace" and after privatization in 1999, it teamed up with UK corporation Marconi Electronic Systems that has assets in aviation, electronics and shipbuilding. As a result of this merger BAE Systems was formed, it absorbed a number of companies for the production of armored vehicles and artillery, and became the leading military-industrial corporation in the UK. Later, BAE Systems faced restructuring by selling part of its European assets, and refocused on the U.S. market.

In 2004, BAE Systems absorbed United Defense, the U.S. leading producer of artillery, and in 2007, it acquired Armor Holdings, a large manufacturer of armored vehicles. As a result, BAE Systems has taken a leading place on the U.S. arms market [6].

Similarly, by absorption of the British company Racal by the French military electronic corporation Thomson-CSF, Thales Group was created.

To retain its positions on the world market of high-tech products, and no to lose its scientific and technological potential, Russia has integrated its developers and manufacturers of high-tech defense products in public corporations. An example of integration of defense companies is the formation of Russian Helicopters JSC, which includes companies engaged in:

– helicopter development – Mil Moscow Helicopter Plant PJSC, Kamov Design Bureau JSC, Kazan Helicopters JSC;

– mass helicopter production, Kazan Helicopters JSC, Ulan-Ude Aviation Plant JSC, Rostvertol PJSC, Kumertau Aviation Production Enterprise JSC, Progress Arsenyev Aviation Company OJSC;

– production of units and components – Stupino Machine Production Plant JSC (SMPP), Reductor-PM JSC;

– helicopter service, Helicopter Service Company JSC and aviation repair plants in Novosibirsk, Saratov, Chita, Saint Petersburg and Kaliningrad.

This integration has a positive impact on the development of Russian helicopter industry, as evidenced by the increase in the output, investment in the development and production of new equipment, modernization of production facilities, attraction of additional staff to the company. However, despite the positive developments in the sector, Russian producers lag behind

Table 1. Characteristics of world helicopter manufacturers

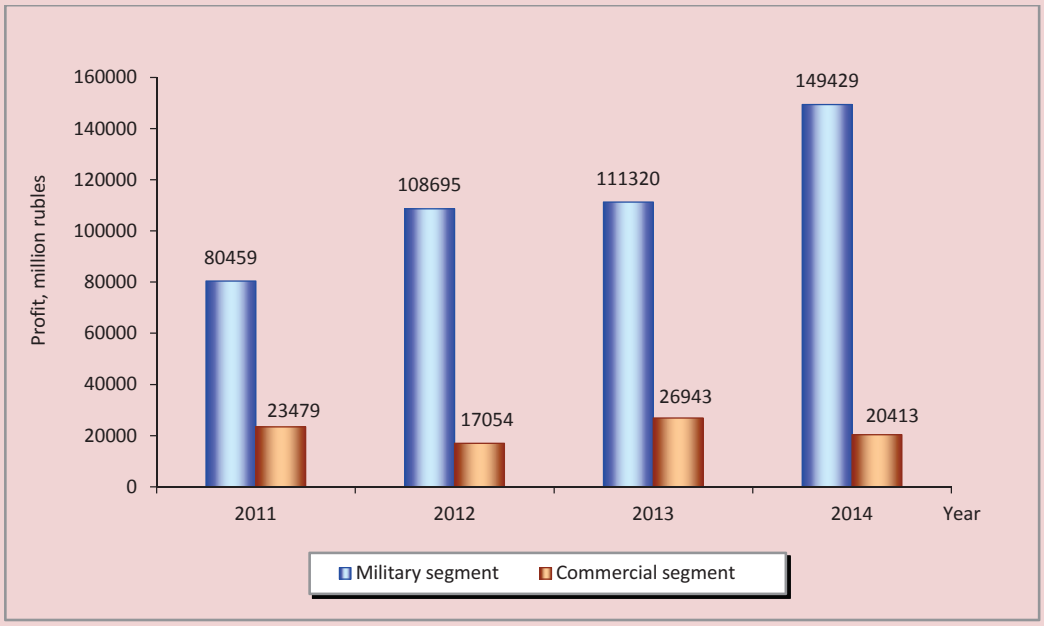
Manufacturer	Indicators				
	Machines delivered, units	Revenue, billion US dollars	Sales income, billion US dollars	Expenditure on R&D, billion US dollars	Labor productivity, thousand US dollars
Russian Helicopters JSC					
2012	290	4.04	0.64	0.16	96.4
2014	271	4.4	1.02	0.19	96.7
Airbus Helicopter					
2012	475	7.3	0.4	0.38	383.6
2014	471	8.5	0.54	0.39	371.5
Bell					
2012	261	4.2	0.63	0.18	353.2
2014	249	4.2	0.52	0.16	487.9
Compiled with the use of: http://www.bellhelicopter.textron.com, http://www. russiauhelicpters.aero.ru, http://www.airbus-group.com					

their foreign competitors in terms of productivity *(tab. 1)*.

The gap in labor productivity is due to the differences in the organization of production processes at Russian and foreign companies. Foreign companies specialize in performing works at the individual stages of production process, which make a significant contribution to the creation of market value (marketing, product development, final assembly and testing, after-sales service), and they passing the remaining work to external suppliers. The production cycle in Russia is almost entirely concentrated within a single enterprise, which reduces the flexibility of Russian manufacturers. It must be emphasized that practically all enterprises of the helicopter industry have a narrow product range.

Another feature affecting the development of domestic and foreign enterprises is the policy of government orders. For example, the Pentagon is the main customer of products developed by Lockheed Martin (58% of the sales), the company's supplies to other U.S. governmental ministries and agencies account for 27% of the corporation's total sales [16]. Due to the high cost of modern military equipment (for example, the cost of a fifth generation aircraft exceeds 100 million U.S. dollars, the cost of attack helicopters of the fourth generation – 20–25 million U.S. dollars), governments are cutting the purchase of military equipment. This forces companies to increase their activity in the civil market. So, in 2014, Boeing delivered 723 civilian and 184 military vehicles, respectively. In

Figure 1. Dynamics of profit of Russian Helicopters JSC by segment in 2011–2014



Compiled with the use of the following source: http://www. russiauhelicpters.aero.ru

the portfolio of Boeing, 440 billion U.S. dollars account for the orders on civilian goods and 62.3 billion U.S. dollars – on military orders [10].

In Russia, the work of defense enterprises in general and helicopters in particular is associated with the policy of supplying military equipment under the state defense order and programs of military-technological cooperation. Thus, the program of rearmament of the army until 2020, adopted by the Government of the Russian Federation, involves the purchase of more than 1,000 helicopters for the Armed Forces [12].

Figure 1 shows the profit structure of Russian Helicopters JSC for the period 2011–2014, by segment [11].

Such profit structure is risky for Russian Helicopters JSC, because in case of state order reduction the enterprises will be on the brink of collapse. This will eventually lead to the loss of scientific and technological strength of the helicopter industry, including the loss of personnel (scientific and technical staff), organizational, informational, material and technical elements. The development of high-tech production is a very long-term, time-consuming and expensive process, for this reasons the loss of developed capacity must be minimized.

Since defense enterprises in general and helicopter manufacturers in particular are part of large integrated systems (holdings and corporations), the formation of defense

enterprise development strategy takes place at the level of senior executives of the corporation and under close attention and control of the government which provides the majority of the strategy funding and defines in detail development directions of the entire corporation. In the present circumstances, individual defense enterprises, being part of integrated structures, are, as a rule, completely deprived of an opportunity to be involved in choosing their development strategy.

Thus, according to the analysis, the following correlation between the issues associated with strategic development of helicopter industry enterprises is derived:

– a strategy of individual enterprises development is formed by the holding company which is forced to focus primarily on the state defense order, because due to insufficient development of financial markets and institutions home enterprises depend directly on government funding;

– the development strategy of the holding company focuses on creating a competitive corporation with all enterprises harmoniously integrated into the production life cycle. This will give the holding company an ability to adjust production output meeting international demand. However, the integration of enterprises into a unified system in the holding company is not finished yet, and a fragmentation of various sectors of economic system still prevails, which leads to reduced capacity of the holding company in manufacturing and supplying the market with high-demand civil products. In these circumstances, the holding company management is forced to focus on well-established military production, losing ground in many segments of internal and external market and lacking additional income.

The most important economic element of Russian Helicopters JSC is the production system which includes five mass production plants (their structure includes all production stages): Kazan Helicopters PJSC, Ulan-Ude Aviation Plant JSC, Rostvertol PJSC, Kumertau Aviation Production Enterprise JSC and Progress Arsenyev Aviation Company OJSC (*tab. 2*).

From Table 2 it can be concluded that Kazan Helicopters PJSC maintains the firmest positions in the sector in a set of dynamics indicators. It is ahead of other manufacturing enterprises in terms of revenue, productivity, and capital use efficiency.

Kazan Helicopters PJSC owns a strong engineering center which develops helicopters of its own design released to mass production. In addition to conducting its own development work, the company also acts as an associate contractor for the leading experimental design bureau (OKB): it conducts cooperative development work with Mil Moscow Helicopter Plant PJSC on Mi-38 helicopter development.

Table 2. Characteristics of Russian Helicopters JSC manufacturing enterprises

Indicator	Kazan Helicopters PJSC			Ulan-Ude Aviation Plant JSC			Rostvertol PJSC			Kumertau Aviation Production Enterprise JSC			Progress Arsenyev Aviation Company OJSC		
	2008	2011	2014	2008	2011	2014	2008	2011	2014	2008	2011	2014	2008	2011	2014
1. Revenue, million rubles	11166	32180	53750	7614	24584	38408	7913	19986	36938	1303	5727	3990	3335	10331	18391
2. Net profit, million rubles	1541	4328	12744	2216	5210	11106	327	2124	3044	0.08	0.084	-2519	17	2.5	216
3. Number of employed, people	6650	6815	6770	5570	6336	6127	6659	7771	8665	4122	4520	3646	4261	6177	5992
4. Capital value, million rubles	16996	39152	66939	11082	26051	75796	10889	35408	107417	4121	17517	19969	15219	24678	52172
5. Asset value, million rubles	1454	3043	6333	1264	2564	10319	1788	3172	11376	1340	2356	5837	1203	2884	5186
6. Investment in capital assets, million rubles	159	1391	2842	15	521	871	148	851	3804	12	144	124	28	581	374
7. Intangible asset value, million rubles	79	279	768	-	-	-	57	44	1320	125	83	42	-	-	-
8. Profitability (unprofitability) of sales, %	13.8	13.45	23.71	29.1	21.19	23.9	4.13	10.63	8.24	0.01	0.0001	-63.13	0.51	0.02	1.17
9. Average revenue per unit of labor, million rubles	1.68	4.72	7.94	1.37	3.88	6.27	1.19	2.57	4.26	0.32	1.27	1.09	0.78	1.67	3.07
10. Real capital equipment volume per unit of labor, million rubles	0.22	0.45	0.94	0.23	0.4	1.59	0.27	0.41	1.31	0.33	0.52	1.60	0.28	0.47	0.87
11. Capital value per unit of labor, million rubles	2.56	5.74	9.89	1.99	4.11	11.71	1.64	4.56	12.40	1.00	3.88	5.48	3.57	4	8.71
12. Share of intangible assets in total capital value, %	0.46	0.71	1.15	-	-	-	0.52	0.12	1.23	3.03	0.47	0.21	-	-	-
Compiled with the use of the following source: http://www. russiauhelicpters.aero.ru															

Other manufacturing enterprises are focused on the improvement of previously produced products and applied operational processes, which reduces productive capacity of Russian Helicopters JSC.

It should be noted that helicopter engineering enterprises have developed a production model which includes almost all stages of primary and auxiliary production into a unified complex. Under this production model it is impossible to adjust cost-effective release of new products without sufficient loading of available excess capacities. But civil production market is supplied with small batches of machines, carried out according to individual customer requirements. A production model which is unable to meet modern demands results in lower (in comparison with foreign companies) labor productivity of national helicopter industry.

Furthermore, Russian industrial enterprises are not fully integrated into the system of maintaining the life cycle of a released product. During production process they pay little attention to the characteristics which define the machine's subsequent after-sales service by the consumer. This reduces the competitiveness of Russian helicopter industry on the world market, because the customer requires a projected maintenance cost calculation and planned after-sales maintenance activities of the supplied equipment within a few years of operation.

In order to improve the competitiveness of Russian helicopter industry on the world market, enhance the output of products in demand and increase productivity at enterprises, the government developed a program "Development of Aircraft Industry for 2013–2025" [7] which involves the improvement of production model by transferring a number of secondary process stages to outsourcing. The Program also provides as a priority direction the expansion of civil production, the output of which is expected to triple by 2025. Similar challenges are pursued by other defense industry enterprises, where the share of civil production should amount to 50% of the total production output. It is very difficult to solve this problem without production diversification at defense industry enterprises. It should be noted that Russian enterprises have made several attempts of diversification and most of them failed to achieve positive results. One of the reasons for that was that they ignored scientific approaches which consider the peculiarities of production activity of defense industry enterprises and the conditions for operating business in the world market.

The use of the resource-based approach in strategic management. A resource-based concept of strategic management emerged in the early 1990s in response to increased competition in global economy. The concept is based on the principle that the

company obtains a competitive advantage in the market due to its possession of unique resources and abilities, providing rent achieving. The combination of resources into sets which help perform distinctive actions forms company's competences, the formation of which occurs within a specific organizational structure that is difficult to reproduce by competitors. This entails the unique nature of the company's competences, protecting them from reproduction by the competitors [4, 19].

In high-tech industries with constant business environment changes the managerial ability to coordinate and move internal external competences in line with the change in business environment in order to ensure the company's competitiveness is particularly relevant.

Using the results of the study of problems of strategic development of enterprises of national defense industry and relying on the provisions of the resource-based approach, the authors believe that one of the most important directions of strategic development of defense industry enterprises is production diversification aimed at increasing production output and improving financial situation on the one hand, and at reducing the dependence of enterprises on state defense order. The diversification of production can be implemented through the output of dual-use products.

This diversification approach is supported by the experience of foreign companies, which confirms that production diversification by means of "dual-use technologies" will allow a more efficient use of R&D achievements, unique equipment and highly skilled personnel [8]. Expanding the range of civil products will help take a firm position in internal and external market.

The suggested diversification approach is very difficult to implement, therefore the largest corporations in the world implement an associated diversification policy, the mechanism of which is described in detail in the "resource-based concept". Companies expand through diversification by using their existing competences to create value. The competences include the knowledge, some parts of which are not easily transferred to beginners. Therefore, mastering production of products beyond the company's competences is resource-consuming and requires staff retraining according to new behavioral patterns.

In Russian practice of the 1980s and 1990s a diversification policy at defense industry enterprises was implemented, which failed as a result of switching to civil goods production totally different from the characteristics of primary production of defense industry enterprises. One of the main reasons for the failure of defense industry diversification was the lack of proper attention to financing of activities.

The diversification model proposed in the resource-based concept differs from the one previously used at the enterprises of home defense industry in the fact that companies need to develop not just any product, but only products that are within the range of their key competences. A success of introduction of new products depends on the enterprises' ability to develop their value creation competence by improving existing processes and systems. In other words, defense industry enterprise can implement "dual-use technologies" that are applicable to both civil and defense products.

The goal of every organization using associated production diversification on the basis of "dual-use technologies" is to select and economically justify a specific optimal diversification strategy.

The methodology of production diversification strategy development represents a set of procedures, some of which require research of marketing and techno-economic nature. These procedures should be carried out in series-parallel so as to reduce the time necessary for preparation of production of new types of products.

In the framework of the resource-based approach to production diversification it is necessary to develop additional tools for the preparation and organization of production at defense industry enterprises.

The authors propose a procedure of an optimal production diversification strategy formation (*Fig. 2*).

The practice shows that while diversifying production it is impossible to create innovative high-quality products without sufficient investment in production capacity necessary for the process. For example, the creation of new models of aviation equipment for both defense and civil purposes requires large investments in fundamental and applied interdisciplinary research, in modern design and production technologies, in testing and certification and the establishment of an after-sales service system.

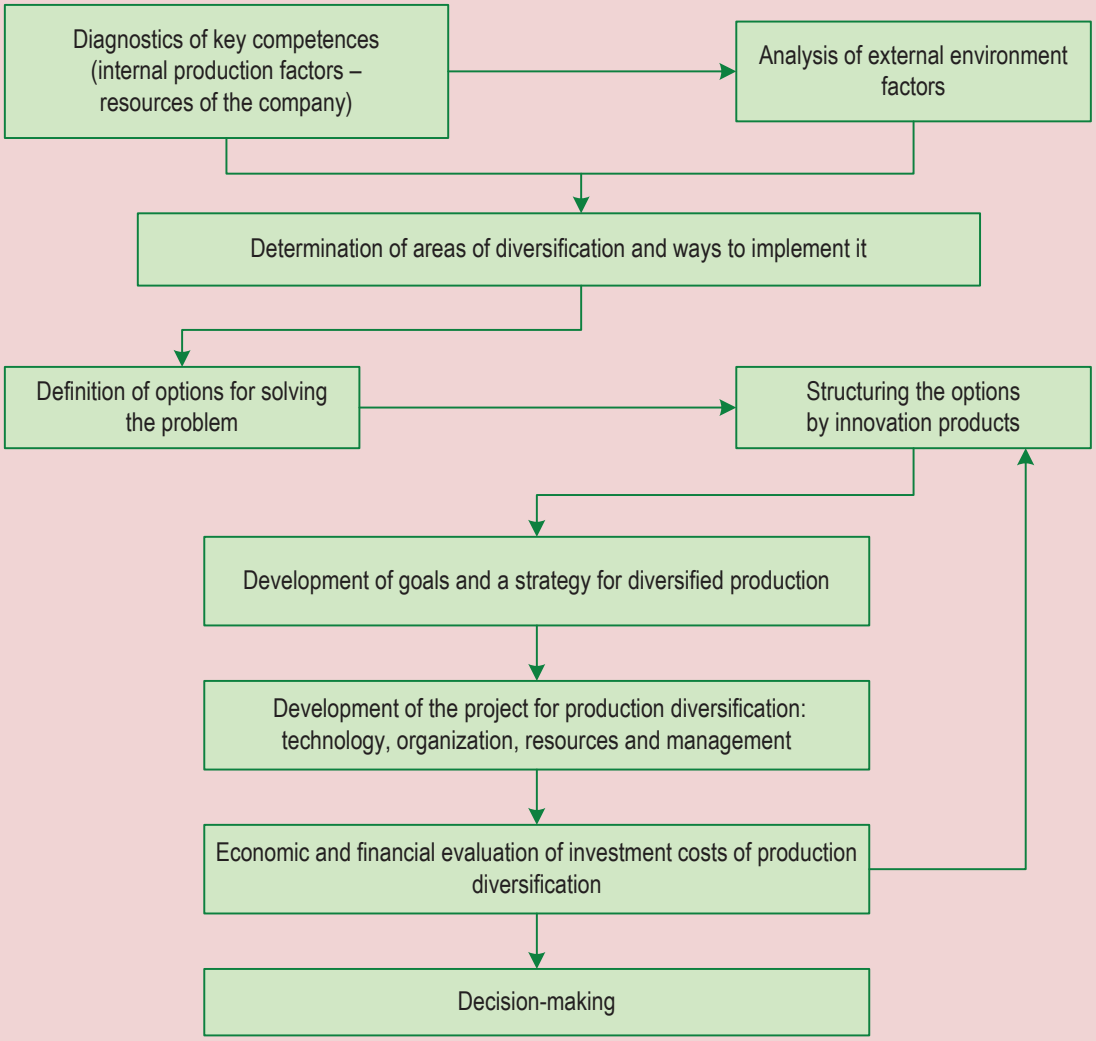
To get one ruble of finished product in the helicopter industry, it is necessary to spend 25–30 rubles in 5–10 years. The search for funding sources of financing and the distribution of financial resources are important components of the process of production diversification.

In this regard, an integral part of the methodology for diversification must handle organizational and economic issues which include the following:

– establishment of ranks of investment sources for upgrading the equipment and technologies;

– selection of a mechanism for formation of financial resources to implement diversification;

Figure 2. Flow diagram of choosing a production diversification strategy using a resource-based approach



– classification of the factors, the use of which in management helps revitalize reproductive activity in diversified production and make it more effective;

– selection of functions for managing diversification in the production of civil products;

– elaboration of methodological tools for financial calculations in reproduction processes through diversification;

– development of an algorithm to control diversification processes as a component of diversification of economic activities;

– development of an algorithm for calculating investment income in the processes of reproduction of the potential for diversification;

– development of a system of indicators and indices for assessing production and economic activities, the use of fixed assets and capital investments, market stability of an industrial enterprise in the new conditions caused by diversification;

– development of venture capital management methodology (in case venture capital is used) with the use of risk management mechanisms.

Defense companies that diversify production now, in most cases, believe that newly developed areas of activity should compensate for a possible decline in the production of defense products and thereby improve their economic situation. At the same time, it often happens that the decisions about diversification – the release of new products, entering new markets – are taken spontaneously, without the necessary study of the impact of the decision on the development strategy of the company. In fact, these decisions are extremely important for the enterprise, they are, no doubt, strategic in nature, so the planning and implementation of these solutions must be elaborated thoroughly by the management of defense industry enterprises with the use of modern scientific approaches and management tools.

The methodology proposed by the authors for the purpose of choosing a strategy for production diversification will help improve the tools of decision-making at defense enterprises and for helicopter manufacturers; in particular, it will enhance the effectiveness of implementation of management functions related to civilian production. It should be noted that production diversification will not be effective if no measures are taken to improve the production model of defense industry enterprises, to enhance their ability to introduce new products and technologies.

Expanding the range of civilian products manufactured by enterprises within the military-industrial complex will develop competence for creating the market value of domestic companies, which will, in turn, strengthen their positions in the global market and will become an impetus for expanding high-tech production in Russia.

Conclusion

The present study shows that the source of major problems in the functioning of Russian defense enterprises, and in particular the helicopter industry, is connected with the specifics of strategic management of its development, which is determined by major holdings under the close supervision of the government. Therefore, the strategy for development of enterprises included in the holding focuses mainly on the government defense order, which determines their direct dependence on government funding.

One of the most critical directions of development of Russian helicopter industry and enhancement of its competitiveness is to diversify its production of civil products in order to increase the output and improve the financial situation on the one hand, and on the other hand – to reduce the dependence of enterprises on the government defense order. The experience of major corporations in the world shows that the policy of related diversification is most effective. Companies grow through diversification by using their existing competencies to create value.

It is not possible to implement the related diversification strategy without theoretically substantiated methodological tools. Currently, the theory and practice of strategic management des not have a sufficiently developed methodological support of the choice of strategy diversification. The proposed method of choosing the strategy for production diversification on the basis of the resource approach will help fill this gap.

The development of "dual-use technologies" and the issue of dual-use products help not only maintain the powerful military-industrial complex, but also accelerate the development of the economy as a whole. The profit obtained through the sales of "dual-use technologies" will help compensate for some of the costs of military equipment development. Adaptation of the provisions of the resource management approach to the strategy for the development of defense enterprises within the framework of integrated structures can be a real source that will help solve the problems of these enterprises in the part that concerns market oriented products production.

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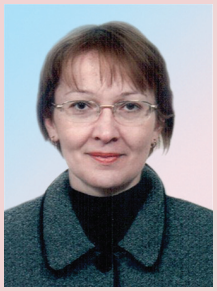
Financial Situation in Regional Energy Supply



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Abstract. It is important to monitor the financial condition of energy supply organizations in regional management and development of energy infrastructure. This condition depends on economic factors, tariff regulation and budget subsidies. The article presents indicators of aggregated financial statistics on energy supply in the regions of Russia's European North. For the purpose of comparative analysis, the author formed a comprehensive indicator of financial stability and evaluated trends in the dynamics of past due debt and profitability. The analysis shows the following sectoral and regional characteristics: the financial situation in the electric power sector is relatively stable, but it is unsatisfactory in heat supply; the increase in negative trends, such as the decrease in repayment ability, low and negative profitability, and the accumulation of considerable arrears. Financial instability becomes a system-wide characteristic of heat supply. It is necessary to introduce a multi-step process of financial recovery of the industry as a whole. In the first place, external factors such as poor repayment discipline, inefficient tariff regulation and insufficient provision of budget subsidies for tariff misbalances must be resolved; otherwise, they will further aggravate financial instability. Strategically, a stable financial situation in energy supply can be achieved only through technological modernization. Specific features of heat supply in northern regions make it impossible to rely only on tariff sources of investment; large-scale renovation requires governmental financial support and the creation of conditions for attracting private investment.

Key words: regional energy policy, regions of the European North of Russia, energy supply, financial situation, stability, financial results, coefficients.

Sustainable financial situation in industrial enterprises is a necessary factor in successful development, and it is achieved through effective management and favorable economic situation. Financial flows in energy supply in the regions of Russia's European North (REN)[1] depend very much on the regional public administration due to the direct effect of tariff regulation and budgetary subsidies. Therefore, in the framework of the regional energy policy, considerable importance is attached to the monitoring and analysis of financial and economic indicators of energy supply activities for the purpose of identifying negative trends and adjusting regional management efforts.

Tariff policy is a key factor that influences economic indicators of energy companies (in both the regulated and liberalized parts of the energy market since they have systemic ties), and the tasks to improve this policy remain critical [3, 10, 14]. The range of issues concerning the financial situation and institutional organization of public utilities and energy in Russia is covered in the research of domestic economic scientists [7, 13, 15]. The methodology for financial stability, integrated assessment and financial analysis tools are developed in the works [1, 8, 16]. In the framework of the research described in the present paper, the author tested various techniques to determine the level of financial stability, solvency (D. Durand), and assess the risk of bankruptcy (E. Altman, etc.) of enterprises [2, 12, 18], but the use of aggregated sectoral indicators in the econometric models of firms may not be quite accurate, therefore, the financial situation was assessed according to the recommendations [5, 9].

Relative financial ratios are used for analyzing financial stability and solvency. Their values, dynamics and comparison by groups of related enterprises are used for the integral assessment of the financial situation [5, 6, 9, 11]. The autonomy coefficient, the coefficient of provision with own capital, and current liquidity coefficients characterize the structure of the balance. If the value of these ratios is below their recommended values, then the balance structure is unsatisfactory, and the enterprise – insolvent [11].

The autonomy coefficient characterizes the independence of the financial situation from borrowed sources and determines the share of own funds in the total amount of assets that are advanced in production activity. An enterprise is considered to be financially independent, if the share of equity capital in its total amount is not less than 30% and normally – not less than 50%. Aggregate indicators of electric power industry in REN regions *(tab. 1)* comply with this criterion of financial independence; as for the heat industry, it depends considerably on borrowed capital (excluding Nenets Autonomous Okrug (NAO)).

[1] Arkhangelsk and Murmansk oblasts, Karelia and Komi republics, Nenets Autonomous Okrug (NAO)

Table 1. Financial stability indicators

Type of economic activity, region	Financial ratios 2014/2015*, their recommended values, %			Calculated integrated indicator of financial stability (I_{fs})
	autonomy (C_{aut})	provision with own working capital (C_{owc})	current liquidity (R_{cl})	
	not less than 30 (norm is 50)	not less than 10 (norm is 50)	not less than 150 (norm is 200)	not less than 0.5 (norm is 1.0)
Generation, transmission and distribution of electricity, Russian Federation	71/69	-8/-44	185/136	0.7/0.4
Including: Arkhangelsk Oblast (without NAO)	34/27	14/8	128/117	0.5/0.4
Karelia Republic	34/42	7/8	187/167	0.6/0.8
Komi Republic	62/51	33/30	158/155	0.9/0.8
Murmansk Oblast	76/73	63/58	298/272	1.4/1.3
NAO	91/90	75/79	463/472	1.9/1.9
Generation, transmission and distribution of heat energy in the Russian Federation:	47/47	-29/-31	101/101	0.3/0.3
Including: Karelia Republic	-13/-28	-55/-76	69/64	-0.3/-0.6
Arkhangelsk Oblast (without NAO)	4/17	-47/-41	77/88	-0.2/-0
Murmansk Oblast	10/3	-48/-46	91/93	-0.2/-0.1
Komi Republic	16/14	-10/-9	98/98	0.2/0.2
NAO	87/86	71/67	549/310	2.0/1.5

* According to EMISS Rosstat data. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/databases/emiss/ The numerator is the average of the reported indicators for the year 2014, the denominator – the same for 2015.

The coefficient of provision with own working capital assesses the ability of an enterprise to pay its short-term obligations, implementing all of its current assets. This indicator is defined as the ratio of own working capital to the value of current assets, its normal value should not be less than 10%, its recommended value – about 50%. A negative index of own working capital characterizes the organization's financial situation extremely negatively. The table shows that heat supply enterprises in REN regions (except for NAO) experience a significant deficit of own working capital.

The current liquidity ratio is an indicator of the solvency of enterprises, and an indicator of short-term financial stability. It is defined as the ratio of the value of current assets to the most urgent obligations of the enterprise. It follows from the table that heat supply of the regions (except for NAO) does not have enough current assets to pay current liabilities, the situation is different in electric power supply.

For the purposes of comparative analysis, a comprehensive indicator of financial stability, taking into account the normalized values of financial ratios was formed (similar to [5]):

$$I_{fs} = 1/3(C_{aut}/50 + C_{owc}/50 + R_{cl}/200) \ ,$$

where I_{fs} – calculated integrated indicator of financial stability;

C_{aut} – coefficient of autonomy;

C_{owc} – coefficient of provision with own working capital;

R_{cl} – current liquidity ratio.

The calculation results are presented in the table: financial stability is satisfactory in the electric power industry in the regions, the integrated indicator is within the recommended range, the best performance indicators are observed in the Murmansk Oblast and Nenets Autonomous Okrug; the situation in heat supply (except for NAO) is unsatisfactory. Comparison of the indicators for 2014 and 2015 shows a slight change, but mostly not in the direction of improvement.

Statistics of the aggregated financial results in the energy supply of REN regions reflected in the indicators of debt and profitability demonstrates the unfavorable situation and negative dynamics, especially in heat supply *(tab. 2, fig. 1, 2)*.

In the period under consideration that covers 2012–2014, heat supply of REN regions was a financially unprofitable activity (see tab. 2): we observe persistently

Table 2. Financial performance of energy supply activity*, %

	Production, transmission and distribution of electric power					Production, transmission and distribution of heat power				
	Product profitability**			Return on assets,*** 2014	Share of unprofitable organizations, as of January 01, 2015	Product profitability			Return on assets, 2014	Share of unprofitable organizations, as of January 01, 2015
	2012	2013	2014			2012	2013	2014		
Murmansk Oblast	0	-8	0	-1	54	-5	-6	-3	-2	71
Karelia Republic	6	5	4	5	25	-8	-5	-4	-10	66
Arkhangelsk Oblast	1	1	0	0	19	-4	-7	-11	-7	63
NAO	-2	-2	-6	-3	100	1	8	-26	-16	67
Komi Republic	3	4	4	8	29	-3	2	-7	-6	72
Russian Federation	4	3	3	1	26	-4	-6	-8	-5	60

Notes: *Calculated according to EMISS Rosstat data. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/databases/emiss/

** The ratio of profit before tax to the total cost price (including distribution and administrative expenses).

*** The ratio of net profit to assets.

Figure 1. Dynamics of overdue accounts receivable (OAR)
and overdue accounts payable (OAP) of heat supply organizations
(in % to the annual volume of heating services in the regions)

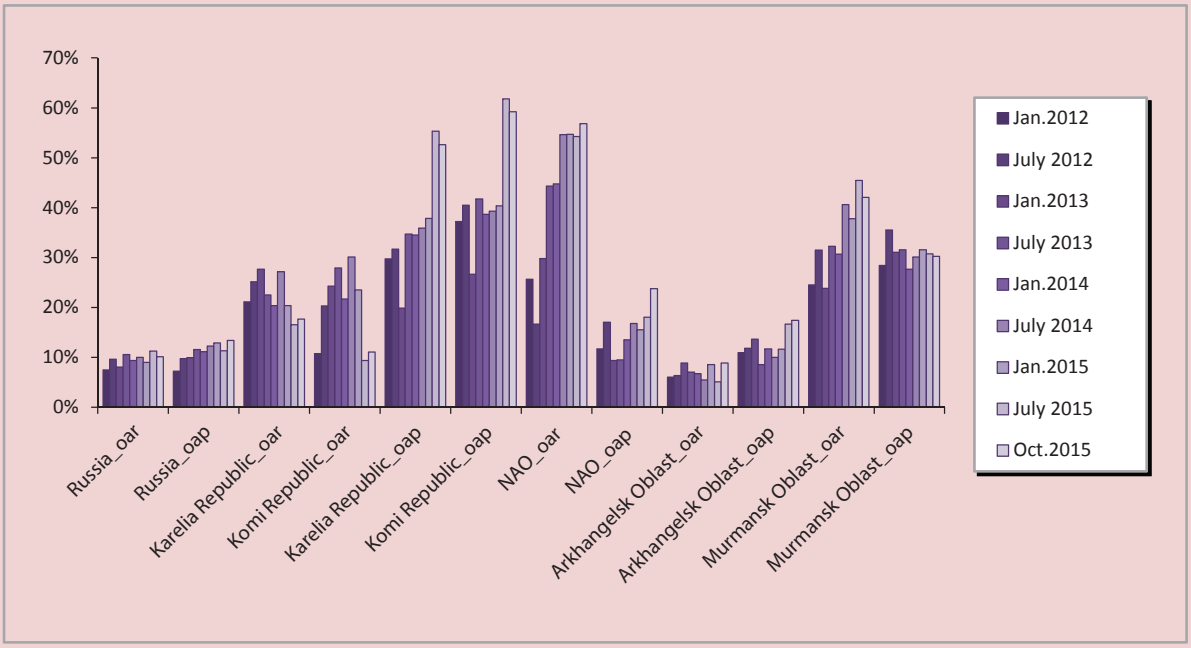
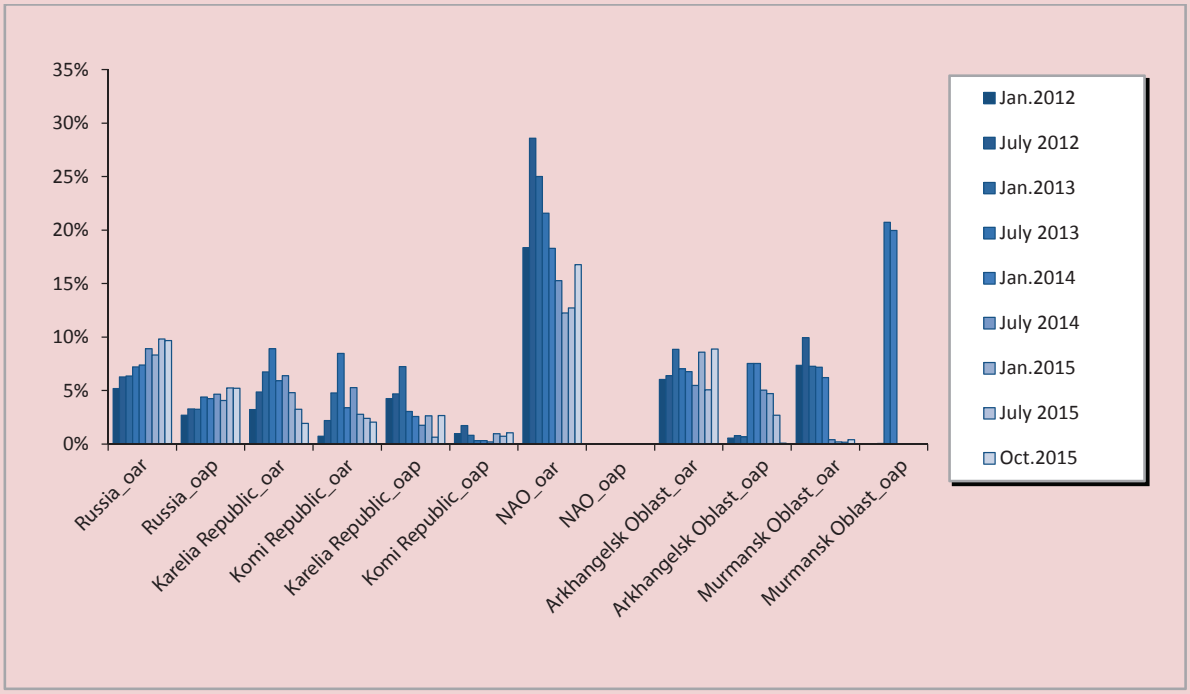


Figure 2. Dynamics of overdue accounts receivable (OAR)
and overdue accounts payable (OAP) of electricity supply organizations
(in % to the annual volume of electricity supply services in the regions)



negative values of profitability of products and assets; the share of unprofitable organizations in each region is high; all in all, according to Rosstat, as of January 01, 2015, out of 116 heat supply organizations in REN, 77 are unprofitable. In electric power supply, the aggregated financial results are better, with the exception of NAO, electricity industry in general has low profitability, 34% of organizations are unprofitable (16 out of 47).

Total overdue accounts receivable (OAR) in REN, as of November 01, 2015, reached 21 billion rubles in heat supply and 2.9 billion rubles in power supply. The amount of overdue accounts payable (OAP) was 19.5 billion rubles in heat supply and 0.7 billion rubles in electricity supply. Among the regions, the bulk of overdue debts is formed in the Komi Republic and Murmansk Oblast. In comparison with the cost of production released in 2014, it is more than 60 billion rubles for thermal energy and 85 billion rubles for electric power. A critically high debt burden has been formed in heat supply; moreover, during the entire period of 2012, this burden was growing, while the volume of debt in heat supply was considerably lower, and the situation in the dynamics improved. This trend is due to the existing measures of a more strict payment discipline in the wholesale and regional electricity markets (collateral, prepayment, etc.), and also due to a smaller share of housing and utilities consumption payment in the total amount of energy consumption (about 10%) in comparison with the thermal energy market (above 50%).

Comparison of the situation in the regional markets with regard to the relative volumes of OAR and OAP (in % to the annual volume of production of products and services of the relevant type of activity in the region) clearly shows the scale of non-payment issues. The dynamics of debt burden in heat supply in 2012–2015 (see fig. 1) has the following specific features: the share of overdue debts in the total value of the market is significantly above the national average level; the most critical situation is observed in NAO, in the Komi Republic and Murmansk Oblast; over the entire period, thee was a considerable increase in ODR (a growing trend and critically high values – over 40% of the value of the annual production volume); the situation in Karelia was improving at a moderate pace, and the relatively low values of the indicators were achieved in the Arkhangelsk Oblast. The growth of OAR leads to the shortage of financial resources of heat supply organizations for the repayment of their debt obligations, which is demonstrated by the autocorrelation of the time series.

The dynamics of debt burden in electricity supply (see fig. 2) shows that, in contrast to the energy market of Russia as a whole, three regions of REN showed a downward trend and by October 2015 they reached relatively low values (under 5%).

A consistently negative profitability in regional heat supply (see tab. 2) results mainly from writing-off significant amounts of irrecoverable debt and from the "restricting" tariff regulation when the provision of compensatory subsidies is insufficient. In many parts of REN, especially in rural areas, the prices of heat energy set by its producers exceed manifold the regional average cost of heating services and the purchasing power of consumers; therefore, applying preferential tariffs is socially feasible. In case when the regional regulator sets the tariffs below an economically justified level, the imbalance of revenues and expenditures is covered by budgetary subsidies. Every year, significant budget funds are allocated to heat supplying organizations as a compensation for their revenues that they have not received as a result of tariff regulation (in the Murmansk Oblast – about 2 billion rubles, in the Arkhangelsk Oblast and the Republic of Komi – 1.3–1.5 billion rubles, in NAOs and Karelia – 0.4 billion rubles)[17]. This practice is planned by the regional government programs and for the future period up to 2020. Along with this, is necessary to note the deficit of the budgets in REN regions, which naturally leads to a maximum possible reduction of all costs, including the costs on the maintenance of current activities and development of energy infrastructure.

Generally speaking, the comparison of financial performance in electricity and heat supply shows that the most unfavorable situation and negative tendencies are formed in the heat business. In accordance with recommendations of the Federal State Statistics Service [9], the financial situation in heat supply activities in all the regions of REN is required to be evaluated as "unsatisfactory". As for the electric power industry, the structure of the balance and its solvency are relatively better, but the presence of outstanding debts and a low profitability do not allow us to assess the financial situation as satisfactory.

The combination of low values of liquidity ratios, chronic shortage of working capital, high proportion of overdue accounts receivable is an evidence of significant financial difficulties, including bankruptcy [11].

For a long time, the considerable amounts of non-payments in the regional heat supply markets indicated the lack of effective mechanisms to ensure payment discipline and the need to introduce special measures at the level of the federal law and regional governance. In 2016, Federal Law 307-FZ of November 03, 2015 entered into force; it aims to strengthen payment discipline of energy resources consumers and imposes penalties and sets out requirements for the provision of financial guarantees. However, energy supplying companies have already noted the need to supplement it in terms of eliminating unsecured intermediaries and significant cash shortages, etc.

Thus, on the one hand the non-payment, tariff imbalances and insufficient or delayed their budget subsidies – exogenous factors, which minimize the flow of financial resources in the heat supply. These conditions are forcing utility companies to increase accounts payable or involve costly loans to ensure the operational activities that lead to critical increase in liabilities and the threat of bankruptcy. On the other hand, the heat are not fully engaged internal technological and economic reserves of increase of efficiency, due to the lack of incentive to reduce costs of tariff regulation and strict control over the efficiency of operating and investment activities that often there is a regional audit bodies on the facts of irrational use of allocated budget funds.

The heat supply required a multi-step process of financial recovery of the industry as a whole: in the first place – the elimination of the external conditions of insolvency and financial instability, then – ensuring financial balance in the long period. Since the main causes of the poor financial condition consist in external factors such as imbalances of tariff regulation and lack of payment discipline, it is important to generate corrective institutional conditions. In the strategic plan a stable financial and economic condition of industrial enterprises is impossible without technological modernization and innovative development [4]. This statement fully applies to the energy infrastructure, in which over half of production funds need expedited replacement. Low efficiency of outdated technologies, depreciation of equipment and networks, excessive losses are the reasons for the high cost of useful energy release. But with the current poor financial condition of the heat supply necessary technological modernization cannot be realized at the expense of own or borrowed funds. Therefore the first priority of the regional energy policy is to create conditions for financial recovery of heat supply activities by tightening payment discipline, the competent tariff regulation and control, elimination of the practice of tariff imbalances, the implementation of state investment in technological upgrading.

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Income Inequalities, Productive Structure and Macroeconomic Dynamics. A Regional Approach to the Russian Case

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Abstract. During the past decades, sustained economic growth in emerging countries (and among them, BRICS countries) has attracted much attention in the western world. Multinational companies have been lured by the growing purchasing power of a significant part of the population, often presented as the "promised land" of consumer spending in durable goods, high tech services and fashion products. Of course, increasing incomes imply also significant socio-economic changes within these countries as well. A growing number of studies have been carried in order to track the evolution of income distribution in BRICS countries, and the formation and composition of a social group usually called "middle class" in western countries (Kharas (2010), SIEMS (2010), Levada (2012), Ernst and Young (2013), Kochhar R., Oates R. (2015)). In this paper we try to assess the impact of recent macroeconomic fluctuations on Russian households income levels. We analyse the Russian trajectory in three different ways. First, we compare the evolution of the "middle class" in Russia with other (B)RIC and western countries, using the wealth-based definition of this group proposed in the Global Wealth Report (Crédit Suisse Research Institute, 2015). Second, we go deeper into the Russian case in order to show how regional disparities regarding incomes distribution can be interpreted, considering the country's recent macroeconomic trajectory. For this purpose, we build a productive typology of the Russian regions and study the link between each type and the level of income inequalities, using the varying structures in sources of household's incomes as a possible explanation of regional variations. We conclude by an assessment of the remaining challenges for incomes policy in Russia.

Key words: concept of "middle class", productive typology of the Russian regions, income sources, evolution of income distribution.

1. A wealth-based definition of middle class

In the 2015 issue of its annual *Global Wealth Report*, the Credit Suisse Research Institute (2015) promotes a wealth-based definition of middle class. In this sense, the so-called "global middle class" is constituted by people who possess at least 50000 US $ worth assets, and less than 500000 US $. To justify this definition, the authors explain that in terms of economic behaviour and aspirations, wealth ownership has a unifying influence across the world, related to what we usually consider to be the middle-class' way of life. Moreover, contrary to an income-based definition, a wealth-based definition would account for the resilience and relative socio-economic stability of "global middle class" households, since their assets can be used as a buffer against a sudden drop of income and are therefore regarded as a form of insurance (Crédit Suisse Research Institute, 2015, p. 28). The authors chose the United States as the benchmark economy, international comparison being carried using IMF PPP exchange rates. The main results of this comparison are summarised in *Table 1*.

As far as Russia is concerned, this definition poses several problems. First, the data on which the abovementioned analysis is conducted are questionable. Second, such an analysis seems to underestimate the size of the Russian middle class when compared to other countries. In relative terms, this group is presented as comparable to its Indian counterpart (resp. 4.1% and 3% of the population), whereas in terms of per capita GDP, real income and consumption expenditures, the share of middle-income Russian households is far higher. Therefore, in the following analysis we use these figures for time-series comparison (and not cross-sections analysis). Our aim is to compare the impact of recent economic fluctuations on the evolutions of income groups in BRICS population.

Table 1. Wealth-based definition of middle class: an international comparison

	Wealth lower bound of middle class, US $ (PPP)	Middle class, % of the population	Above middle class, % of the population
Brazil	28321	8.1	0.6
Russia	18737	4.1	0.5
India	13662	3.0	0.2
China	29245	10.7	0.6
USA	50000	37.7	12.3
France	46183	49.2	12.5
Sources: Crédit Suisse Research Institute (2015a), p. 32, and (2015b), p. 120.			

During the 2000–2007 period, all countries enjoyed an increase of the population belonging to the wealth-defined middle class *(tab. 2)*. The most spectacular growth occurred in China, which managed to increase the group by more than 100 millions people. In Russia, with a population of 143 millions people, the increase was of 11 millions people, approximately the same amount as for United States (over 300 millions people, of which more than a third was already part of the middle class) and India (with a total population of around 1 billion). The crisis period (identified by the author of the Credit Suisse Research Institute study as 2007-2008, although for number of countries like Russia, the most acute period of GDP drop was 2008–2009) provoked a sudden fall of the middle class population. In China 67 millions people were expelled from this category in only two years while in the United States and in India, the figures are of 6.8 and 5.5 millions respectively. In Russia, the fall was less acute (2.5 millions people quitted the group), a paradoxical results that should be explained by the period chosen for the comparison. Indeed, after 2008 Russia was the only country in which the drop of the middle class population continued. Russia's wealth-defined middle class lose 9.2 millions people when in China, it gained 8.5 millions, in the United States – 17 millions, and in India – 0.7 million. These contrasting evolutions confirm the "divergence hypothesis". According to this hypothesis, due to the varying growth models of BRICS countries their macroeconomic trajectories tended to diverge as soon as the financial crisis of 2007 began to affect the world economy (Vercueil (2015)).

Starting from these general comparative observations, we intend to dig into the possible explanations regarding these uneven vulnerability of income distribution in BRICS countries to the changing world macroeconomic conditions. We focus on Russia, whose growth model is qualitatively different from those of China

Table 2. Comparative wealth-defined middle class dynamics, 2000–2015

	2000-2007	2007-2008	2008-2015	Total 2000-2015	...of which middle class	...of which beyond middle class
Russia	11.1	-2.5	-9.2	**-0.6**	-0.7	0.1
India	12.5	-5.5	0.7	**7.7**	6.8	1
China	102	-67.3	8.5	**43.3**	38.5	4.8
United States	*11.9*	*-6.8*	*17*	*22*	*12.9*	*9.1*
France	*6.2*	*-0.2*	*1.2*	*7.2*	*3.6*	*3.7*
Source: Crédit Suisse Research Institute (2015a).						

or India. Russia's growth model can be characterizes broadly as "rent based", relying on energy exports to the rest of the world that contributes for a half to State budget earnings, while helping to stabilize the exchange rate of the rouble and providing the domestic economy with the necessary amount of foreign currency to import manufactured goods and equipments. In order to link the growth model with external vulnerability, we use the regional dataset provided by Rosstat (2015), featuring value added sectorial composition, incomes evolution, structure and distribution. Our main hypothesis is that the regional level of analysis can help us to understand the recent changes affecting income distribution at the macro-level.

2. Inside Russia: regional development and productive structure

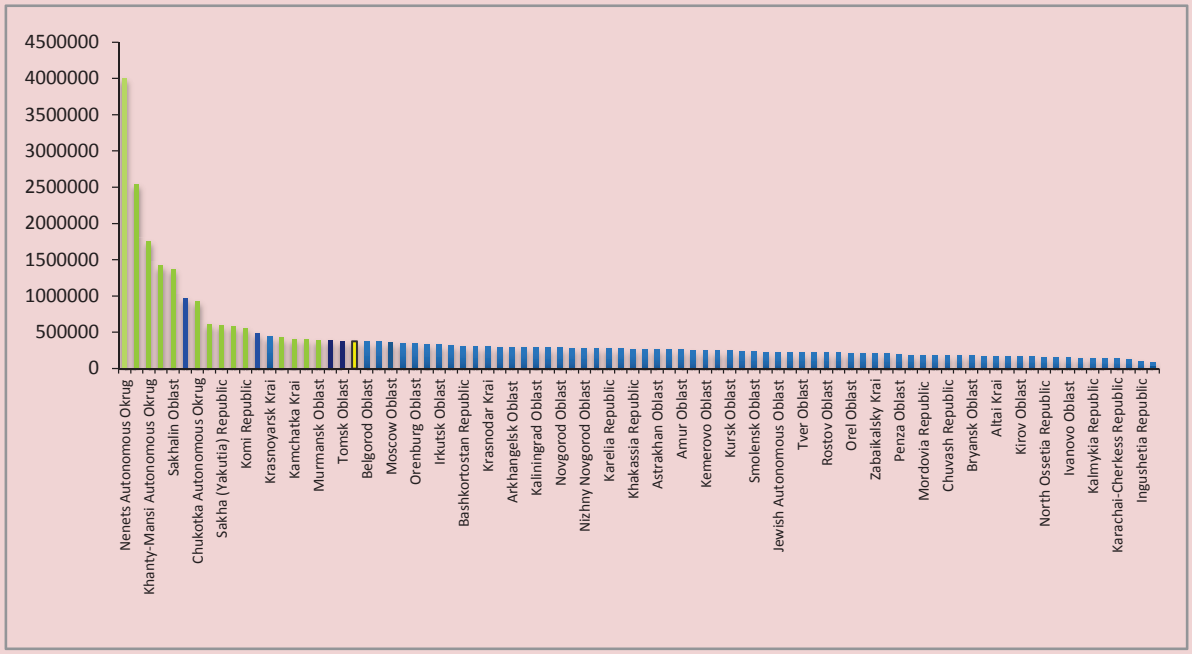
Russia is a largely urbanized society: almost three quarters of the population live in urban area. The urbanization process is still at works, accompanied with a westernization of the population. Eastern regions are loosing people regularly, at a pace that is higher than the natural demographic trend, hence indicating an emigration trend. The largest western cities have benefitted from this trend. Since 2005 Moscow, St Petersburg and their region's population grew 20 times faster than the rest of the country. They now account for 18.3% of the national population. More generally, the thirty-seven biggest cities (those that have more than 500000 habitants) gather about 30% of the country's population. Among them, 24 are situated in the European part of the territory.

However, this urbanization and westernization trend does not totally match the evolution of the overall production distribution. For instance, the regional repartition of per capita GDP doesn't show that big cities *(dark blue bars in Graph 1)* produce more wealth than some relatively remote, poorly populated regions *(green bars)*. This is because some of the latter regions are well endowed with natural resources that require capital intensive, labour saving productions technologies. Hence, the amount of per capita regional GDP can be very high since it largely reflects the level of productivity of extractive industries. More importantly, this productivity level is directly and positively tied to the world prices of raw materials that are exported by Russia.

3. A productive typology of regions

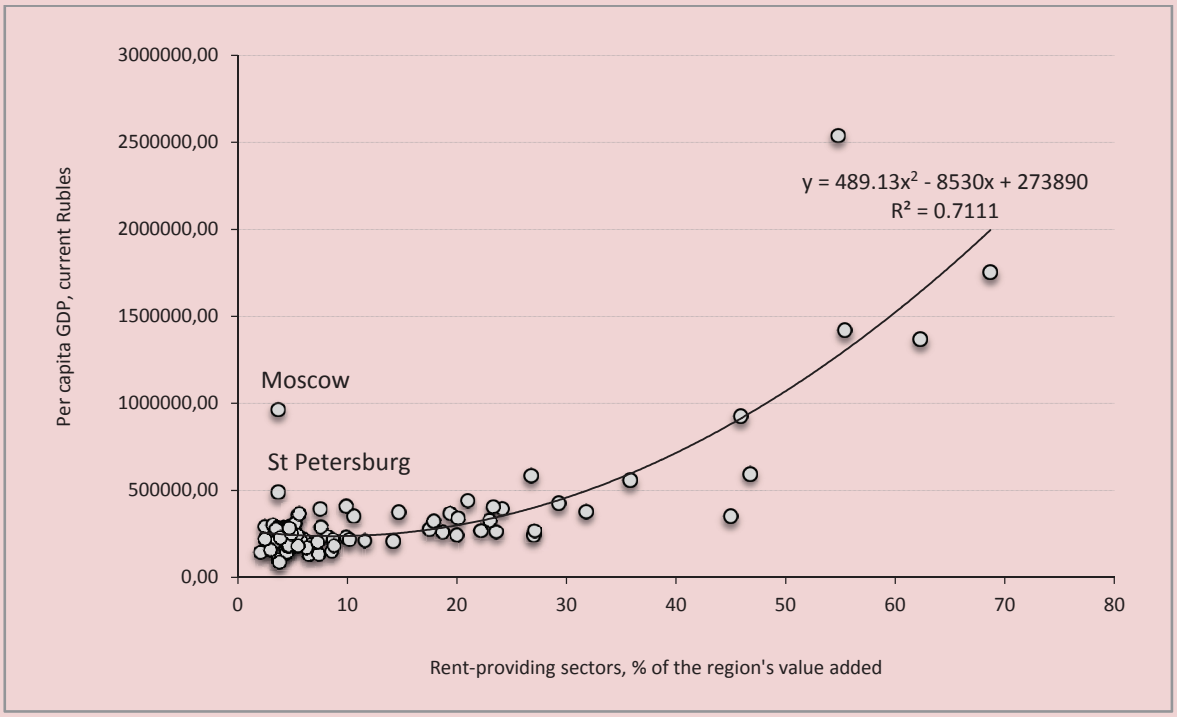
A first observation can illustrate the abovementioned link at the regional level: it shows a strong correlation between the intensity in raw materials production of the region and its per capita GDP *(Graph 2)*. This correlation implies that, given the relatively modest number of regions that benefit from a rich natural resources endowment, strong fiscal and redistributive policies are needed to correct the consecutive distortion effects on household incomes.

Graph 1. Per capita regional output (2013, current roubles)



Source: Rosstat (2015).

Graph 2. Raw materials intensity of value added and per capita GDP of the Russian regions, 2014



Source: author's elaboration based on Rosstat database (2015).

In order to examine the relation between the productive structure of Russian regions and their characteristics in terms of income distribution, we construct a simple regional productive typology. For this purpose we use the *Rosstat* regional dataset presenting the structure of the value added by sectors. Starting from the 15 different sectors distinguished by *Rosstat*, we divide them according to their relation to world markets and competition. "Rent-providing" sectors are those that can directly benefit from the rise of raw materials prices. When world prices are high, they provide a rent for producers who enjoy the positive outcomes of an oligopolistic situation as they have an exclusive access to deposits. We include financial services (representing only 1.5% of the total value added) into this category because of the existing links between oil and gas majors companies and some Russian banks. "Non tradable" sectors are sheltered from the world competition either because of their very nature (some services cannot be imported), either because of national regulation regarding their activities (public services). On the contrary, "tradable" sectors' products can be exported or imported. Firms belonging to these sectors are exposed to foreign competition even if, in some cases, a varying degree of protection is provided by the Government. *Table 3* presents the result of our re-arranging of these sectors according to this typology.

At the national level, the Russian economy exhibits the following structure: rent-providing sectors represents 15.2% of the domestic value added; non tradable sectors, 63%; tradable sectors, 28%. We use this distribution of weight and the national average per capita income as benchmarks for the regional analysis. Starting from this, we distribute Russian regions among the 3 following types.

Table 3. Recombination of sectors according to their relation to foreign competition

Extractive industries	Production and distribution of water, gas and power	Financial services
Rent-providing sectors		

Construction	Retail trade	Hostels and restaurants	Transports	Communication	Central administration	Health care	Education	Local administration
Non tradable sectors								

Manufacturing industry	Agriculture	Fishery
Tradable sectors		
Source: author's elaboration.		

Table 4. A productive typology of Russian regions

Rent providing regions (16)	Non tradables intensive regions (36)	Exposed regions (32)
Arkhangelsk Oblast	Adygea Republic	Altai Krai
Chukotka Autonomous Okrug	Altai Republic	Bachkortostan Republic
Irkutsk Oblast	Amur Oblast	Belgorod Oblast
Kemerovo Oblast	Astrakhan Oblast	Chelyabinsk Oblast
Khanty-Mansi Autonomous Okrug	Bryansk Oblast	Chuvachia Republic
Komi Republic	Buriatia Republic	Kabardino-Balkar Republic
Magadan Oblast	Chechen Republic	Kalmykia Republic
Murmansk Oblast	Dagestan Republic	Kaluga Oblast
Orenburg Oblast	Jewish Autonomous Oblast	Karachay-Cherkess Republic
Republic of Sakha-Yakutia	Inguchetia Republic	Kirov Oblast
Sakhalin Oblast	Ivanovo Oblast	Kostroma Oblast
Tatarstan Republic	Khakassia Republic	Kurgan Oblast
Tomsk Oblast	Kaliningrad Oblast	Kursk Oblast
Tyumen Oblast	Kamtchatka Krai	Krasnoyarsk Krai
Udmurtia Republic	Karelia Republic	Lipetsk Oblast
Yamalo-Nenets Autonomous Okrug	Khabarovsk Krai	Mari El Republic
	Krasnodar Krai	Mordovia
	Leningrad Oblast	Nizhny Novgorod Oblast
	Magadan Oblast	Novgorod Oblast
	Moscow	Omsk Oblast
	Moscow Oblast	Orenburg Oblast
	North Ossetia	Orel Oblast
	Novosibirsk Oblast	Penza Oblast
	Primorsk Krai	Perm Krai
	Pskov Oblast	Ryazan Oblast
	Rostov Oblast	Samara Oblast
	Smolensk Oblast	Saratov Oblast
	Saint Petersburg	Tambov Oblast
	Stavropol Krai	Tula Oblast
	Sverdlovsk Oblast	Vladimir Oblast
	Tver Oblast	Volgograd Oblast
	Tyva Republic	Vologda Oblast
	Ulianovsk Oblast	
	Voronezh Oblast	
	Yaroslavl Oblast	
	Zabaikalsky Krai	

Source: author's elaboration.

Type 1. Outward oriented, rent-providing regions: this type regroups regions in which rent-providing sectors accounts for more than 25% of the regional value added (that is, almost the double than the national average).

Type 2. Non-tradables intensive regions: in these regions, non-tradable sectors account for at least 60% of the value added (equal to, or higher than the national average).

Type 3. Exposed regions: in these regions, tradable sectors represent more than 30% of the national value added (more than the national average).

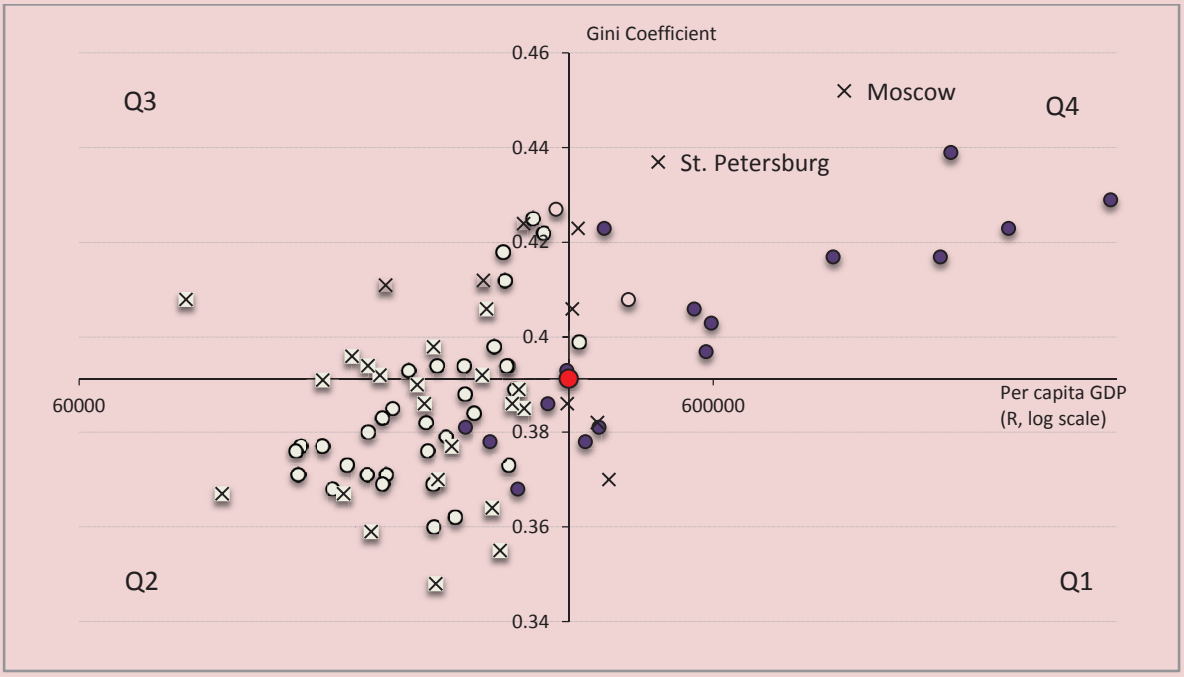
Analysing 84 Russian regions with these criteria, we end up with a regional typology presented in *Table 4*. Sixteen regions fall into the "rent providing" group, 36 are considered as "non-tradables intensive" ones and 32 are of the "exposed" type. It can be noted that the first group is composed of some of the richest regions in terms of GDP. Its 2014 average per capita GDP is two times higher than the national average, and three times higher than in the two other groups.

4. From productive structure to income distribution: a first look into Russian regions

According to Rosstat statistics and using implied PPP exchange rates of the IMF, at the national level 16% of the population earn more than 2000 US $ per month, a result that tend to confirm the limits abovementioned of the Credit Suisse Research Institute's indicator for defining the middle class, that lead to the underestimation of the size of the Russian "middle class" (only 4% according to the wealth-based criteria, *cf. supra*). On the other hand, like in other emerging countries, income distribution in Russia is strongly concentrated: less than 37% of the population earn more than the national average. This leads us to ask whether the productive type of region can be associated with a specific pattern of income distribution.

As we combine the Gini coefficient with per capita GDP, we obtain a picture that confirms our first findings (Graph 2): rent-providing regions are more productive than the others, but also more unequal. *The Graph 3* distibutes Russian regions in four quadrants. Nine of them are situated in Q4, in which both per capita GDP and Gini coefficient are higher than national average. On the opposite side, only two exposed regions (out of 32) enjoy a relatively high level of per capita GDP. They are both situated in Q4 and have a share of rent-providing sectors in their value added that, while being inferior to the 30% limit, is superior to the national average. Most (more than twenty) of the remaining exposed regions are situated in Q2, where Gini coefficient and per capita GDP levels are lower than the national

Graph 3. Types of regions, per capita GDP and Gini coefficient

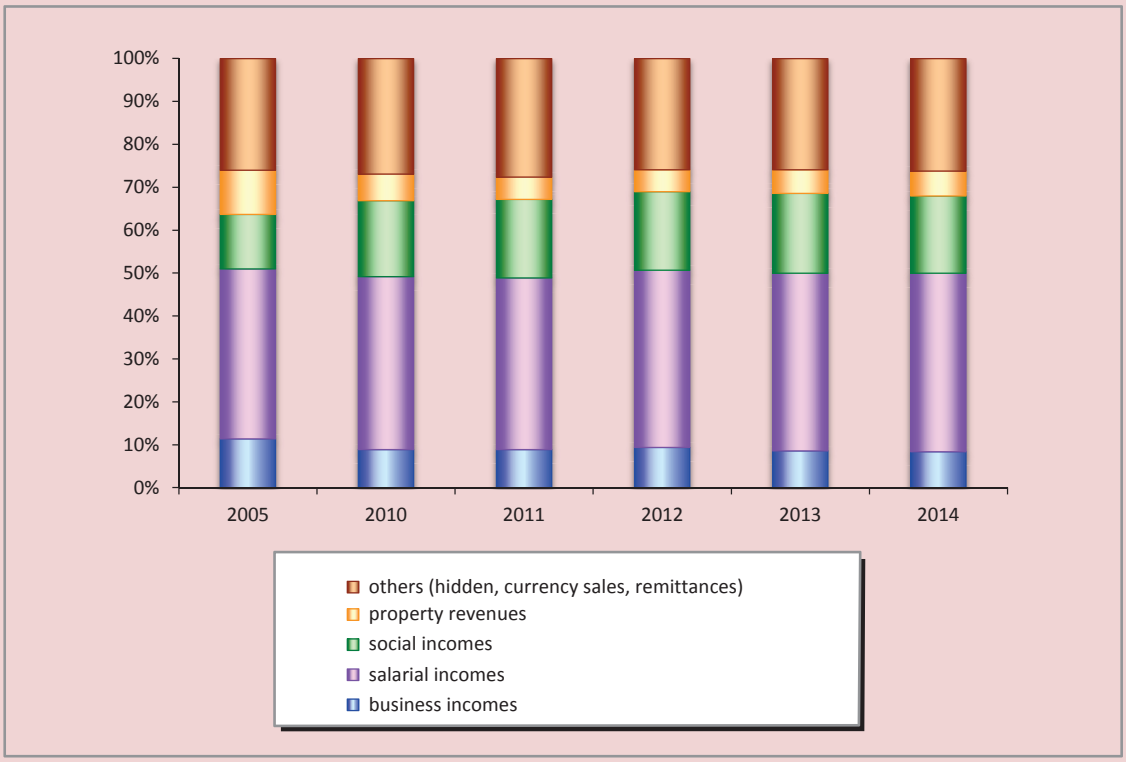


average. As regards per capita GDP, only seven non-tradables intensive regions are equal or above the average. Among them are Moscow, St Petersburg and the oblast of Leningrad.

5. Who earns what? Sources of income and productive types of region

In the last step of this study, we use *Rosstat* data on households' income sources to shed more light on our typology of Russian regions. The data set distinguishes five sources of revenues: salaries, business incomes, property revenues, social transfers and other sources. This last category is composed of hidden revenues, remittances and currency sales. During the last decade, the fundamental structure of households' incomes sources did not change. Salaries remained the main source of income, accounting for more than 40% of the total. Two other important sources are social transfers and other sources. Put together, they represented almost 45% of total revenues in 2014, showing a slightly rising tendency since 2005. The remaining 14–15% are divided into business incomes (8–9%) and property revenues (little less than 6%) *(Graph 4)*.

Graph 4. Structure of households' revenues, 2005-2014



Source: Rosstat (2015).

At the regional level, the distribution of incomes sources varies largely. For instance, salaries represent 80% of the total in Chukotka, against less than 12% in the Daghestan Republic. Conversely, in the Tyva Republic, social transfers amount to a third of the average income of households, whereas in the Yamalo-Nenets Okrug, they represent only 12%. Other revenues show even wider variations across regions: in Daghestan and Adygues republics, they represent more than 50% of the total revenues, whereas in Yamalo-Nenets Okrug, Chukotka and Magadan the proportion is not higher than 2%.

In order to link these regional variations to the structure of income inequality in Russia, we study the relation between the productive typology of regions and their main sources of incomes. We find that rent-providing regions are associated with a higher share of salaries in the total income. This can be attributed to the role played in the local economy by the

Table 5. Productive typology and main sources of income

	Rent-providing regions	Non-tradables intensive regions	Exposed regions
Salary (national average: 42%)	Chukotka AO (80%), Yamalo-Nenets AO (79%), Khanty-Mansi AO (72%), Magadan Oblast (71%), Tyumen Oblast (65%), Murmansk Oblast (61%), Komi Republic (59%), Sakha Republic (59%), Irkutsk Oblast (55%), Sakhalin Oblast (51%)	Kamchatka Krai (63%), Khabarovsk Krai (57%), Moscow city (52%), Saint Petersburg (50%)	Krasnoyarsk Krai (55%)
Social transfers (national average: 18%)	Kemerovo Oblast (25%)	Tyva Republic (33%), Karelia Republic (30%), Altai Republic (27%), Ingushetia Republic (26%), Pskov Oblast (25%)	Kalmykia Republic (30%), Kurgan Oblast (27%), Mari El Republic (27%), Mordovia Republic (26%), Kostroma Oblast (26%), Orel Oblast (26%), Altai Krai (25%)
Other revenues (national average: 26%)		Daghestan Republic (51%), Adygea Republic (50%), Chechen Republic (43%), Ingushetia Republic (42%), Moscow Oblast (42%), Krasnodar Krai (40%)	Kabardino-Balkar Republic (41%), Bashkortostan Republic (36%), Omsk Oblast (36%), Karachay-Cherkess Republic (36%), Nizhny Novgorod Oblast (36%)
Source: author's elaboration based on Rosstat (2015).			

main raw materials extracting companies that dominates the local economy: they usually represent a high proportion of local employment and distribute attractive wages in order to retain workers in these remote, desert and harsh-climate regions. At the same time, exposed regions tend to benefit more than the average from social transfers. Some of them – notably the poorest ones, in which the agricultural sector is prominent – rely also to other sources of revenues (remittances, currency sales and revenue from the grey economy). Finally, within the non-tradable intensive regions, two sub-groups must be distinguished: in the first one, salaries are the main source of revenues, far above the national average as for rent-providing regions. These regions (Kamtchatka, Moscow city, St Petersburg among others) are also the wealthiest of their category. They have managed to benefit from the development of non-

tradable sectors (services, construction and real estate mainly) by attracting part of the revenues produced by the rent-providing regions, with whom they are closely linked. It is in these regions that a large part of the Russian middle class is living. The second sub-group is constituted of the poorest non-tradable intensive regions, in which other activities – grey economy, remittances, currency sales - provide the main source of income for local households. Geographically, these regions are mainly situated in the North Caucasus, one of the most problematic areas in Russia in terms of poverty, unemployment, inequality, various traffics and criminal economy *(tab. 5)*.

Conclusion: the productive structure as a challenge for redistribution policies

Albeit very preliminary, this study provides several interesting empirical findings regarding the link between the productive structure of Russia and the income distribution.

First, it shows that the Russian middle class has suffered more than its counterparts of BRICS countries from the recent crises. One of the reasons of this impact is the dependence of the Russian economy on raw material prices, which reveals the role of the productive structure and the growth model of the economy in the income distribution.

Second, it shows that, at the regional level, income inequalities remain important in Russia. Part of these inequalities can be explained by the uneven natural resources endowment of regions in Russia.

Third, a simple productive typology of regions permits to shed light upon the forces that tend to drive income distribution in Russia. Rent-providing regions are not only wealthier than others: they are also associated with a higher share of salaries in households' income. But this source of income can prove vulnerable since world raw material prices are unstable and largely beyond the control of the Russian firms that produce them. Moreover, relatively poor non-tradable intensive and exposed regions rely more extensively on remittances and hidden revenues that are particularly vulnerable to the macroeconomic conjuncture.

Fourth, social transfers can theoretically buffer these vulnerabilities. But they depend on the ability of the State to lesser the dependency of the budgetary resources from the price of raw materials. This has not been done in Russia during the past quarter of century. Therefore, as world oil prices are bound to be subject to high uncertainty in the next decade, fiscal and redistributive policy will remain one of the most pressing challenges of economic policy in Russia.

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Forecasting the Effects of Raising the Retirement Age on Russia's Demographic Structure*

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Abstract. The paper assesses the possibility of raising the retirement age to mitigate the effects of ageing on the pension system of Russia. The authors make demographic forecasts based on hypotheses about the presence of global demographic trends in population reproduction and manifestations of development features specific for Russia. The demographic forecast is based on the age shifting method according to three scenarios. The forecast takes into account the provisions of a draft law that has already been approved and that provides for a gradual increase in age limit for civil servants, both men and women, to 65 years (by six months each year). The following assumption is made for the purpose of studying the effects of raising the retirement age to 65 years for all categories of Russian citizens. The increase in the retirement age begins in 2016 at the rate of 6 months per year, and it will end for men in 2026 and for women – in 2036. Thus, by

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2036, the official retirement age will be 65 years for both sexes. The resulting forecasts show that population ageing in Russia is an inevitable process. Depending on whether demographic processes are in line with global trends or whether certain specific Russian features of development are revealed, ageing process will occur in the first case – "from above", in the second case – "from below". The forecast has confirmed a well-known paradox that if the situation regarding the decline in mortality is improved further, as has happened in recent years, then the pace of ageing that negatively affects the balance of the pension system will be even higher, at least in the medium term. Forecast calculations have shown that, first, demographic burden on the working population will continue to increase under any demographic development scenario implemented in Russia, and most significantly, under a scenario that describes a successful demographic policy. Second, the number of retirement age women is a significant potential reserve for decreasing the demographic burden on able-bodied population. It appears that raising the retirement age is feasible but it should be carefully prepared so as to be implemented gradually and accompanied by several additional measures.

Key words: pension system, retirement age, demographic forecast, population ageing, global demographic trends and Russian peculiarities.

Introduction

Population ageing is a major challenge of modern pension insurance. This phenomenon has become a universal trend, and it is observed in Russia as well. *Table 1* presents dynamics of change in the share of elderly persons in various countries. According to international criteria, population is considered old if the share of people aged 65 years and over exceeds 7% in it [12]. According to this indicator in 2015, Russia ranked 47th (13.4%) [3].

However, unlike developed countries, the main demographic cause of population ageing in Russia is decline in fertility, rather than increase in life expectancy, i.e. ageing occurs "from below". As a result, currently, the age structure of Russian population is relatively younger than that in developed countries. Nevertheless, in the course of 25 years the proportion of people of pension age increased from 18.5 to 24.0%; in 2015, there were 41 people over working age per 100 people of working age. These age proportions not only remain, but also increase, which leads to an increase in the demographic burden on the economy and to the growth of imbalances in the pension system budget.

Raising the retirement age seems to be the easiest way to reduce the number of pensioners and the volume of expenditures of the pension system and to increase insurance payments by increasing the number of their payers. In Russia, the statutory retirement age is the lowest among all countries that have a nationwide system for compulsory pension insurance [35]. Retirement age for men is 60 years for women – 55 years. It was established back in 1932 on the basis of examination of workers who retired due to disability, and

Table 1. Proportion of persons aged 65 and over in total population, %

Countries	1981	1991	2001	2011	2015
Argentina	8.3	9.2	10.0	10.5	10.9
Brazil	3.8	4.1	5.2	6.9	7.8
India	3.7	3.9	4.5	5.2	5.6
China	4.6	5.4	6.8	8.4	9.6
Mexico	3.9	4.3	5.1	6.0	6.5
United States of America	11.5	12.6	12.3	13.3	14.8
South Africa	3.1	3.2	4.1	5.0	5.0
Japan	9.3	12.4	17.7	23.6	26.3
Eastern Europe, including	*10.9*	*11.4*	*13.4*	*14.7*	*15.5*
Russian Federation	10.3	10.6	12.7	13.1	13.4
Ukraine	11.8	12.4	14.2	15.8	15.3
Czech Republic	13.3	12.8	13.8	15.9	18.1
Northern Europe, including	*13.2*	*13.7*	*14.6*	*16.3*	*17.7*
UK	15.1	15.8	15.9	16.4	17.8
Finland	12.1	13.6	15.1	17.6	20.5
Southern Europe, including	*9.7*	*10.7*	*13.8*	*16.1*	*17.5*
Italy	13.3	15.2	18.4	20.8	22.4
Spain	11.2	13.7	16.7	17.4	18.8
Western Europe, including	*14.0*	*14.4*	*15.5*	*17.2*	*18.2*
Germany	15.5	15.0	16.6	20.8	21.2
France	13.8	14.3	16.2	17.3	19.1

Source: World Bank Data [3].
Note. Grouping of European countries according to the UN [1].

since then it has not been raised, although the nature and conditions of work have changed markedly [34]. But in developed countries, retirement age for men is 65 and for women – the same or close to it. Raising the retirement age is a common response to population ageing [14]. It is necessary to note two main points in the international experience of raising the retirement age. First, gender differences in the age of retirement are not taken into consideration at all or they are reduced. Second, raising the retirement age is a long-term process, it is carried out gradually and has a transition period.

In order to find out whether raising the retirement age is able to mitigate the effects of ageing on Russian pension system, a study was carried out, which consists in constructing forecasts based on hypotheses that global demographic trends and specific Russian features can be distinguished in population reproduction processes.

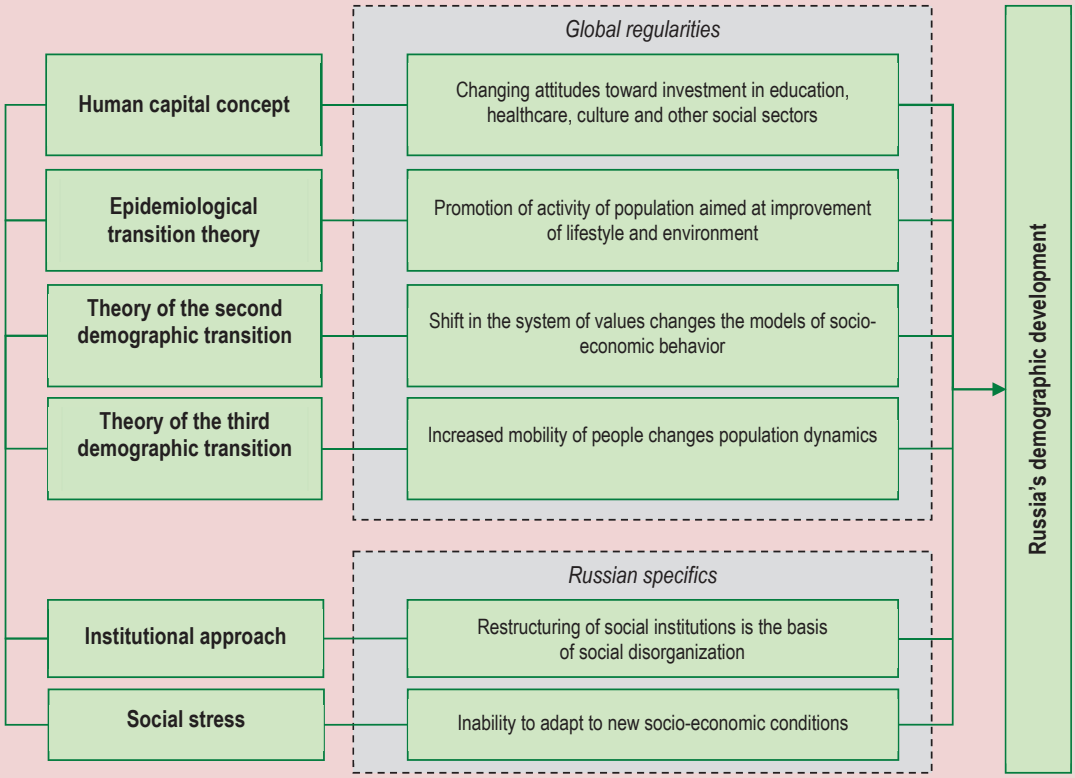
Theoretical and methodological basis of forecasting

Potential ways of Russian demographic development depend on the causes of the ongoing changes. In the global context, Russian demographic trends, on the one hand, are closely intertwined with the changes in developed countries; on the other hand, they demonstrate their specifics. There are several theories of demographic development, and they can be divided into two groups.

The first group comprises theories according to which all countries in their development pass consecutive steps and their identifying determinants are universal for the global process. Such theories include the concept of human capital [4]. This concept for the first time shows the area of practical application for the theory of investments in the "human factor". Mobilization of enormous resources, including the costs of health care, environmental protection, development of scientific research and substantial revision of health legislation – all this helped develop social infrastructure and thereby curb the adverse effects of physical and social environment on demographic development. As a result, there is a change in the patterns of mortality by causes of death, and the center of gravity shifts from the causes weakly associated with age, to the causes strongly associated with it. Such transformations formed the basis of epidemiological transition theory [27]. Along with epidemiological transition theory, modern science uses the theory of the second demographic transition [2; 5] that explains the emergence of new patterns of socio-demographic behavior caused by a given socio-economic environment. Demographic changes are associated not only with natural population reproduction, but also with its increased mobility. Immigration makes a significant contribution to the dynamics of local population and its composition. This allowed D. Coleman to formulate the concept of the third demographic transition – a special phase in the development of population during which the most significant contribution to the dynamics of population is made by migration [20; 21].

Russia's specifics consist in the fact the main transition stages are delayed, due to which the problems that have not been resolved at the previous stages move on to the subsequent stages of transition; besides, Russia has its own trends and features in social and economic development of its regions. The second group comprises theories that explain Russia's development specifics. The functioning of institutions is of particular importance from the viewpoint of demographic development characteristics. Under the influence of sudden economic, political, natural and other changes in the external environment,

Figure 1. **Modern approaches to the study of Russia's demographic development**



there emerge destructive situations in the functioning of institutions, the so-called "institutional traps"[1]. According to N. Rimashevskaya, the 1990s reforms had a negative impact on socio-demographic development by greatly reducing the quality of living conditions and standard of living, increasing social stress and instability; besides, there emerged insurmountable difficulties in adapting to transition to the market system [33]. The set of pathological processes that in the course of the reforms caused the development of super-high and very early mortality of working age persons, health deterioration and negative natural population growth – B. Velichkovskii defines all these issues as social stress [10].

Systematization of theoretical approaches to research on Russian demographic development slowed us to note the dual nature of this development *(fig. 1)*. On the one hand, demographic processes take place under global development patterns, under the influence of alteration in value systems and lifestyles, and attitude toward education, healthcare and other social sectors. Such changes lead to certain qualitative demographic transformations:

[1] Institutional traps are inefficient, persistent behaviors [26].

- increase in the average age of marriage and motherhood reduces the contribution of young women to fertility;
- transition to effective methods of family planning reduces the incidence of abortion;
- dissemination of marriage types that are different from the traditional model of marriage leads to an increase in the number of children born out of wedlock;
- empowerment of women, and gender equality in the labor market result in the fact that women delay motherhood to a more mature age, women have obtained an opportunity to use the childless period of their life for educational and economic purposes;
- modern healthcare greatly increases survival chances, so the decline in mortality is accompanied by a decline in the ratio of its exogenous and endogenous components: exogenous mortality becomes better controlled and its contribution decreases;
- change in the structure of diseases puts non-infectious diseases, especially cardiovascular disease and cancer, on the first place among threats to human health and life;
- endogenous factors in the development of the body, associated with its natural ageing, are unavoidable like the aging process itself, they lead to the shift of mortality to older age groups.

On the other hand, current demographic trends in Russia are caused by socio-economic changes that triggered Russian anomalies (high mortality, especially in men and from preventable causes), and by demographic policy that ensures certain natural population growth since 2012 onward.

Thus, there can be three possible scenarios of demographic development in Russia. First, the complicated current economic-political situation in the country may cause deterioration of people's financial situation and uncertainty about economic stability in the future, which will lead to the maintenance of high mortality and low fertility, which preserves natural population increase at the zero level. Second, vigorous efforts in the framework of current demographic policy can help achieve a significant increase in life expectancy (which will be in line with demographic patterns) and an increase in fertility (manifestation of development specifics). Third, in the future Russia can enter into "final" stages of demographic and epidemiological transition and will be in the Western European trend of population reproduction, which implies a significant population ageing and the spread of nuclear families. Regardless of the scenario according to which demographic development goes on in Russia, dependency burden on the working population will

increase. However, the magnitude of this burden will depend not only on the scenario but also on the decision about raising the retirement age.

Currently, the budget of the Pension Fund of the Russian Federation is planned according to state reporting form 94 (Pensions), which contains information about the number of pensioners and the amounts of pensions assigned to them[2], the planning also takes into consideration statistics data on the number and mortality of population and uses analytical and extrapolative forecasting methods [11; 36]. These methods do not fully take into account changes in the age-sex structure of the population, which could cause errors in the forecast. In addition, extrapolation method involves the assumption concerning the conservation of force and the impact of defining determinants of development of the retrospective period in the future, which is not always true.

When forecasting the number of pensioners, it is logical to use the method of components, or the age shifting method. It is fully consistent with the logic of population ageing and renewal. This method helps not only calculate the total number of pensioners, but also arrange them according to sex and age.

[2] The form does not include pensioners of the power structures, as well as a number of other departments and categories of public servants, i.e. pensioners who are not registered with bodies engaged in pension provision [7].

Applying this method is based on the use of the demographic balance equation:

$$P = P_0 + (N - M) + (I - E),$$

where P is total population;

P_0 – population at the beginning of the year;

N – number of births;

M – number of deaths;

I – number of arrivals;

E – number of leavers.

The difference between variables N and M is called natural population increase if $N>M$, or natural population decline if $N<M$, and the difference between variables I and E is called net migration or migration balance. In this formula, variables N, M, I and E are components of changes in the number of population during the year. The essence of the method lies in the fact that data on the number of age and sex groups move each year to the next age given the mortality rate and age-specific net migration. The number of the zero age group is determined on the basis of the forecast of annual number of births and infant mortality. The forecast of annual number of births is based on the number of women of childbearing age and frequency of childbearing among women of this age.

To optimize the process of forecasting, a program is used to calculate demographic forecast [30], the program is based on the method under consideration. This program

is written in VBA and is implemented as a macro for Microsoft Excel. To build the forecast, it is necessary to have the following baseline data for the beginning of the first year:

- population by five-year age groups and by sex;
- total fertility rate;
- average age of mother at childbirth;
- life expectancy at birth for men and women;
- infant mortality rate;
- number of arrivals (immigrants);
- departure rate (emigration).

The program uses several dependencies that greatly facilitate the forecasting process concerning age probability of survival, age-specific probabilities of childbirth and age structure of migrants. The forecast covers 202 age probabilities (101 for men and 101 for women) of survival and 35 age probabilities of having a baby. Probabilities in different ages are linked tightly to each other, and there are fairly reliable models of these interactions. Age probabilities of survival closely correlate with life expectancy at birth. Therefore, for each value of life expectancy it is possible to predict with high accuracy all age-related indicators of survival. The age composition of migrants is especially prone to fluctuations, but it is not entirely random. There exists a certain objective logic in the formation of age distribution of emigrants and immigrants, which can help determine more or less accurately the age composition of people arriving in the country and leaving it [7]. Therefore, it is sufficient to determine the resulting characteristics of mortality, fertility and migration, and the current models in the program will pass from them to their age indicators.

Population forecast up to 2036 is built on scenarios based on the three hypotheses regarding future trends of Russia's demographic development. The hypotheses that have been formed are based on highlighting global demographic trends and manifestations of specific Russian features of development in the processes of population reproduction. The first hypothesis is that in the processes of population reproduction in Russia for the forecast period there prevails the deviation from the common global trend under the influence of Russian specifics while maintaining the current level of migration. The second hypothesis suggests that in the next two decades the mortality rate in Russia would be in line with global demographic patterns, but with some delay, and the levels of fertility and migration would increase as a result of active demographic policy. According to the third hypothesis, at the end of the forecast period, Russia's population fully adopts socio-demographic behavior typical of developed countries, and this causes reduction in mortality (significant population ageing) and in the level of reproduction (growth in the number of small nuclear families). Based on these hypotheses the values of certain indicators are formed for the three scenarios *(tab. 1)*.

Table 1. Values of indicators for the three forecast scenarios for 2036*

Indicator	Scenario 1	Scenario 2	Scenario 3
Total fertility rate, units	1.79	2.15	1.98
Average age of mother at birth of child, years	30.2	32.3	33.2
Life expectancy at birth for men, years	69.7	70.9	73.3
Life expectancy at birth for women, years	78.5	79.9	83.2
Infant mortality rate, persons per 1,000 births	5.9	4.0	4.0
Migration increase, thousand persons	270	300	350
* *Compiled with the use of* [8; 24; 25].			

This method can be used to assess the effects of raising the retirement age in Russia. This estimate is based on the forecasts of the number of old age pensioners under the current labor legislation and its potential change in terms of increasing the retirement age. Conditions for its increase have not yet been presented in the form of a bill, so it is proposed that the forecast should take into account the provisions of the bill that is already approved and that provides for a gradual increase (annually for six months) in retirement age limit up to 65 years for men and women who work in the civil service [32]. Currently, the retirement age for these categories of citizens is the same as for all the rest. In order to study the effects of raising the retirement age to 65 years for all categories of Russian citizens the following assumption was made. The increase in the retirement age begins in 2016, goes on at a rate of six months a year and ends for men in 2026 and for women in 2036. Thus, by 2036, the established retirement age will be 65 years for both sexes.

The results of the forecast

The results of calculations are presented in *Table 2*. According to the forecasts, Russia's population will be reducing under any scenario. The most significant decline will occur under the first scenario of Russian demographic development, in the period of 2015–2036, it will reach 11.2 million or 7.7%. So, in under this scenario, population ageing "from below" will continue. The second scenario contains parameters that characterize successful implementation of demographic policy in Russia, this allowed us to build a relatively favorable forecast. Under this scenario, the population will decrease by 1.1 million, i.e. by 0.8%. This forecast is quite probable if we take into account positive demographic trends that took place in Russia in recent years. The calculation of the forecast under the third scenario shows that in 2036 the population will decrease by 3.6% and will amount to 141.1 million. The values of this scenario are based on the following logic. The trends of decline in mortality and increase in life expectancy are more stable and

Table 2. Forecast of demographic indicators in Russia for the year 2036

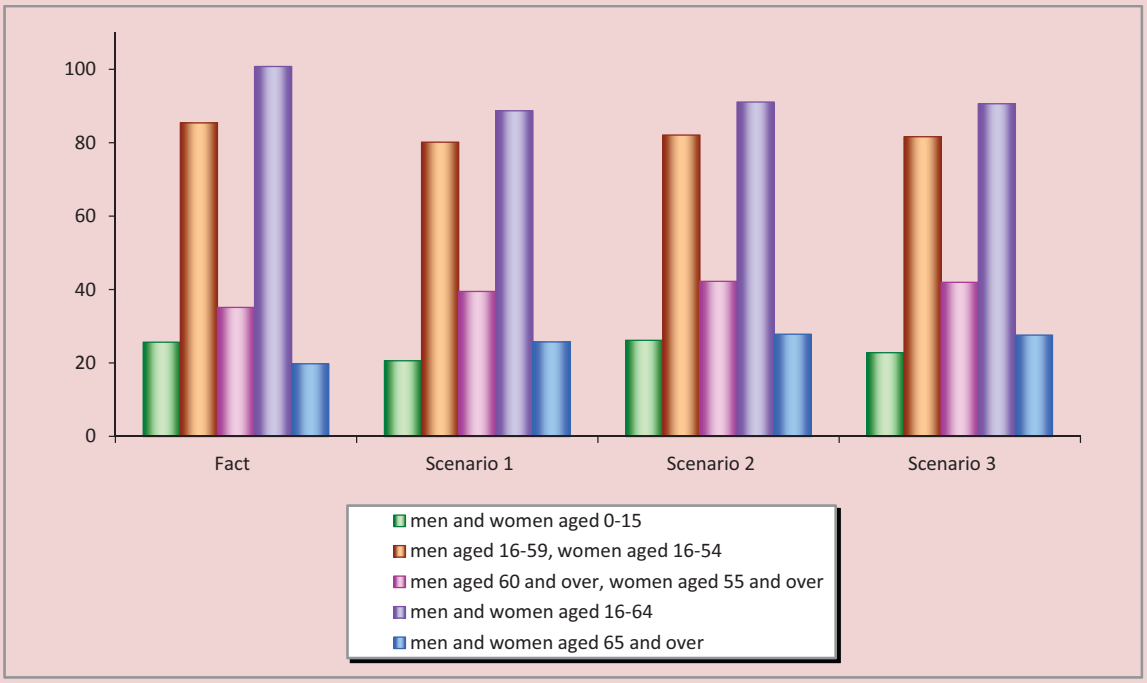
Indicator	Fact 2015	Forecast		
		Scenario 1	Scenario 2	Scenario 3
Population, million people	146.3	135.1	145.2	141.1
Working age population, million people	85.4 (100.8)	80.2 (88.7)	82.1 (91.1)	81.6 (90.6)
Proportion of working age population, %	58.4 (68.9)	59.3 (65.7)	56.6 (62.7)	57.9 (64.2)
Population over working age, million people	35.2 (19.8)	39.5 (25.8)	42.3 (27.9)	42.0 (27.6)
Proportion of population over working age, %	24.0 (13.5)	29.2 (19.1)	29.1 (19.2)	29.8 (19.6)
Number of people over working age per 1000 working age people, people	411.7 (196.5)	492.9 (290.4)	514.7 (305.9)	514.4 (304.8)
Note. Parentheses contain the value of the index when raising the retirement age to 65 years.				

are universal in contrast to the birth rate that varies greatly in developed countries. Therefore, under the third scenario, the value of the total fertility rate is expected to be almost at the level of simple reproduction of the population.

According to the calculations obtained, a change in the age structure of Russia's population is forecast. The number and proportion of children will reduce under any of the three scenarios. Under the first and third scenarios, the share of population under working age in 2036 will be 12%, under the second scenario – 14.3% vs. 18% in 2015). In addition, Russia will experience an unprecedented increase in the number and proportion of elderly population. During 2015–2036, their share will rise from 24 to 29% (under the first and second scenarios) or to 30% (under the third scenario). The number of persons over working age will be the highest under the second and third scenario: it will be 42 million people, which is 20% greater than in 2015. As for the forecast of the share of working age persons, the results for all three scenarios are similar. In 2036, this proportion ranges from 57 to 59% depending on the scenario, what is at the current level of 58.4%.

Such forecast changes in the age structure define a significant increase in demographic burden on the working population. Moreover, this increase will occur only due to the growth in the number of persons over working age. If in 2015, the number of the elderly was 412 persons per 1,000 persons of working age, then by 2036, it can grow under different scenarios to 493–515 per 1,000. Thus, regardless of what demographic development scenario Russia has, the demographic burden on working citizens will increase due to further ageing of the population.

Figure 2. Forecast of Russia's population
by major age groups for 2036, million people



Raising the retirement age is the most widely discussed response to population aging, this measure ensures a long-term sustainability of the pension system. Some authors [22; 23] argue that this answer has no alternative from the viewpoint of systematically maintaining the correlation between the number of pensioners and employees. According to the forecasts obtained, with a gradual increase in the retirement age, this ratio will have been reduced by 2036. Depending on the scenario, there will be 290–305 people over working age per 1,000 working age people. And first of all, this reduction will occur due to the decrease in the number of retirement age persons to 34–35% in comparison with the calculation when the retirement age remains unchanged, while the number of working age persons will increase by only 11% *(fig. 2)*. If the retirement age is raised, then the share of persons over working age in the total population in 2036 will be 19–20%, and 29–30% – if the retirement age remains unchanged.

With the increase in the retirement age the gender ratio of the working age population will not change, unlike the structure of the elderly population. According to forecasts, if the retirement age is not raised, then the proportion of men in 2036 will be 33%, and in the case

of raising the retirement age – 35%. This shift is characteristic for all the scenarios of Russian demographic development. After the results of the forecasts were obtained, we calculated the average age of the elderly population. In 2015, the average age of men over working age was 69 years; if the retirement age remains at the same level, then by 2036, the average age of men over working age will increase by one year, and if the retirement age is raised, it will increase by four years. The average age of women over working age in 2015 was 68 years, it is forecast to increase by one year in 2036 (if retirement age remains unchanged) and by seven years (if the retirement age is raised). It should be noted that the values of this indicator vary a little under different scenarios.

Thus, the obtained forecast results show that, first, the demographic burden on the working population will continue to increase under any scenario of Russia's demographic development, and it will increase most significantly under the second scenario that describes a successful demographic policy. However, it is necessary to take into account that the forecast obtained deals with the age structure of the population. The number of actual payers of pension contributions is much lower than the number of working age persons (due to the existence of economically inactive population, the unemployed, the informally employed), and the number of pensioners exceeds the number of retirement age persons (due to the presence of early old age pensions, disability pensions). And, second, the number of retirement age women is a considerable potential reserve for reducing demographic burden on the working population. Taking into account differences in the life expectancy of men and women, it is possible say that raising the retirement age for women is the most reasonable measure from the demographic point of view.

Summary and conclusions

The forecasts obtained show that population ageing in Russia is an inevitable process. Depending on whether demographic processes are in line with global trends or they show development features typical of Russia, population ageing process will take place in the first case "from above", and in the second case – "from below". The forecast confirms a well-known paradox that if the situation with mortality improves further, as happened in recent years, then the pace of ageing that negatively affects the balance of the pension system will be even higher, in the medium term, at least.

There exist two main ways to deal with population ageing. The first approach consists in moving from the distributive to the savings system. Pensioners' mandatory savings that were made during their labor activity become the source of pension payments instead of workers' contributions

[13]. However, this approach requires efficient pension funds. Profitability is a key measure of their effectiveness. The average yield of non-governmental pension funds (NGPF) in 2014 was 4.81% per annum [28] (when inflation is 11.35%). In addition, the development of Russian NGPF is hampered by people's distrust in private institutions engaged in pension insurance. Public confidence in pension reforms is also undermined by the lack of awareness and low financial literacy of the population. According to sociological surveys, almost one third of respondents do not know where their pension savings are, 41% of respondents do not know what the amount of pension savings is, and the majority of respondents (51%) do nothing with their retirement savings [6]. These survey results are quite predictable. If people decide to abandon their accumulated part of pension in full or to retain and invest the required funds through NGPF, they should evaluate a large number of factors relating to the functioning of the financial market (the experience of the NGPF and a management company, structure of assets, return, inflation, etc.).

The second approach, consisting in increasing the retirement age, leads to an increase in the number of payers of pension contributions due to the reduction in the number of pension recipients. The results of forecast calculations confirmed the possibility to reduce significantly the effect of population ageing on the pension system by raising the retirement age to 65 years, especially for women. Given the fact that a significant potential reserve of decreasing the demographic load on the pension system is the number of retirement age women who, in addition, now live longer than the retirement age and longer than men, it would be appropriate to begin to bring the retirement age for men and women to 60 years. This approach is largely justified by the current state of affairs. First, in the labor sphere, the traditional system of gender division of labor is being revised, dichotomization and polarization of male and female social and productive roles, activities and spheres of activity is being weakened [19]. According to sample surveys of the population conducted by Rosstat on the issues of employment, the share of women employed in the economy is 48% [18]. Moreover, the following pattern is observed: with increasing work experience, this proportion also increases. The proportion of women employed in the economy, with experience of 10 years or more is 52%. Second, labor activity of retirement age women is increasing: in 2005, there were 13 working women aged 60–72 per 100 women of the same age, and in 2015 this figure was already 18. The average age of women employed in the economy increases: over the same period, it increased by 1.1 years, and in 2015 amounted to 41.2 years [16; 17]. Similar

trends are observed in the employment of men.

However, according to opinion polls, the absolute majority of respondents do not support a gradual increase in the retirement age by five years. At that, more than half of respondents (56%) plan to continue to work after they reach the retirement age, but as the age increases, the proportion of those willing to continue work decreases [31]. This willingness depends largely on the state of health that is quite poor among the elderly population in Russia. At present, persons over the working age have two diseases on average [26]. Among the arguments against raising the retirement age experts name the high level of disability, which will cause a sharp leap in the number of recipients of disability pension if the generally established retirement age is raised [15]. Therefore, the issue of raising the retirement age still remains controversial and unpopular among the population. It seems that raising the retirement age is feasible but is should be carefully prepared so as to be gradual, and accompanied by a number of additional measures. These measures should first be aimed at improving the health of the population, the yield of pension savings, awareness and financial literacy of people; these measures should also eliminate incentives for informal employment both on the part of employers and employees. Only the combination of these measures will provide citizens with decent pensions.

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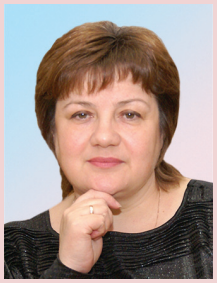
"Knowledge Workers" and Modernization in the Region*



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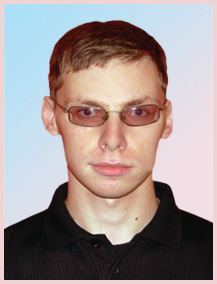

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"Knowledge Workers" and Modernization in the Region

Abstract. Professional education is the main part of personnel training and it serves as the driver of modernization process. "Knowledge workers" are carriers of knowledge provided by the professional training system. Professional activity of "knowledge workers" is strategically important in the economy under transformation. The paper reviews domestic and foreign experience and defines criteria for identifying people as "knowledge workers": educational level, employment in "intellectually demanding" industries. The study identifies specific characteristics of "knowledge workers", represents their typological classification depending on their employment affiliation (professional managers, new workers, certified technicians, scientists, innovator specialists). The paper focuses on determining the level of implementation of employment potential of qualified specialists in the context of economic modernization. The authors define the dependence of the level of regions' modernization on the employment of workers that have vocational education. At the same time, the paper points out that the modernization of the territory is influenced not so much by the training of "knowledge workers" as the fulfilment of their potential in the labor market. This thesis is confirmed by the results of correlation analysis, which evidence the lack of direct connection between the number of college and university students and the level of modernization. From the position of effective implementation of the potential accumulated, the study shows the importance of integrating the graduates of educational organizations into the labor market in accordance with the specialty they obtained. The paper also identifies problems that hamper job placement within the specialty obtained. The study shows that the slowdown in modernization processes is due mainly to the economic and cognitive aspects. In particular, the imbalances in the components of the secondary modernization index stem from an insufficient number of scientists and engineers, people who file patent applications, and from the small amount of allocations to research and development in GRP. The paper reveals that one of the ways to improve human capital is to increase innovative activity of the youth; the authors substantiate the thesis about the direct positive impact of the development of competencies on participation in research and scientific developments. The results of the study can be used to work out strategic plans for the development of innovation industries and social entrepreneurship in Russia's regions.

Key words: region, modernization, education, labor market, "knowledge workers", "over-qualification".

International experience shows that a key role in the modernization process belongs to human resources, human capital as a combination of knowledge, skills, and competences of the employee becomes the main driver of economic growth and the main value of society [17, pp. 3-15].

This thesis is confirmed in one of the works by A. Krueger and M. Lindahl "Education for Growth", in which it is shown that the increase in the stocks of human capital among people with higher education is accompanied by achievement of high technological and economic level in the scale of national economy [21, pp. 1101-1136]. The low level of investment in higher education in European countries compared to the U.S. (1.4% of GDP vs. 3% of GDP) in the early 2000s was considered by foreign researchers as one of the reasons for Europe lagging behind in terms of economic growth [22, pp. 757-777].

Accordingly, the leading role in the transformation of society and economy is allocated to education, to the training of future "generators and producers of innovative ideas". They include people with a high educational level, who work on the basis of knowledge and by means of them, who are able to create new knowledge, new product, new method, etc. [2, p. 50]. OECD experts use the term "human resources in science and technology" to refer to this group. According to OECD staff estimates, the share of this category of professionals among the employed population in the developed EU countries exceeds 35% (in the U.S. – over 40%) [23, p. 88]. This category consists of those who obtained tertiary education (i.e. secondary and higher professional and postgraduate education) and/or those employed in different types of intellectual activities (science, education, information and communication technology) involving high skills and innovation capacity.

In the scientific aspect, the topic of human resources received a notable impetus in its development in the late 20th – early 21st century. This issue was considered by the following foreign researchers: P. Weise, H., Gago, Y. Dai, M. Castells, B. Khadria, S. Nås, H. Fang, and domestic researchers: M.Yu. Barbashin, V.V. Bobrova, E.D. Vil'khovchenko, L.V. Dokashenko, V.L. Inozemtsev, I.P. Tsapenko, M.A. Yurevich and others. We should also mention the works of K. Canibano, T. Pogue, I. Chou, A. Ekeland on the methodology of assessing the supply of and demand for highly qualified specialists.

Generalization of domestic and foreign research on this issue has led us to the conclusion that the group of "knowledge workers" is heterogeneous. For example, Peter Drucker identified "knowledge workers" according to a criterion of possessing intelligence, memory, knowledge, initiative and personal experience, and he identified two categories of "knowledge workers":

– *managers*;

– *specialists* (managers of a certain level, consultants, programmers, software users, etc.) [19].

A more differentiated approach to the typology of "knowledge workers" was used by E.D Vil'khovchenko. He identifies four subgroups depending on the affiliation with a certain position: *1) professional managers* (carriers of special knowledge in marketing, engineering, management of intellectual and human resources); *2) scientists, innovator specialists* (those who possess expert knowledge, holders of diplomas and scientific degrees); *3) certified technicians* (support staff working in cooperation with specialists); *4) new workers* or "the cognitariat" (workers employed mainly in automated, experimental innovation manufacturing, knowledge-intensive service sectors) [2, p. 50].

The system approach to the interpretation of "knowledge workers" is presented in the Canberra Manual, a document prepared by

the European Commission in collaboration with the Organization for Economic Cooperation and Development in 1995. In addition to economic activities that employ "knowledge workers", this document also defines educational and qualification characteristics of this category [24].

Each researcher has contributed to the expansion of knowledge about the characteristics of "knowledge workers". A synthesis of different viewpoints allowed us to highlight the specific features of this group related to education and qualification, employment, and nature of work *(tab. 1)*.

Table 1. Specific characteristics of "knowledge workers", presented in the works of foreign and domestic scientists

Author	Features
P. Druker (1994)	- Possessing one's own means of production: intelligence, memory, knowledge, initiative and personal experience
M. Castells (1999)	- High saturation with knowledge and information
V.L. Inozemtsev (2000)	- High education standards (higher than in the majority of citizens) - Employment in the new industries and the service sector - Ability to acquire the necessary means of production into private property - Possibility of individual production of information products - Demand for representatives of this group in different structural elements of social hierarchy - Outstanding mobility
B. Khadria (2004)	- Representatives of this group have tertiary education in science and technology and are engaged in scientific and technological specialties in which the higher qualification is not required
S.O. Nås (2008)	- Education level - Employment - Workplace type (university, research institute)
E.D. Vil'khovchenko (2010)	- Continuous enhancement of the level of their education - Multiplication of the knowledge used in their work - Active and competent entrepreneurship, high performance and responsibility for performance results - Ability to create new knowledge, new product, new method, etc. on the basis of their knowledge
H. Fang, Y. Dai (2011)	- The core of scientific and technological processes that is required in order to maintain production, dissemination and application of scientific and technological knowledge
L.V. Dokashenko, V.V. Bobrova (2011)	- Lack of rigid dependence on the organization - Ability to produce information product on one's own, possessing the necessary means of production in private ownership - Employer is offered not the ability to work, but the result of the work, not labor force, but consumer value embodied in the innovative product (technology)
I.P. Tsapenko, M.A. Yurevich (2014)	- Involvement in intellectual activity, which is associated with the development and application of new and updated (including social) technologies - Active participation in intellectual creation of the knowledge society
M.Yu. Barbashin (2014)	- Striving to achieve the goals of self-realization, common good, service to professional duty - Focus on creative work and social initiative - Awareness of the need for change in the interaction of society and the state
Source: compiled by the authors.	

It should be noted that the majority of researchers, when defining the essence of the category "knowledge workers", resort to subjective characteristics such as activity, pursuit of self-realization, innovative thinking, mobility, etc., which by their very nature are almost impossible to calculate. In the framework of our research, we have chosen "working" indicators such as the level of education and employment in the labor market that will provide an objective analysis of the situation of this socio-professional group in society.

Despite the difference in viewpoints, modern researchers agree that the increase in the number of "knowledge workers" in the labor market, especially in the period of transformation and economic instability, is accompanied by the allocative effect, namely, that the population with higher educational level has better adaptive abilities. In general, certified specialists adapt more successfully to unforeseen changes in economic, institutional and technological environment and, therefore, are indispensable for the development of innovation economy.

However, such results are achieved mainly in conditions when the potential accumulated corresponds to the requirements of economic development. In the reverse situation, there emerge certain issues associated with inefficient use or underutilization of human capital, which impede economic modernization. At the individual level, they can include employment beyond the scope of one's specialty, the need for more investment in retraining and improvement of educational level, and unemployment.

Due to the lack of professional experience and information asymmetry, young professionals are faced with significant difficulties when applying for a job. According to the International Labor Organization, there are around 75 million unemployed young people aged 15 to 24 in the world. Youth unemployment level is almost twice as high as the unemployment rate among adults. It is noted that in 2008–2012 the EU countries annually lost 1.2% of their GDP because of the "lost generation" that consists of young people who neither work nor go to college [8].

The imbalances that lead to inefficient use of human capital include employment beyond the scope of one's specialty, the mismatch between the skills of workers and job requirements. In the Vologda Oblast, according to the monitoring of labor potential quality in 2014, 40% of the population worked beyond the scope of their specialty (in 2009 – 55%). The increase in disparities between the sphere of education and the labor market was accompanied by an devaluation of skilled labor. This is confirmed by the surveys of the population on the issues of employment in Russia's regions conducted quarterly by the Federal State Statistics Service on the basis of a sample survey of households: at least one third of workers with a tertiary education performed the work that did not require high qualification [15]. This phenomenon,

known as "over-qualification", covers, according to some estimates, about 10–30% of employed Russians [17, pp. 3-15]. In the Vologda Oblast, only in half of the cases, the qualification met the job requirements; the qualification of about a quarter of the population was higher than necessary.

Problems associated with the use of human capital at the organizational level include the presence of "hidden" knowledge in workers (the set of information that is not formalized on suitable media and exists only within its carrier), the alienation of this knowledge and its transformation into "explicit" knowledge. In addition, the risk of "brain drain" necessitates large investments to prevent mobility, as well as the use of the practice of concluding long-term contracts [17, pp. 3-15].

It is believed that the aggravation of the mismatch between the education system and the labor market can result not only from the inefficient implementation of the potential accumulated in the labor market, but also from the declining quality of education. Despite the formally high educational level of the population (the share of adult population with the tertiary education in 2012 in Russia reached 53%, on average across OECD countries – 32%, in the G20 countries – 27%), there is an increasing problem associated with the quality of education.

This idea is confirmed by the opinion of leading economists and experts. According to V.E. Gimpel'son, now Russia is "the leader in the possession of human capital, but an outsider in its use" [3].

According to one third of employers, judging by the monitoring of the functioning of the Vologda Oblast industry in 2014, modernization of production is constrained by the shortage of qualified personnel. Moreover, when characterizing the level of training of graduates, virtually none of the respondents identified it as high. The nationwide and regional levels were dominated by satisfactory ratings, the quality of training of university graduates was assessed somewhat higher (in 2013, the average score in the evaluation of vocational school graduates was 3.5 and graduates –3.7 on a five point scale) [14, pp. 26-28].

In 2001–2014, the share of Russian population with tertiary education increased by 37% as calculated per 10 thousand employed population (from 5,640 up to 7,710 people, respectively), which is a positive trend. However, the change took place mainly at the expense of workers with secondary vocational education, and the number of employees with higher education increased at a slower pace (the growth rate was 144% vs. 128%; *tab. 2*).

We should note the uneven distribution of qualified personnel across the territory. A significant part of the employed population with vocational education is concentrated in the Central Federal District (4,530 people with secondary vocational education and 3,750 people with higher professional education per 10 thousand employed), there are comparatively fewer qualified professionals in the rest of the territories.

Table 2. Number of employed people with secondary and higher professional education (per 10 thousand employed population)

Territory	Secondary vocational education				Higher professional education			
	2001	2005	2014	2014 to 2001, %	2001	2005	2014	2014 to 2001, %
Russian Federation	3,130	2,560	4,490	**143.5**	2,510	2,620	3,220	**128.3**
In the context of federal districts:								
Central	3,100	2,600	4,530	**146.1**	2,910	3,050	3,750	**128.9**
Northwestern	3,460	2,410	4,740	**137.0**	2,640	2,830	3,250	**123.1**
Southern	3,000	2,540	4,380	**146.0**	2,420	2,570	3,020	**124.8**
North Caucasian	-	-	2,850	-	-	-	3,090	-
Far Eastern	3,380	2,650	4,440	**131.4**	2,650	2,610	3,170	**119.6**
Volga	2,940	2,390	4,740	**161.2**	2,140	2,290	2,890	**135.0**
Siberian	3,210	2,760	4,390	**136.8**	2,420	2,440	2,850	**117.8**
Ural	3,160	2,660	4,790	**151.6**	2,220	2,160	3,110	**140.1**

Source: Regiony Rossii. Sotsial'no-ekonomicheskie pokazateli. 2015: stat. sb. [Russia's regions. Socio-economic indicators. 2015. Statistics collection]. Moscow: Rosstat, 2015. Pp.156-157.

Taking into account all the problems mentioned above, we emphasize that it is possible to speak about the positive impact of human capital on the pace and quality of economic growth primarily if people find a job within their specialty and if their qualification corresponds to their job requirements. In this regard, it is important to answer the question about the degree of conformity of accumulated human capital with the needs of the economy. In our context, it is interesting to track how the indicators of training of qualified specialists are related to the level of modernization of economic development in constituent entities of the Russian Federation. To solve this problem, we compared the indicators of development of professional education with the integrated index of modernization of Russian regions that reflects the relative gap between the level of modernization of the territory and the world value that was reached [9].

The Institute of Socio-Economic Development of Territories of RAS (ISEDT RAS) calculates the index on the basis of methodological developments of the Center for the Study of Sociocultural Changes at the Institute of Philosophy of RAS and China Center for Modernization Research under the Chinese Academy of Sciences. We apply these provisions to analyze the process of modernization in a particular territory, to determine the stage

of modernization, and factors that promote and hinder this process. The analysis in the territorial context was conducted with the help of the information-analytical system "Modernization" (http://mod.vscc.ac.ru/).

The level of modernization of territories as an integral index was determined on the basis of three sub-indices (economic index, social index, knowledge index) and was calculated on the basis of the following conditions:

$$\begin{cases} IMI = (EI + SI + KI)/3, \\ EI = \sum_{i=1}^{4} \frac{D_i}{4}, \\ SI = \sum_{i=5}^{8} \frac{D_i}{4}, \\ KI = \sum_{i=9}^{12} \frac{D_i}{4}, \\ D_i = 100 \cdot \frac{iav}{isv}, \\ D_i \le 100 \end{cases},$$

where EI – economic index of integrated modernization,

SI – social index of integrated modernization,

KI – knowledge index of integrated modernization,

D_i – relative level of development of i evaluation indicator,

iav – actual value of i indicator,

isv – standard value of i evaluation indicator (the average value of the indicators for 20 developed countries, calculated by China Center for Modernization Research under the Chinese Academy of Sciences on the basis of international statistics).

These indicators were adopted by China Center for Modernization Research under the Chinese Academy of Sciences as the criteria in determining modernization index for 131 countries [9].

The methodology for measuring primary modernization (PM) takes into account three domains of life of industrial society: economic, social, and cognitive (area of knowledge). The values of secondary modernization (SM) are defined for four areas: knowledge innovation, knowledge translation, quality of life, quality of the economy. Analysis of the integrated modernization index was carried out using 12 statistical indicators to measure the aggregate level of the two stages of modernization.

The regions were arranged into five groups according to the value of the integrated modernization index for 2012: 1) high level ($IMI \ge 88$); 2) level above median ($78 \le IMI \le 87$); 3) median ($64 \le IMI \le 77$); 4) below median ($48 \le IMI \le 63$); 5) low ($33 \le IMI \le 47$) [11, p. 155].

The results of the analysis show that the subjects of the Russian Federation with high values of the index of modernization are characterized by high employment rate of workers with vocational education *(tab. 3)*. One example is the city of Moscow that has a high level of modernization ($IMI = 88$) and a large number of employed people with tertiary education (7,690 persons per

Table 3. Indicators of education development (2012) and the integrated modernization index (2012) in Russia's regions

Regions	1*	2*	3*	4**	Modernization level
Moscow	891.7	790.6	7690	88	High
Saint Petersburg	234.1	209.0	6740	81	Above median
Moscow Oblast	434	62.1	6600	75	
Tomsk Oblast	1455	176.7	5170	71	
Tyumen Oblast	857	114.5	5520	70	
Novosibirsk Oblast	1088	138	5390	70	
Nizhny Novgorod Oblast	925	146.2	5450	69	
Samara Oblast	979	138.2	6430	69	
Khanty-Mansi Autonomous Okrug – Yugra	591	65.0	5500	68	
Ulyanovsk Oblast	901	127.2	5540	68	
Yamalo-Nenets Autonomous Okrug	352	44.3	6150	68	
Magadan Oblast	1043	151.3	4860	67	
Sakhalin Oblast	591	85	4880	66	
Sverdlovsk Oblast	923	137.4	5040	66	
Murmansk Oblast	695	111.5	4910	66	Median
Kaluga Oblast	646	101.4	5510	65	
Chelyabinsk Oblast	984	134.6	6340	65	
Khabarovsk Krai	1232	161	5610	65	
Krasnoyarsk Krai	894	112	5360	65	
Primorsky Krai	936	114.5	5380	65	
Kamchatka Krai	884	128.1	5620	65	
Republic of Tatarstan	1039	151	5060	64	
Perm Krai	794	113.1	4970	64	
Republic Of Sakha (Yakutia)	920	127.6	5270	64	
Yaroslavl Oblast	803	108.5	5450	64	
Ivanovo Oblast	886	131.6	4850	64	
Nenets Autonomous Okrug	190	46.5	4810	64	
Republic of Komi	818	102.3	4610	63	
Chukotka	129	19.6	5260	63	
Voronezh Oblast	1084	152.8	5310	63	
Rostov Oblast	1017	131.6	5650	62	
Republic Of Karelia	728	106.8	5260	62	
Arkhangelsk Oblast	638	101.5	5490	62	
Leningrad Oblast	220	24	5090	60	
Irkutsk Oblast	995	137.1	4860	60	
Tver Oblast	675	96.7	5370	60	Below median
Kaliningrad Oblast	820	114.1	6370	60	
Tula Oblast	622	99.2	5630	60	
Penza Oblast	838	108.8	5580	60	
Vladimir Oblast	729	109.7	4900	60	
Volgograd Oblast	851	135.9	5700	59	
Kursk Oblast	1090	165.3	5350	59	
Kirov Oblast	776	128.1	4790	59	
Novgorod Oblast	637	87.9	5180	59	

End of Table 3

Regions	1*	2*	3*	4**	Modernization level
Saratov Oblast	986	132.2	5570	59	
Republic of Bashkortostan	881	130.5	5160	59	
Omsk Oblast	1121	143.4	5100	59	
Amur Oblast	778	102.8	5700	58	
Udmurtia Republic	916	142.3	4780	58	
Krasnodar Krai	696	110.5	5370	58	
Astrakhan Oblast	934	116.4	5710	58	
Stavropol Krai	894	140.1	5560	58	
Republic of Dagestan	701	89.6	4860	57	
Vologda Oblast	726	107	4780	57	
Kemerovo Oblast	746	97	5120	57	
Chuvash Republic	986	139.1	4920	57	
Orel Oblast	1150	140.5	5220	57	
Pskov Oblast	711	89.1	5410	57	
Jewish Autonomous Oblast	878	104	4140	57	
Bryansk Oblast	840	118	4860	56	
Belgorod Oblast	941	132.4	5410	56	
Kurgan Oblast	799	123	5070	56	
Republic of North Ossetia-Alania	949	124.6	6380	56	
Zabaykalsky Krai	834	104.1	4710	56	Below median
Mari El Republic	817	120.3	5370	56	
Kostroma Oblast	689	95.6	5650	56	
Republic of Tuva	554	83.9	6030	55	
Republic of Khakassia	636	114.4	5030	55	
Republic of Buryatia	1079	140.9	5160	55	
Ryazan Oblast	958	142.5	5630	55	
Smolensk Oblast	901	129.2	6060	55	
Orenburg Oblast	876	121	5170	54	
Lipetsk Oblast	680	105	5210	54	
Republic of Mordovia	1011	140.4	5150	54	
Altai Krai	761	103.4	4370	54	
Republic of Adygea	829	107.9	5500	53	
Tambov Oblast	788	115.2	5520	53	
Kabardino-Balkar Republic	585	88.5	4820	52	
Republic of Kalmykia	921	130.3	5640	51	
Altai Republic	691	95.2	5370	50	
Karachay-Cherkess Republic	674	93.2	5370	49	
Republic of Ingushetia	609	61.1	6050	48	
Chechen Republic	610	70.2	3780	46	Low

Conventions: 1 – number of students per 10 thousand population, people; 2 – number of graduates per 10 thousand population, people; 3 – number of employed people with secondary vocational and higher professional education per 10 thousand employed population, people; 4 – integrated modernization index. Ranked according to the integrated modernization index.
Sources:* Rosstat (2013); ** Calculations were prepared by ISEDT RAS with the use of the Information-analytical system for monitoring modernization parameters of Russia's regions (IS "Modernization". patent No. 2012661285. 2012) in accordance with the methodological developments of the Center for the Study of Social and Cultural Change at the Institute of Philosophy, RAS. The tables contain detailed data, including those obtained from China Center for Modernization Research under the Chinese Academy of Sciences.

10 thousand population). Such a pattern is typical of a number of territories with the median and above median levels of modernization – Saint Petersburg, the Moscow, Samara, Chelyabinsk oblasts, and Yamalo-Nenets Autonomous Okrug.

In some cases, for example in the Far Eastern Federal District regions (the Magadan and Sakhalin oblasts), the above dependence is not observed. At the median level of modernization, the number of employees with tertiary education here does not reach the nationwide average value (5,318 persons per 10 thousand employed population). The reasons for this situation include a significant out-migration: in 2013, net migration amounted to -142 and -44 people per 10 thousand population, respectively [12, p. 79].

It should be noted that in some regions (the Tomsk, Voronezh, Rostov, Orel, Novosibirsk, Omsk oblasts, the republics of Tatarstan and Buryatia) there is a significant gap between the performance of students and the number of graduate qualified specialists (more than in seven times). This suggests that in recent years these areas have had a considerable impetus to the strengthening of the network of professional education organizations. Therefore, in the future, the employment situation here can change dramatically.

On average, ceteris paribus, an increase in the number of employed population that has tertiary education promotes the likelihood of implementation of modernization processes. Another situation occurs when the study takes into account indicators that characterize education as such. Thus, the correlation analysis of the number of college and university students and the level of modernization shows a lack of direct connection between them. This is confirmed by the values of the Pearson correlation coefficients *(tab. 4)*.

It should be noted that though the relationship between the index of modernization level and the number of employed people with tertiary education is weak, it still exists. The weakness of this

Table 4. The degree of closeness of the statistical relationship between the integrated modernization index of the regions and some indicators of development of tertiary education

Indicator	Pearson correlation coefficient	Closeness of the paired association
Number of students per 10 thousand population	-0.001	Absent
Number of employed people with higher professional education per 10 thousand employed population	0.457	Weak
Including:		
- with secondary vocational education	0.058	Absent
- with higher professional education	0.460	Weak
Source: authors' calculations.		

relationship can be explained by the fact that the indicator "the number of employed people with higher education per 10 thousand employed population" gives the overall information about the employees with high education and does not indicate the number of graduates of institutes, universities and academies, who have a job within their specialty. At the same time, studies show the significance of the impact of the latter indicator on modernization [16, pp. 509-601].

The level of development of the competences that are "the most relevant to employers" (innovation, communication, initiative, entrepreneurship, etc.) is often low. Thus, at the start of their professional career, "knowledge workers" are not ready to work in today's economy. In some cases, their potential remains unclaimed by employers. Thus, the "hampering" of modernization processes is connected not only with economic but also with cognitive aspects.

Thus, in order to boost the processes of modernization in the economy and society, quantitative indicators of training "knowledge workers" are not as important as the fulfilment of their potential in the jobs relevant to their qualification. Moreover, it is necessary to promote the accumulation of talents in the most "productive occupations, and not in those that are associated with the redistribution of the rent" [3]. In the field of professional training, it is required to stimulate the work on the formation of cognitive and social skills, and behavioral characteristics.

In such circumstances, the key issue for authorities should be to improve the human potential of future generations, including by means of increase in innovative activity of young people. Thus, in 2000–2012, the difference between the index of secondary modernization and the knowledge transmission sub-index (KTI) increased by an average of 20 percentage points. We note that imbalances in the components of the secondary modernization index in 2012 were due to an insufficient number of scientists and engineers, the people who file patent applications, a small share of R&D expenditures in GRP, low GRP per capita, low level of people employed in the service sector [18, pp. 52-53].

The consequences of this imbalance for innovative activity of the young generation are demonstrated clearly by the materials of a pilot sociological survey conducted in October 2015 among students of higher and secondary vocational educational institutions of Vologda[1]. According to the results of this study, young people with competences at the level of 3.71 points and above participated in the creation of inventions three times more often *(tab. 5)*.

[1] The pilot sociological survey aimed to identify the level of competences in the students of secondary vocational and higher professional institutions of Vologda. The sample comprised 500 people and was formed taking into account the share of students of a particular educational organization in the total number of students.

Table 5. Distribution of young people by the presence of inventions, %

Level of competences development (average score)	Inventiveness		Types of inventions			
	There are inventions	There are no inventions	Device	Technique	Software	Methods and technologies
Option 1 - grouping on the basis of average and standard deviation						
Less than 3.18	6.0	94.0	0.0	0.0	25.0	25.0
3.18 – 3.71	3.7	96.3	20.0	20.0	40.0	0.0
3.71 – 4.25	14.0	86.0	26.9	26.9	26.9	11.5
More than 4.25	12.3	87.7	12.5	50.0	25.0	12.5
Option 2 – arrangement into 3 groups (division of the scale from 1 to 5 into 3 equal groups)						
Low level (less than 2.33)	11.1	88.9	0.0	0.0	0.0	100.0
Median level (2.33...3.66)	3.9	96.1	14.3	14.3	28.6	0.0
High level (more than 3.66)	13.3	86.7	22.9	31.4	28.6	11.4
Option 3 – division on the basis of the average						
Below average (less than 3.71)	4.5	95.5	11.1	11.1	33.3	11.1
Above average (3.71 and higher)	13.5	86.5	23.5	32.4	26.5	11.8

Source: data of a pilot sociological survey of the level of competences of students of secondary vocational and higher education institutions of the city of Vologda, 2015, N=500 people.

Here a logical question arises: does the development of all competencies equally leads to innovation activity? The study confirms that the innovative activity is influenced more by innovative qualities such as creativity, ability to invent, ability to research, project management skills. Thus, the difference in the level of development of innovative competences (project management, creativity, ability to perform research) depending on the presence (absence) of developments reached 0.4–0.5 points, and the difference was 0.1 points in the level of development of some professional and common cultural competences (ability to communicate and interact, critical assessment and self-criticism, orientation toward achieving career success, ability to take into consideration the norms and values of other cultures) [18, pp. 52-53].

It is necessary to pay attention to the fact that students of universities and technical colleges give higher assessments (a score of 4 on a five-point scale) of communication and understanding skills, of the willingness to take responsibility and achieve results, as well as the orientation toward achieving career success and toward individual work. Lower assessments are given to the skills of forecasting and management, and to the ability to carry out research and present one's work in written form in a foreign language. Similar

findings are contained in the World Bank Report on Developing Skills for Innovative Growth in Russia. It points out that higher education gives you a minimal increase in the possession of in-demand skills such as ability to work in a team, leadership and openness to new ideas, efficiency in decision-making [11]. At the same time, these competencies are most in demand in innovation economy.

We emphasize that the success of economic modernization is largely determined by the level of development of labor potential. In this regard, it becomes important to find an answer to the question about the adequacy of human capital accumulated for the implementation of innovative transformations from the perspective of both quantitative and qualitative characteristics. In the conditions of the forecast reduction in the working age population, it is necessary to focus on the development of the latter. In addition, it should be noted that the stocks of human capital similar in their volume are often not comparable in their quality.

Thus, human capital reproduction efficiency will be determined not so much by a formally high educational level of the population, as the improvement of the quality of human capital through the development of competencies demanded in innovation economy, and the effectiveness of their use as a result of employment within one's specialty and compliance of one's qualification with job requirements.

Inefficient reproduction of human capital may lead to the risks in the implementation of modernization. In turn, the slowdown in modernization rates has a negative impact on human capital, since it is accompanied by social and economic losses both for the individual and for society as a whole. Our analysis shows the uneven development of territories by level of education and indicators of modernization. This demonstrates the nonlinearity of the processes, and also shows that, despite the availability of highly qualified personnel, regions may lag behind in the development of innovative industries. The latter creates prerequisites for inefficient use of human capital, leading, in particular, to the increase in the prevalence of the phenomenon of "over-qualification". Overcoming the disparities between the education system and the labor market should involve, on the one hand, creation of new jobs that meet modern scientific and technological requirements; on the other hand, it should involve the retraining and advanced training of employees and creation of conditions for training the population in new occupations.

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Road Traffic Accident Rate as an Indicator of the Quality of Life

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Abstract. The paper considers the issues devoted to assessing the connection between the quality of life and road traffic accident rate in different countries. The hypothesis put forward in the paper is based on the idea that the organization and functioning of the state road traffic safety management system and the outcome characteristics of road traffic accident rate in the road complex are closely related and are derived from the level of development of non-governmental institutions in a particular country. In order to determine how true this hypothesis is, the author carried out statistical studies of the relations between the estimates of the Quality of Life presented for 60 countries in the US News & World Report and the Human Risk indicators estimated for these countries. This indicator proposed by R. Smeed in 1949 for assessing the state of affairs in the field of road safety allows us to evaluate adequately the position of countries in the world ranking of road traffic accident rate. The research aims to establish a regularity that identifies the statistical relationship between the characteristics of the quality of life and human risk (by R. Smeed). The method of construction of correlation-regression models of the processes under consideration is used to achieve this goal. It has been established that there exists a noticeable inverse statistical relationship between the variables of the Quality of Life in different countries (according to the US News & World Report) and Human Risk (according to the World Health Organization). The paper discusses reasons for a decline in road traffic accident rate when the quality of life becomes better. The main conclusion of the study lies in the understanding that there exists a strong cause and effect relationship between the level of development of social institutions and the level of transport culture of the population; this relationship is implemented in the form of specific cases of transport-related behavior of drivers, forming in the end a certain road traffic accident rate.

Key words: quality of life; road traffic accident rate; human risk; correlation and regression analysis; non-governmental institutions; transport culture of the population.

Introduction. Research into different aspects of road safety in different countries [3; 7; 15; 16] shows that the global issue of uneven spatial distribution of road traffic accidents has been formed in the world; this problem exists for a long time and is lingering in its nature. For the purpose of seeking out and identifying the reasons for differences in the level and specifics of manifestation of accidents that are typical for different countries, the author of the paper analyzed dozens of papers published in different years in a specialized journal "Safety Science", a world leader in its area of expertise. The results of this analysis, as well as the ideas of T. Vanderbilt [18], a renowned expert in the field of road safety, show that there exists a chain of causal links between human well-being and the level and specifics of manifestation of road traffic accidents. This chain can be described as (1):

"Provision with benefits and household friendliness – Economic welfare of the population – Possession and use of vehicles with high active, passive and post-accident safety – Preservation of life of the victim in a road traffic accident– Accident rate that assesses the probability of death in a traffic accident of the average citizen – Human Risk HR". (1) (1)

The motor vehicle has always been an object of increased danger, which is formed by significant kinetic energy that is not always controlled by the driver. This is why most countries today have formed a clear and unambiguous understanding of the need for strict speed limits and rigorous requirements for the qualification of the persons who drive the vehicles. At the same time, for many years, all the countries of the world have formed the view that road safety is only a consequence of the quality of social institutions, in particular, a manifestation of the so-called transport culture of the population [6], a set of socially significant stereotypes of transport-related behavior. Full treatment of this concept can be presented as follows.

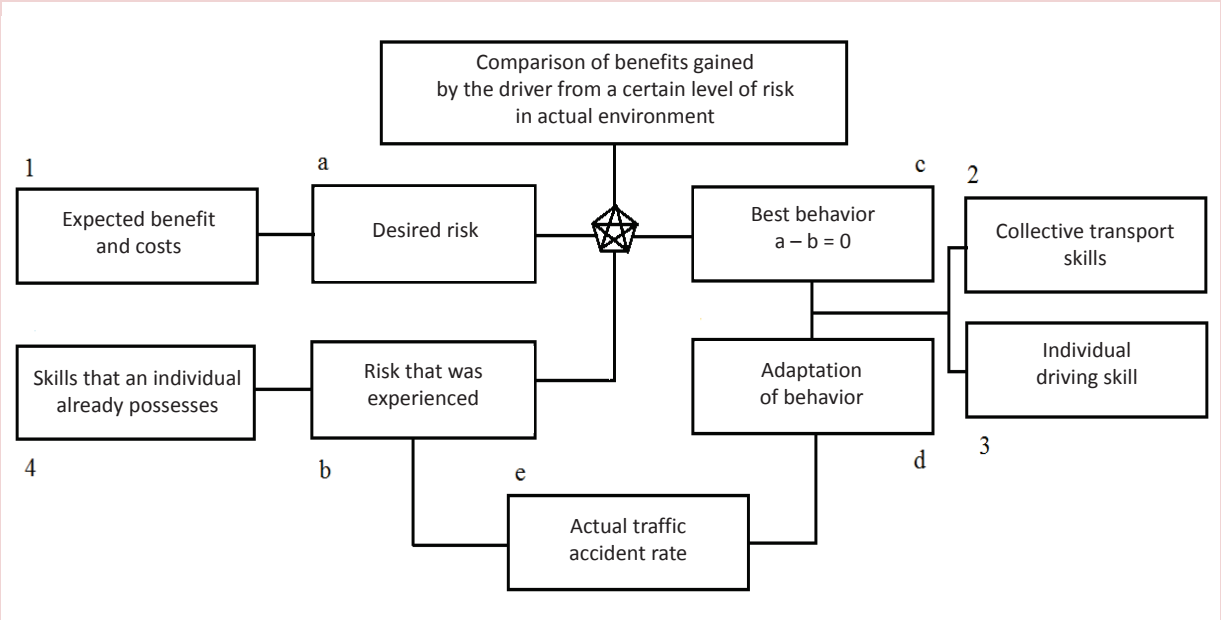
Transport culture is part of general human culture, including the value qualities of the personality that contribute to the selection of law-abiding, cultural and, as a consequence, safety behavior in the transport environment. This conscious choice is only possible if an individual corresponds to the modern requirements to knowledge, skills and abilities that ensure safety of human life, and conscious human desire for safe participation in transport processes.

The philosophy of transport culture and the methodology of its relation to road safety are generally developed by Western scientific schools [11; 19; 20]. In particular, G.J.S. Wilde, one of the classics of the theory of driver behavior [19; 20], considers cause-and-effect relationship between the transport culture of the population and actual traffic accident rate and concludes that: "Each society has the number of accidents that the population wants to have, no more, no less" *(fig. 1)*.

But whether transport culture depends on the quality of life is still a disputed question that occupies the minds of many researchers [18]. In other words, is there a place for an element called "Transport culture" in the above chain of causality between the quality of life and indicators of traffic accident rate?

An attempt to answer this question at least indirectly is undertaken in [6]. The

Figure 1. Gerald Wilde's diagram that shows the risk homeostasis theory in transport systems [19; 20]



Note. The basis for the theory of formation of the actual accident rate [19; 20] is G. Wilde's assumption that road users continuously adapt their behavior to the external situation based on the comparison of the experienced and desired risk (blocks a and b). This adaptation can be illustrated by the fact that most drivers take into account weather conditions when they choose their speed mode of movement. This is indicated, for example, by a statistical reduction in the number of accidents in the winter period (in all countries where winter conditions make driving vehicles more difficult). Situational adaptation of driver behavior forms the actual traffic accident rate (block e). The level of risk that most of road users want to have (mass transport behavior) is determined by how they evaluate the benefits and costs (advantages and disadvantages) in choosing various behavioral strategies (block 1). Here we can see significant individual differences. Some do not tolerate risk, others are more willing to put themselves at risk. The magnitude of risk experienced by road users depends on the number of accidents actually existing in the society, public attitudes and the ability of road users to perceive traffic danger (existing skills, block 4). The adaptation of behavior is influenced by the established skills of road users (collective transport skills, block 2) and individual driving skills (block 3).

Traffic culture model developed by G. Wilde [19; 20], shows that the desired transport behavior (block c), adaptation of behavior (block d), actual accident rate (block e) and tested risk (box b) are interconnected in a cycle. Wilde concludes that the only thing that can cause long-term reduction in traffic accident rate is the change in the model of traffic behavior of people, i.e. the increase in the level of transport culture in society.

concept of "transport culture" (UTC), previously used in different sources [3; 11; 15; 16; 18; 19; 20], was first described as a derivative of the actual level of motorization in each country (region):

$$UTC = 1 + exp(a \cdot U_a), \qquad (2)$$

where *UTC* is the measure of the level of transport culture in a given country (region);

U_a is the actual level of motorization in the country (region).

In order to identify the model, the author analyzed a considerable volume of statistical data that formed the basis of the evidence [6]. It has been established that the dialectical development of motorization in the country gradually forms the transport culture of its population. New generations start to perceive the car completely differently than the previous ones, i.e. more adequately, with an understanding of the degree of risk; gradually, over time, a new type of social behavior is formed – the one in which there exist qualitatively new social relations between drivers and between drivers and pedestrians. Thus, the level of transport culture in the country is growing. So, today, transport culture and motorization in developed countries of Western Europe are generally higher than in Russia, and in Russia they are generally higher than in Africa and Asia. Moreover, most countries, especially large and populous and multi-ethnic, have internal inequality of the level of motorization and transport culture in different regions [7].

If we take as an axiom the thesis that motorization is an objective manifestation of links 2–3 *"Economic welfare of the population – Possession and use of vehicles"* in the chain of causality (1) of the process of forming actual traffic accident rate, it is possible to go further in the reasoning. In our opinion, *Provision with benefits and household friendliness* cannot be a primary link in the chain of causality and they are a manifestation of the quality of life. We can try to link total actual accident rate, its fundamental principle – transport culture of the population – to the quality of life and even deeper reasons, for instance, the level of development of non-governmental institutions in the country.

In this connection it is interesting to understand whether there exist strong correlations between the results of rating evaluations of the quality of life in different countries and the level of road safety typical of these countries. If they exist, then we can transform the above (1) chain of causality into the form (3):

"Level of development of non-governmental institutions – Quality of life *– Provision with benefits and household friendliness – Economic welfare of the population – Possession and use of vehicles with high active, passive and post-accident safety – Transport culture – Preservation of life of the victim in a road traffic accident– Accident rate that assesses the probability of death in a traffic accident of the average citizen – Human Risk".* (3)

It should be noted that the new version (3) of the connection between the factors that systematically influence traffic accident rate, in comparison with the initial version (1) has three new elements – "Level of development of non-governmental institutions", "Quality of life" – "Transport culture". The assessment of their role and importance in the formation of accidents is still in prospect, and the present paper is only an initial attempt in this direction.

In order to understand whether the quality of life and traffic accident rate are interrelated, let us use the tools of correlation and regression analysis and statistical assessment of the closeness of correlation between the quality of life in specific countries and characteristics of road accident rate in them. But first let us define the concepts used in this article.

Quality of life is a generalizing socio-economic category, which represents a generalization of the concept "standard of living". The quality of life as a concept includes not only the level of consumption of goods and services, but also the satisfaction of spiritual needs, health, life expectancy, environment, moral and psychological climate and emotional comfort [8].

Traffic accident rate is a generalizing socio-economic category that identifies the likelihood of an accident in the road sector and its specific manifestations (e.g., severity of consequences) [7].

It should be noted that the quality of life can be assessed with the use of various approaches. The most famous are the Quality-of-life index developed by the Economist Intelligence Unit [13], and the Better Life Index proposed and calculated annually by the Organization for Economic Cooperation and Development (OECD) [14]. No matter what methodology is used for processing and interpreting the results, any assessment of the quality of life always takes into account the safety of human life [13; 14]. Safety is one of the basic postulates around which the concept of value of life and its manifestation in the form of quality are formed. In this work, we assess the quality of life with the help of *Quality of Life* indicator, the methodology of which is discussed below.

Traffic accident rate can be assessed by various indicators as well. The following three are most commonly used for the purpose of comparative studies: *Human Risk*, *Transport Risk*, and *Severity Rate of Accident*. In this study we use the classic indicator *Human Risk* proposed by R.J. Smeed, a classic in assessing traffic accidents, in order to estimate traffic accident rate specific to any country [15]. Previous studies [3; 7; 15; 16] show that traffic accident rate is formed very unevenly. This observation is typical for consideration in different spatial systems (at the level of district, city, region, state formation, continent, the World-system). The gap in the quality of life in different countries is also very significant [12; 13; 14].

The present paper considers a statistical proof of *the hypothesis that the actual traffic accident rate serves as a manifestation of*

transport culture, largely dependent on the quality of life in a specific country at the primary level of consideration and, more globally, on the level of development of non-governmental institutions. This hypothesis makes us think about the fact whether this country-specific difference in traffic accident rate is related to the differences in the quality of life in different countries. In order to find an answer this question, we carried out a statistical study for the purpose of creating a correlation and regression model that would show the impact of the quality of life on traffic accident rate and evaluate the closeness of connection between the predictor and the outcome variables. The results of this study are presented in this paper.

The goal of the study is to find out whether there is a statistical correlation between the characteristics of Quality of Life in different countries (according to the methodology of US News & World Report [12]) and Human Risk in these countries; the study also aims to discuss the results taking into account the arguments of specialists in civilizational development.

The tasks set by the author are as follows:

- select quantitative characteristics of the quality of life;
- collect statistical data about the quality of life in different countries;
- collect statistical data about accident rate and calculate Human Risk in different countries;
- prepare a database for the subsequent correlation and regression analysis of the relation between Quality of Life in different countries and Human Risk in these countries;
- establish the models of statistical correlation between Quality of Life and Human Risk characteristics;
- interpret the obtained results.

Argumentation of the choice of characteristics of the quality of life (1 task of the research). January 20, 2016, a new ranking of top 60 countries "Best countries 2016" was released at the World Economic Forum (WEF) in Davos [12]. The ranking is based on expert assessments of individual aspects of life in different countries. The choice of countries for the rating is not accidental. Those sixty countries included in the ranking generate about 90% of global gross domestic product (GDP), and their population is about three quarters of the world's population. They cover the entire globe – Africa, Asia, Central America, Eurasia, Europe, Middle East, North America, Oceania and South America. The countries that were not taken into account in the ranking form only "statistical tails", which allows us to make objective conclusions without considering the statistical data on these states. The place of a specific country in this ranking is based on the ranking of individual components and on the final integrated assessment taking into account the weight of individual groups of constituent characteristics.

In brief, the essence of calculation methodology used by the authors of the ranking can be represented as the following

algorithm. An integrated indicator, which was used to estimate the country's position in the ranking "Best countries 2016" is based on the rating (on a 10-point scale) of the country according to 9 major groups of indicators of living conditions, each of which has a certain weight in the Final integrated assessment *(tab. 1)*.

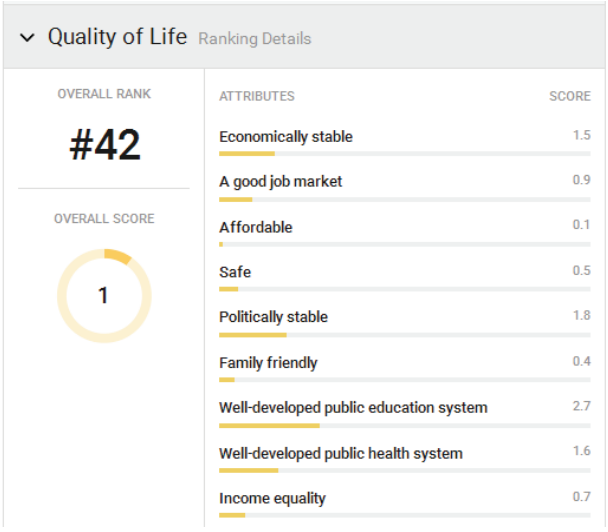
Each group of indicators contains several qualitative indicators that help assess the position of the country in the ranking according to a specific group of indicators. *Figure 2* shows an example of Russia ranking 24th among the 60 "Best countries 2016". Thus, individual components of the ranking put Russia on different positions: the second

Table 1. Weight of the groups of indicators included in the Final integrated assessment of the country for the "Best countries 2016" ranking [12]

Group of indicators included in the Final integrated assessment of countries (FIA) and its content		Weight of the groups of indicators in FIA, %
English option	Russian option	
Adventure	Subjective perception of the country and its people	3.24
Citizenship	Development quality of state civil institutions	16.95
Cultural Influence	Actual influence of the country on the world community	12.93
Entrepreneurship	Environment for entrepreneurship development	17.42
Heritage	Importance of contribution of the country's heritage to world culture	3.17
Open for Business	Ease of starting and doing business	11.99
Movers	Dynamics of development of the country's economy	10.00
Power	Global influence, as an example of life, on other countries	7.42
Quality of Life	Quality of life in the country	16.89

Figure 2. Components of Russia's ranking (number 24 out of 60 countries) among the "Best countries 2016"

Figure 3. Components and evaluation of the components of the group "Quality of Life"



Source: US News & World Report [12].

place (Power or Global influence), and the 60th place (Open for business or the Ease of opening and doing business).

In this article we consider the study of characteristics of statistical relationship between the quality of life and traffic accident rate. In this regard, it is necessary to understand how representatives of the US News & World Report work out a technique for assessing the quality of life in a particular country. *Figure 3* shows the details of assessing the quality of life in Russia.

Similarly, the level of the quality of life was evaluated for all 60 countries, for which the research was carried out and which were included in the US News & World Report ranking.

A summary table of the data for analysis (tasks 2–4 of the research). Summary results of assessing Quality of Life and Safety Score of life for different countries are presented in *Table 2*. The range of values of indicators of Quality of Life and Safety Score (according to US News & World Report), typical of different countries is very considerable (from 0.1 to 10). The table also contains the original data required to calculate the indicator of Human Risk [5] and the results of this calculation as of 2013 (the most recent aggregate data on accident rate in different countries). Of course, it would be more correct to use the data on Human Risk and Quality of Life and Safety Score (SS) for one year, but, unfortunately, this is not possible. The most recent report of the World Health Organization "Global status report on road safety – 2015" [5] contains a summary of accident rate in different countries of the world for 2013, and, on the contrary, the rating of US News & World Report submitted in January 2016 was prepared according to the data for 2015. The author of the paper could not find analogues of the rating of US News & World Report according to the data on previous years. In this connection, we have to take as an axiom and basis for further arguments the idea that the actual situation in the field of accident rate in a particular country is usually very conservative and stable in time, and if there are any changes, they can be considered as the error allowed in the process of statistical research.

The value of Human Risk indicator in 2013 varies in different countries within a very wide range: from 2.7 to 2.8 traffic fatalities/100 thousand people (Sweden, UK) up to 23...26 traffic fatalities/100 thousand people (Saudi Arabia and Iran). It should be noted that, unfortunately, the level of Human Risk in Russia (18.92 traffic fatalities/100 thousand people) is extremely high, and the country falls into the category of outsiders according to this indicator. The same can be said if we see the results of assessing the Quality of Life (QL = 1.0), and Safety Score (SS = 0.5) in Russia. Note that between the specific composite indicator Safety and a more general Quality of Life indicator there is a high level of correlation (R = 0.95), but no complete identity *(fig. 4)*.

Table 2. Correlation between the value of Quality of Life and Safety Score (according to US News & World Report) and the relevant values of Human Risk in 2013 in different countries [5; 12]

Position	Countries from US News & World Report ranking (2016)	Values of indicators				
		Quality of Life (2016)	Safety Score (2016)	Population in 2013, thousand people	Number of deaths in traffic accidents in 2013, people	Human Risk HR in 2013 r., number of deaths in traffic accidents/100 thousand people
1	Canada	10.0	10.0	35181.7	2077	5.90
2	Sweden	9.5	10.0	9571.1	260	2.72
3	Denmark	9.2	10.0	5619.1	191	3.40
4	Australia	9.1	9.1	23342.6	1192	5.11
5	Netherlands	8.5	9.2	16759.2	570	3.40
6	New Zealand	8.2	9.8	4505.8	253	5.61
7	Germany	8.1	8.2	82726.6	3339	4.04
8	Austria	7.3	9.2	8495.1	455	5.36
9	UK	7.3	7.0	63136.2	1770	2.80
10	Luxembourg	6.3	8.8	530.4	45	8.48
11	Japan	6.2	7.6	127143.6	5679	4.47
12	Ireland	5.7	7.8	4627.2	188	4.06
13	France	5.5	5.5	64291.3	3268	5.08
14	United States of America	5.4	2.7	320050.7	32719	10.22
15	Singapore	4.6	6.5	5411.7	159	2.94
16	Spain	4.2	6.2	46927	1680	3.58
17	China	4.2	6.2	1385567	62945	4.54
18	Italy	3.6	5.5	60990.3	3385	5.55
19	Portugal	3.5	6.8	10608.2	637	6.00
20	South Korea	2.6	1.8	49262.7	5092	10.34
21	Czech Republic	2.4	3.8	10702.2	654	6.11
22	Malaysia	2.3	1.3	29717	6915	23.27
23	Thailand	2.2	1.0	67010.5	13650	20.37
24	Vietnam	1.9	0.7	91679.7	9845	10.74
25	Saudi Arabia	1.9	0.9	28828.9	7661	26.57
26	India	1.9	0.3	1252140	137572	10.99
27	Philippines	1.8	0.6	98393.6	1469	1.49
28	Hungary	1.8	3.2	9954.9	591	5.94
29	Turkey	1.6	0.6	74932.6	4786	6.39
30	Indonesia	1.5	0.7	249865.6	26416	10.57

End of Table 2

Position	Countries from US News & World Report ranking (2016)	Values of indicators				
		Quality of Life (2016)	Safety Score (2016)	Population in 2013, thousand people	Number of deaths in traffic accidents in 2013, people	Human Risk HR in 2013 r., number of deaths in traffic accidents/100 thousand people
31	Mexico	1.5	0.2	122322.4	17139	14.01
32	Bulgaria	1.5	2.0	7222.9	601	8.32
33	Chile	1.5	1.1	17619.7	2108	11.96
34	Israel	1.5	0.2	7733.1	277	3.58
35	Costa Rica	1.4	1.1	4872.2	625	12.83
36	Greece	1.4	2.1	11128	865	7.77
37	Peru	1.3	0.8	30375.6	4039	13.30
38	Sri Lanka	1.3	0.5	21273.2	2362	11.10
39	Argentina	1.2	0.9	41446.2	5209	12.57
40	Uruguay	1.1	0.9	3407.1	567	16.64
41	Romania	1.0	1.1	21698.6	1866	8.60
42	Russian Federation	1.0	0.5	142833.7	27025	18.92
43	Brazil	0.9	0.3	200361.9	41059	20.49
44	Morocco	0.9	0.7	33008.1	3832	11.61
45	Dominican Republic	0.9	0.6	10403.8	2810	27.01
46	Panama	0.8	1.0	3864.2	386	9.99
47	Tunisia	0.8	0.2	10996.5	1505	13.69
48	Bolivia	0.8	0.3	10671.2	2400	22.49
49	South Africa	0.5	0.2	52576.1	13802	26.25
50	Colombia	0.5	0.2	48321.4	6038	12.50
51	Guatemala	0.5	0.3	15468.2	1977	12.78
52	Jordan	0.5	0.6	7273.8	768	10.56
53	Nigeria	0.3	0.2	173615.3	6450	3.72
54	Kazakhstan	0.4	0.3	16440.6	3233	19.66
55	Pakistan	0.3	0.2	182142.6	9917	5.44
56	Azerbaijan	0.5	0.2	9413.4	1256	13.34
57	Egypt	0.3	0.3	82056.4	8701	10.60
58	Ukraine	0.2	0.2	45372.7	4833	10.65
59	Algeria	0.1	0.4	39208.2	4540	11.58
60	Iran	0.1	0.2	77447.2	17994	23.23

Compiled using the data of: www.oecdbetterlifeindex.org/ [14] and the WHO global status report on road safety 2015 [5].

Figure 4. Regression model of the relationship between the specific Safety Score indicator and a more generalized Quality of Life indicator (2016)

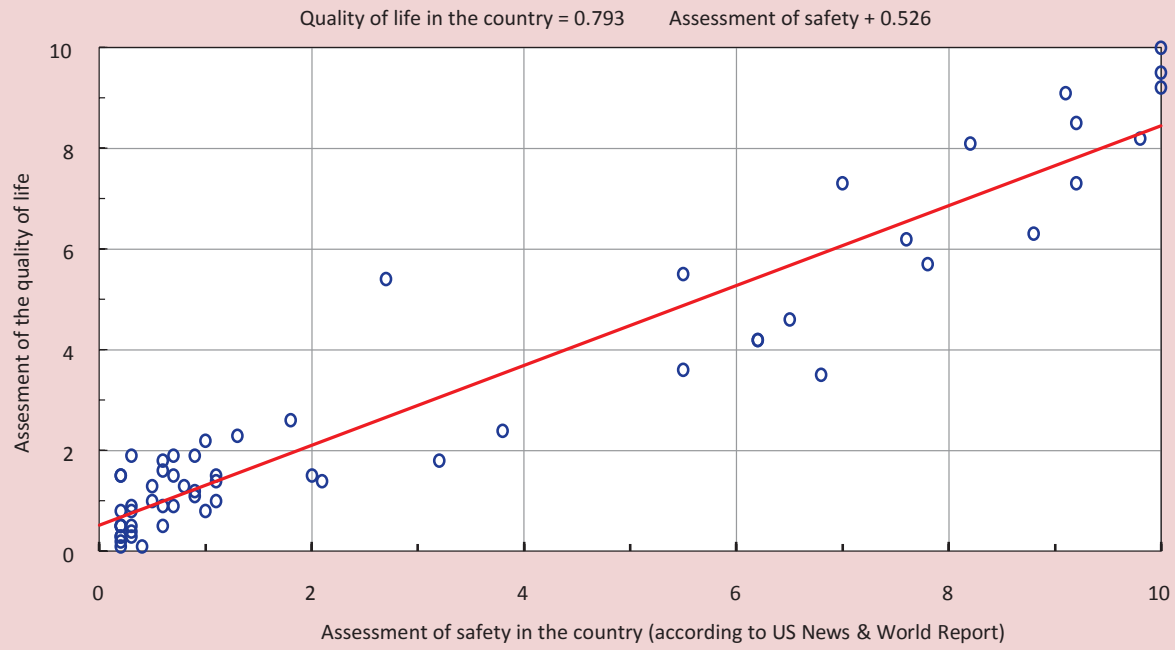


Table 3. Statistical characteristics of the model Quality of Life = f(Safety Score).

Statistical characteristics	Pair correlation coefficient	Determination coefficient	F-test	Standard error of approximation
Values	0.953	0.909	577.972	0.880

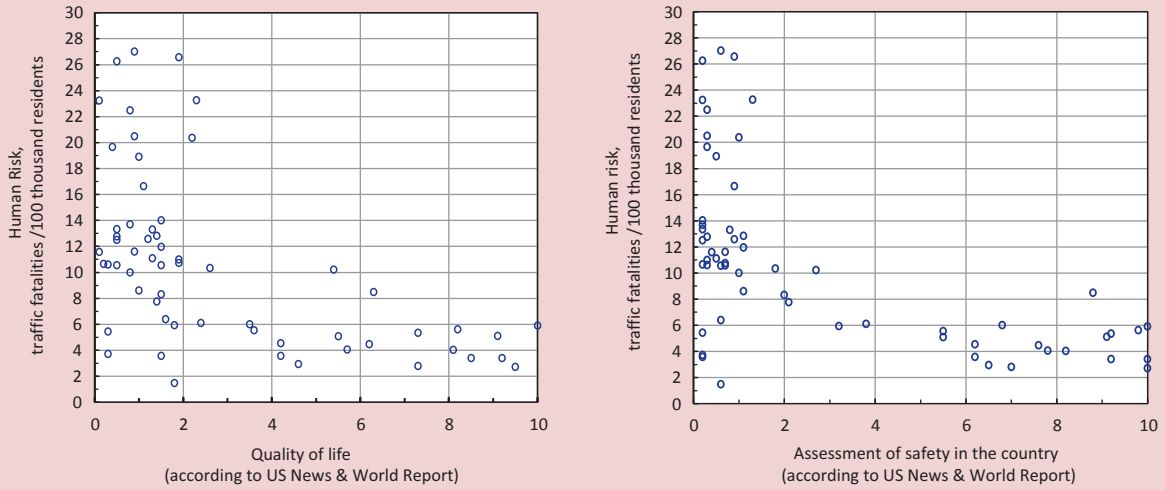
Table 3 shows statistical characteristics of the model *Quality of Life = f(Safety Score)*.

Possessing the entire source data necessary for analysis, we can build regression models to show the influence on traffic accident rate of Human Risk–Quality of Life and its special case – Safety Score, and to evaluate the closeness of the connection between the predictors and the resulting.

Research findings (task 5 of the research). Spatial scattering of experimental points for the dependences under consideration is represented in *Figure 5*. An inverse function $Y = \frac{a}{X}$ is suitable for a relatively adequate description of the functional relationship between variables in this kind of scattering of experimental points.

It should be noted that a power function $Y = \frac{a}{X^b}$ can be used as an alternative to this function when describing a set of expe-

Figure 5. Spatial scattering of experimental points on the coordinate plane for the dependencies under consideration



а) HR = f(Quality of Life) б) HR = f(Safety Score)

rimental data. However, several considerations, the most important of which is the understanding of the mechanism of formation of causal relationships in the "Driver – Vehicle – Road – Environment" system or a system of even higher rank: "State – Territory – Economic system – System of social relations – Transport culture" show us that it would be more advisable to choose a relatively simpler model $Y = \frac{a}{X}$ for solving the tasks in hand.

The results of simulation of the model of dependence *HR = f(Quality of Life)* and its particular case –the dependence *HR = f(Safety Score)* are presented respectively in *Figures 6* and *7*.

The analysis shows that an inverse function $Y = \frac{a}{X}$ can be an adequate choice as an approximating model.

Statistical characteristics of these models are presented in *Tables 4* and *5*.

According to the results of modeling the dependencies *HR = f(Quality of Life)* represented in Figure 6, and the dependence *HR = f(Safety Score)* shown in Figure 7, it is possible to make four intermediate conclusions that lead out to further arguments.

1. In order to make an accurate description of statistical relationships between Quality of Life, its component Safety Score and Human Risk it is possible to use the inverse functions of the form

Figure 6. Statistical relationship between Quality of Life,
according to U.S. News & World Report and Human Risk in 60 countries (HR = 16/(QL))

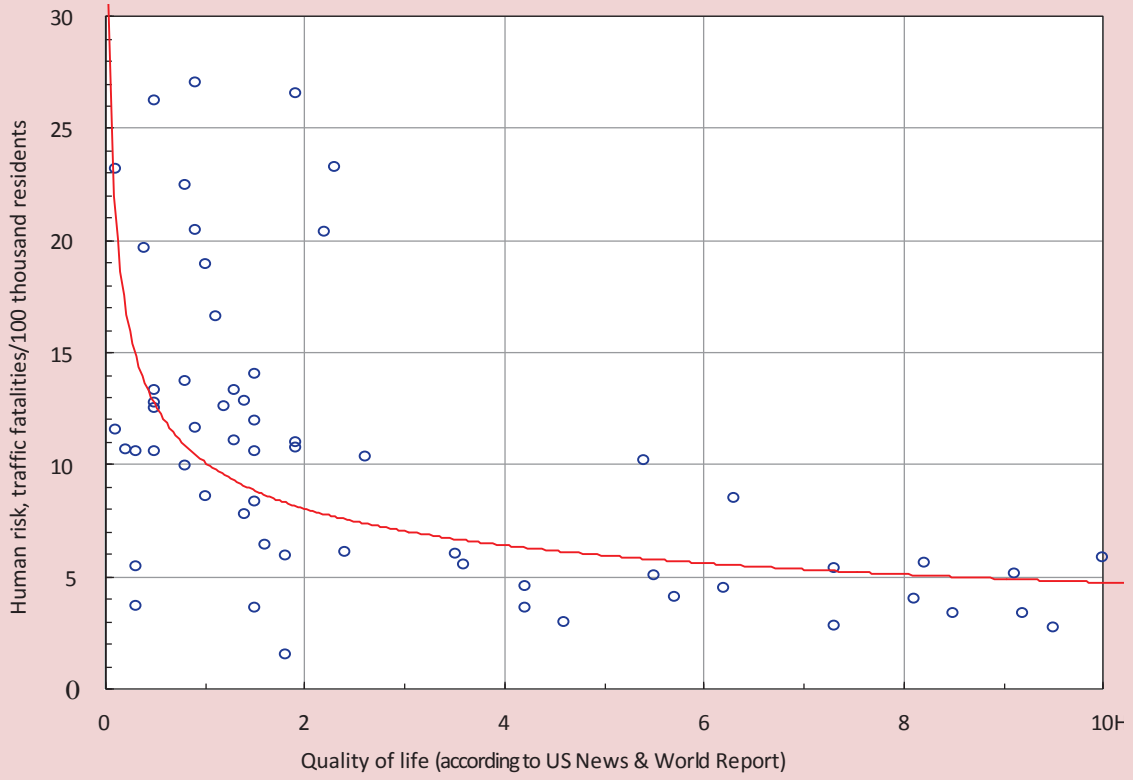


Figure 7. Statistical link between Safe Score as a component of Quality of Life)
(according to U.S. News & World Report) and Human Risk in 60 countries (HR = 16/(SS))

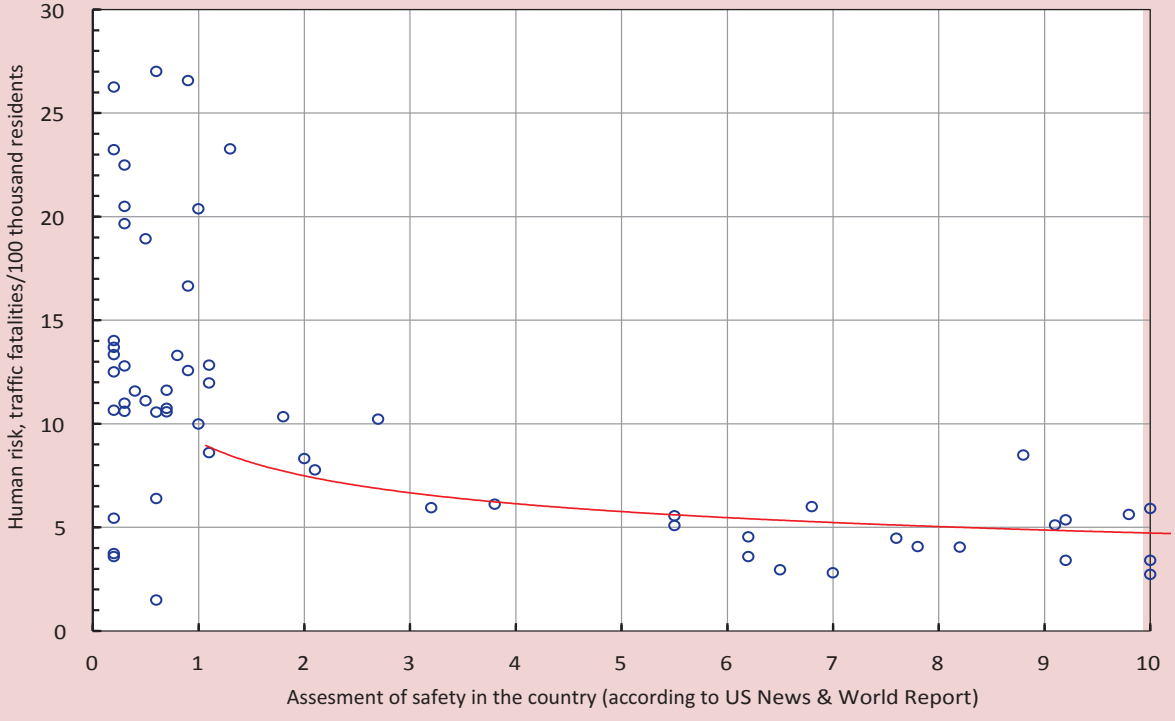


Table 4. Statistical characteristics of the model *HR = f(Quality of Life)*

Statistical characteristics	Pair correlation coefficient	Determination coefficient	F-test	Standard error of approximation
Values	0.546	0.298	24.630	5.645

Table 5. Statistical characteristics of the model HR = f(Safety Score)

Statistical characteristics	Pair correlation coefficient	Determination coefficient	F-test	Standard error of approximation
Values	0.594	0.353	31.602	5.421

HR = 16/QL and *HR = 16/SS*. Note that the level of closeness of statistical relationship between the variables is at the salient level on the Chaddock scale (R = -0.55... -0.59), but it is not high.

2. Visual analysis of graphical representation of dependencies in *Figures 6* and *7* shows that, in fact, the links between Human Risk and Quality of Life and Safety Score can be divided into three spatial regions (in the ranges of values of Quality of Life equal to [0...1.5[;]1.5; 2.5[and]2.5...10]). And if the extreme (left and right) branches of dependencies *HR = f(Quality of Life)* and *HR = f(Safety Score)* are characterized by lines X = 1 and Y = 5, then for the middle part of the dependence, in which there is a reversal trend, it is extremely difficult to choose an adequate model.

3. Judging by the features of the models *HR = f(Quality of Life)* and *HR = f(Safety Score)*, all countries in terms of possibilities to ensure a high level of road traffic safety today can be divided into the following three fundamentally different groups [11]:

• countries leading in the quality of life and countries with a catching-up development, which are characterized by a high level of road traffic safety even given the fact that the leadership position has yet to be achieved in the field of Quality of Life *(Quality of Life =3...9)*;

• countries-outsiders in the quality of life *(Quality of Life =0...2)*;

• countries in transition from outsiders to leaders *(Quality of Life =2...3)*.

4. A possible explanation to this fact lies in the features of development of social institutions in a particular country and in the history of the very motorization process and the development of agencies regulating and controlling all aspects of life related to road traffic safety. For example, it is known that Russia today (2000–2016) goes through all the development trends in motorization that the United States passed in the 1950s–1960s, and many European countries – in the 1970s–1980s [6].

Discussion of research results (task 6 of the study). Taking into consideration all of the above, we face a need to explain the

features of correlation and regression models of the following types: *HR = f(Quality of Life)* and *HR = f(Safety Score)*. And in this case, logical chain of thought cannot be constructed without considering the *Level of development of social institutions* – the very fundamental element of the chain of causality in the formation of road traffic accident rate.

The Stanford Encyclopedia of Philosophy has the following definition: social institutions are "forms of organization of the joint activity of people, which are developed historically or created through specific effort; the existence of these institutions is dictated by the need to meet the social, economic, political, cultural or other needs of society as a whole or its part. Institutions are characterized by their potential to influence people's behavior through established rules" [17].

According to D. Adzhemoglu and J.A. Robinson [1], "in order to understand global inequality, it is necessary to understand why some societies are organized so inefficiently. These authors convincingly criticize theoretical explanations for differences between countries, which can be roughly classified as a "Geographical theory", "Cultural influence theory" and "Theory of ignorance". Their reasoning results in the conclusion about the dominant principle that effectively stimulates the development of society and is formulated as a thesis: "The path to prosperity lies through the solution of basic political problems" [1]. Numerous historical examples provided by D. Adzhemoglu and J.A. Robinson confirm this thesis in general. The most important conclusion that one can think of after reviewing their work is formulated by the authors themselves: "Huge differences between the path of socio-economic development taken by different countries were the result of a complex relationship between institutional drift and breaking points".

The classic work of S. Huntington "The clash of civilizations and the remaking of world order" [10] discusses in detail the history, causes and drivers of development of civilization, the circumstances that promote the differentiation of paths for different civilizations, common features and differences between them on the whole range of signs. A conclusion made by S. Huntington concerning the fact that the West achieved the so-called mature phase of development implies the thesis of the Western society entering "the period of prosperity resulting from the cessation of internal aggressive destruction" [10]. Obviously, this thesis complies well with the data in Table 3 and Figures 6 and 7, in which the minimum values of Human Risk are typical of the group of countries in which the level of the quality of life is as high as possible. And it is interesting to note that this group consists of Western countries plus Japan and Singapore, the economic

policy of which can be characterized as inclusive. The term "inclusive economic and social development institutions" implies the rules by which an economy works and which are based on private ownership of the means of production and on entrepreneurial initiative of broad masses of citizens. Societies where *inclusive economic institution*s function successfully, over time, turn into societies with a high level of the quality of life, according to the chain (3), with a low level of road traffic accidents.

On the contrary, countries characterized by a high rate of road traffic accidents are mainly the countries with low levels of the quality of life and the so-called *extractive economic institutions* "designed to obtain maximum income from the exploitation of one part of society and direct it to the enrichment of the other part" [1].

According to the results of these studies performed by researchers at Tyumen Industrial University [6; 7], a conclusion can be made concerning the relationship between transport culture in a particular country or region and the level of economic well-being of local residents. For instance, Russia has the lowest level of transport culture in the republics of Dagestan, Ingushetia, Kalmykia and Tyva [4]. The Federal State Statistics Service data [9] show that these regions have a very low level of produced gross regional product (GRP) and per capita income. In contrast, in those subjects of the Russian Federation, where the economic situation is more favorable, road traffic accident rate is much lower [7]. The same can be said about other countries of the world [3; 7; 15; 16].

The monumental work by D. Adzhemoglu and J.A. Robinson "Economic origins of dictatorship and democracy" [2] explains in detail the relationship between different forms of social organization and features of functioning of the economy; the work shows what the primacy of different forms of organization of public institutions leads to at the level of manifestations of various aspects of life. The conclusion made by the authors [2] is quite clear and categorical: improvement of the quality of life is dialectically justifiable and natural only in democratic societies with developed social institutions.

Returning to the models *HR = f(Quality of Life)* and *HR = f(Safety Score)*, shown in Figures 6 and 7, we should note that the left branch of the graph, characterizing the countries with a low level of the quality of life, reduces the level of adequacy of the model.

Let us try to find out why countries with a low level of the quality of life have very different values of Human Risk, including low values, at the level of developed countries of the Western civilization (S. Huntington). Examples of such countries are Philippines (HR = 1.49

traffic fatalities/100 thousand people), Nigeria (HR = 3.72 traffic fatalities/100 thousand people), and Pakistan (HR = 5.44 traffic fatalities/100 thousand people). This can be explained by the specifics of demography and economic development in these countries. Very young, poor and numerous population along with low motorization rate U_a forms the environment in which the automotive complex is at the initial stage of its development, i.e. in the chronology of the process of motorization, these countries today are at the stages that the U.S. and Western Europe passed in the 1910s–1920s. Conventionally, these countries can be included in the first group of countries united on the basis of initial motorization. On the contrary, in countries with a low quality of life and high level of Human Risk: Iran (HR = 23.23 traffic fatalities/100 thousand people), Kazakhstan (HR = of 19.66 traffic fatalities/100 thousand people), South Africa (HR = 26.25 traffic fatalities/100 thousand people), South and Central America (HR = 15...25 traffic fatalities/100 thousand people) and the Russian Federation (HR = 18.92 traffic fatalities/100 thousand persons), the level of motorization is quite high, the automotive complex as a whole has been formed; however, transport culture of the population in *UTC* is still lagging behind the best global practices. These are countries of the second group – the level of accidents in them will decrease along with an increase in the quality of life. Thus, the diversity of the values of Human Risk in the group of countries with a low level of the quality of life is explained by the difference in the degree of development of automotive complexes, i.e. the history of motorization, and by the place in the hierarchy of countries with different level of development of social institutions. Countries of the third group, which are characterized by low values of Human Risk, are united by a common feature of a high level of development of social institutions.

Conclusion. Summarizing all of the above, I note that the main conclusion of the study consists in establishing a noticeable statistical link between the quality of life in different countries (according to the methodology of US News & World Report [12]) and Human Risk in these countries; these indicators are estimated using the ratio of the number of road traffic fatalities per 100 thousand population, according to the inverse model type.

Analysis of databases on Human Risk and the corresponding indicators of the quality of life (in 60 countries) in different countries, subsequent correlation and regression analysis, establishment of statistical relationship between predictors and the resulting according to the reverse model type allows us to classify the countries into three groups by the quality of life.

These are: countries-leaders and countries with catching-up development (group 1, for which $QL = 3...9$); countries-outsiders (group 3, for which $QL = 0...2$); countries in transition from outsiders to leaders (group 2, for which $QL = 2...3$).

The explanation of such a differentiation of countries into groups was conducted taking into account opinions of world-class experts in matters of civilizational development and, although the explanation is debatable, it has a right to exist.

Today road safety in our country is dominated by the principle of punishment for a misdemeanor. Results of the research presented in the paper suggest that road traffic accident rate as a derivative from the violation of established rules of social life can and should be dealt with through a gradual, systematic development of social institutions. This will help improve the quality of life, contribute to the subsequent growth of transport culture of society and reduce traffic accident rate.

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Shared Values in the Formation of a Modern Techno-Economic Paradigm*

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Abstract. The article presents the evolution of the concept of techno-economic paradigm. It points out that the concept of transformative investments (impact investing) has a significant impact on the formation of a modern techno-economic paradigm. In the framework of this concept, "shared values" are considered as a central element in the development strategy of any state. The ideology of shared values is based on pragmatic principles that create economic value to meet the interests of society. It is based on "three pillars of sustainable development": planet, people and profit. The authors identify three main types of impact investing – responsible investing, development investing, localizing investing. The paper highlights the most important areas of impact investing and substantiates the expediency of promoting the ideas of impact investing at the level of individual business entities, which formulate a specific approach to the management of socio-economic systems of the micro-level, the authors call this approach "impact management". The ideas of impact management as a management technology designed to stimulate the development of shared values and increase the interest of each participant in the overall final results were tested at Motovilikhinskiye Zavody PJSC – one of the largest enterprises of the military-industrial complex. It is proved that the idea of impact investing is in line with the ideas of inclusive development, which allowed the authors to establish the essential similarity of these processes. The paper introduces the notions of "structural inclusion" and "spatial inclusion". Some elements of spatial inclusion are shown on the example of the Sverdlovsk Oblast.

Key words: techno-economic paradigm; transformative investments (shared values), inclusive development, structural inclusion, spatial inclusion, impact management, agglomeration.

Introduction.

Geopolitical reality which has formed as a result of transformational changes in the system of international relations has specified the emerging of the phenomenon called "security-development-nexus", i.e. interdependence of security and development [10].

In these circumstances, the significance of increasing levels of socio-economic development of the state will be determined not only by the possibilities of improving the quality of life, rising the level of human well-being and developing human capital, but also by the country's possibility to hold a worthy position in the international community, ensuring its national security. The matter of particular importance is the dominance of best practices in global economic development which form the so-called techno-economic paradigm in the economic space of a particular country. The paradigm is often considered as universally recognized scientific achievements that "within a given time give scientific community a model of statement of problems and their solutions" [12, p. 11].

In modern economy the concept of paradigm is also actively used. It is used both in the theory of long waves and in the description of certain stages of society development (for example, the paradigm of post-industrial society). Any techno-economic paradigm, the emergence of which is characterized by a new key factor

acting as a core of the system of technological and administrative innovations, results not only in more intensive use of the key factor, but also in the change of the quality of labor resources, forms of production management. The institutional structure of the society is also frequently changed in different hierarchical levels.

During this period, investments in new infrastructure increase, which creates conditions for the development of industries that produce and consume the key factor [7, p. 143].

The concept of "techno-economic paradigm" is also used from the perspective of considering industrial restructuring as a triune process of technological, sectoral and institutional adjustment [15, p. 10; 11, p. 48].

The reducing potential of the dominant techno-economic paradigm indicates the break of structural crisis, which is one of the factors predetermining the need for a new paradigm formation.

Among numerous interpretations of the concept of techno-economic paradigm the most complete is suggested by C. Perez. Its definition allows distinguishing the essential basis of techno-economic paradigm, which is regarded as a "model of best business practice, consisting of universal general technological and organizational principles that reflect the most effective way of putting a particular technological revolution into effect and the use of the revolution for reviving and modernizing economy. When these principles become generally accepted they define "common sense" – the basis of any activity or institution" [14, p. 40].

It has been established that changes caused by the emergence of a new techno-economic paradigm are not limited by the economy and penetrate both political sphere and social ideology [21]. When approving a new techno-economic paradigm certain consolidation of general principles takes place on the one hand. These principles regulate the relations between the participants of economic development. On the other hand, the compatibility of changes in the institutional system of the country is set.

The concept of transformative investing (Impact Investing). The concept of transformative investing (Impact Investing) has a significant influence on the formation of modern techno-economic paradigm. Under this concept "shared values" are considered as a central element of the development strategy of any state. Shared values are not synonymous with the terms "social responsibility", "charity" and "sustainable development". The ideology of shared values is based on pragmatic principles that create economic value to meet social interests.

Under the new techno-economic paradigm, business must not only serve the interests of society, but "this service must be based not on charity but on keen

understanding of mechanisms of competition and value creation" [27].

The history of impact investing dates back to 2007 – the moment when the Rockefeller Foundation established the "Impact investing Initiative". Since that moment methods and financial instruments for transformative investing have been developing and proper standards and institutions have been emerging. In 2009 the Global Impact Investing Network (GIIN) was opened. Over the last years the concept of impact investing has been increasingly globalized. Individual projects along with government programs of impact investing are carried out in Australia, Brazil, the Netherlands, India, Mexico etc. Classifications, databases and standards of projects evaluation have been developed and are currently being put into practice.

"Impact investing" is a concept of a new wave of financial technologies, which has been forming during the latest decades. Unlike laws that do not have retroactive effect, the concept of impact investing is aimed at active learning of the past, consumption and reinterpretation of its financial inventions and practices. The main classification instrument of impact investing is a matrix representing a 3×3 table, which is based on the previously developed Triple bottom line concept (TBL or 3BL). This concept assumes that owners and management of a company should consider financial indicators as well as the results of the company's activities in social sphere and ecology. The concept was developed in 1994 by an American economist and entrepreneur John Elkington [17]. The ideology of impact investing is based on "three pillars of sustainable development": Planet, People and Profit. The basis which has predetermined the development of impact investing is the interaction of the following four key factors [25]:

• expanding list of practices that demonstrate the possibility of investing in large-scale business models, implementation of which leads to socially significant results;

• growing awareness of critical lack of resources amid growing poverty, inequality, environmental destruction and other complex global issues;

• in-depth risk analysis of investment decisions initiated by the financial crisis of 2008–2009;

• the transition of wealth in industrialized countries to a new generation of prosperous individuals willing to achieve their personal ambitions and resources in the form of public projects.

Systematizing the research in the field of impact investing has allowed identifying its three main types directly related to the new developing techno-economic paradigm:

• Impact investing of the first type ("Determinant Investing") – development of new financial technologies, instruments and standards and formation of a new layer

of management bodies and intermediaries to provide access to investors of "the Global North" to those sectors of the economy of "the Global South" that were previously unavailable to them;

• Impact investing of the second type ("Developmental Investing") – the use of new investment instruments to solve social and environmental problems, reduce poverty, and involve local investors and communities in joint participation in activities aimed at accelerating socio-economic development;

• Impact investing of the third type ("Localizing Investing") – development of guidelines, technologies and instruments of economic policy for governments interested in attracting a new class of investment to a particular territory.

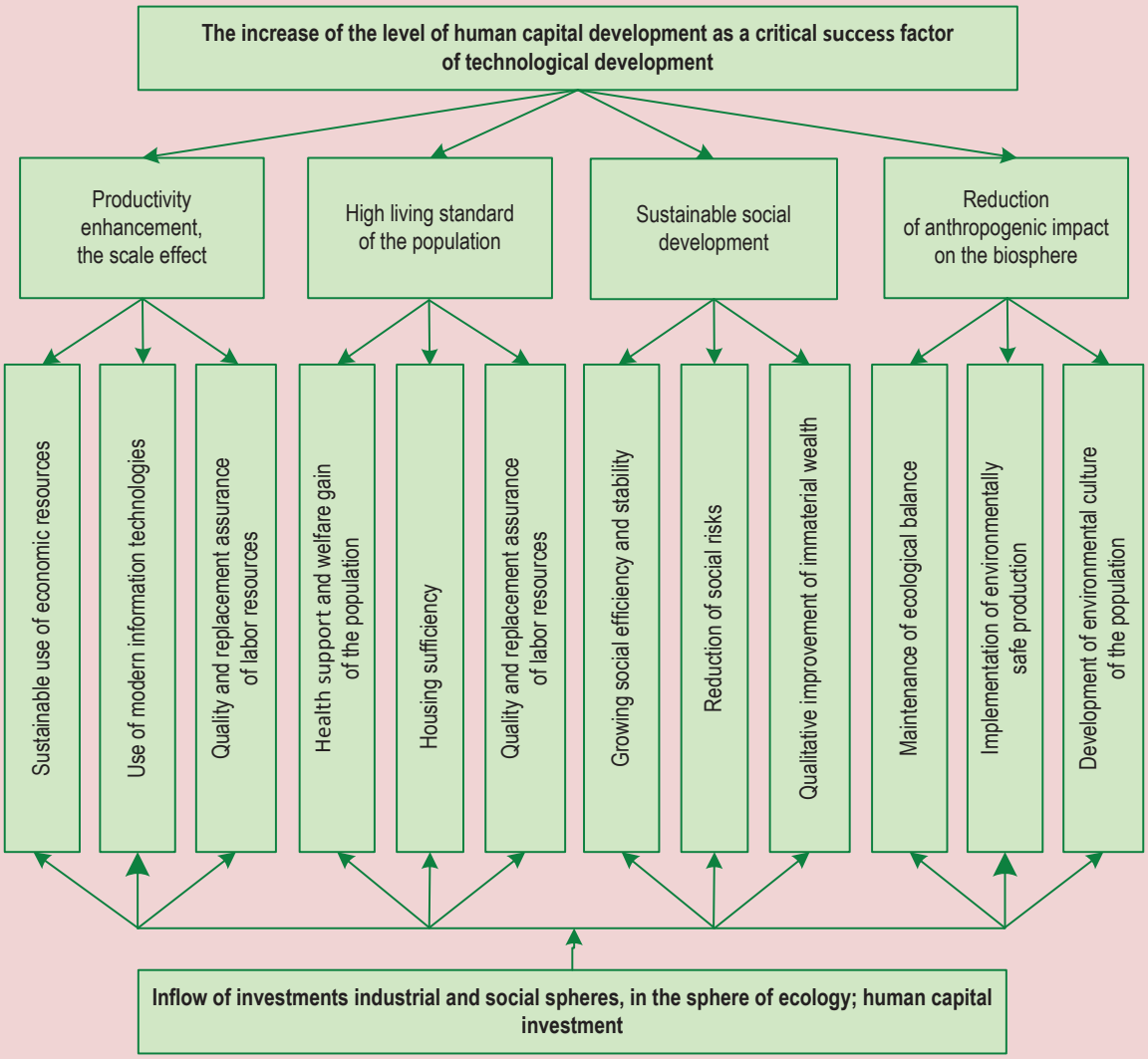
Regardless of the type of Impact Investment, a complementary goal of investing is always Shared Value, sometimes referred to as Blended Value. The process of impact investing involves several agents: investors, recipients and intermediaries between them. Each of the participants has their own goals and values. At least one of the participants (an investor, as a rule) consciously accommodates the goals and values of other participants and contributes to their achievement in order to reach their goals. This promotes, along with the commercial effect, many other effects that can be characterized by the following performance indicators:

1. Social efficiency instead of social consequences. Social consequences is the target of organizations that are engaged in business activities in the field of social and environmental projects. Social efficiency is a concept of a wider sense. It includes a complex of results, such as improving the quality of general welfare for lower-income people, mitigation of the consequences of climate change etc. As social outcomes are often influenced by external factors, they are extremely difficult to be attributed to the activities of a particular company.

2. Social return on investment (SROI). The ideology of SROI is a shift of goals from return on investment to the understanding of the social effects from the project implementation. SROI allows outlining a concept of how value is created when decision-making process is based on the integration of social, environmental and economic costs as well as on resulting benefits.

3. Impact investing instead of business responsibility to the society. Social responsibility has historically developed in the form of business ethics (restriction of activities in the sphere of production of alcohol, tobacco, gambling, etc.). In contrast, impact investing generates flows of money, which not only lead to better financial returns, but also have a positive impact on a wide range of participants of investment activity. The "Tree of Objectives" of impact investing can be represented schematically (*fig. 1*).

Figure 1. "Tree of objectives" of impact investing



Among the most important areas of impact investing is, first of all, *human capital investment*. This area is connected with investments for reasons of human capital reproduction: the increase in real income of the population and improvement of the quality of life and the standard of living; the development of government guarantees in terms of labor remuneration that ensure the reproduction of human capital. As far as demographic development is concerned, the improvement of government population policy may be noted, which is aimed at leveling the country's depopulation, reducing the rate of mortality, increasing life expectancy and lowering morbidity.

Not least important is the *environmental* area of impact investing, which helps decrease the anthropogenic burden on the environment, providing national ecological

safety along with a decent standard of living and health of the population with the conservation of natural resources. The *financial* area of impact investing is assuming more and more importance. It is the formation of incentives system of social investments for a long period: assurance of a decent standard of living by means of the growth of social capital at the macro- and micro-levels, efficient human capital formation and development of financial technologies resulting in a positive social effect.

Impact investing is also developing in the *production* area, which allows expanding investment in the development of new technologies under the conditions of humanization of production and labor conditions. The most favorable condition for impact investing development is positive institutional environment, which increases the importance of its *institutional* area. Impact investing, as any type of activity, depends largely on the level of infrastructure development as the main component of its *organizational* area. The importance of *innovation and* information area is incontestable. This area includes transformations in the system of research and technical development (RTD) and an increase of innovation in economic growth: namely, the formation of necessary and sufficient conditions for sustainable functioning of RTD as a sphere that represents a valuable national intellectual asset.

To sum up, the characteristic feature of modern techno-economic paradigm is the development of the concept of "shared value" resulting from impact investing.

Impact investing at the level of economic entities. The conceptual framework of impact investing includes not only goals, objectives and principles of its implementation at macro- and meso-levels. It seems advisable to develop the ideas of impact investing at the level of individual economic entities. The theoretical foundations of transformative investing offer the opportunity to consider the term not only in the context of investment, but also in terms of management in general. Such specific approach to the management of economic and socio-economic systems, in our opinion, can be called impact management [5]. The concept of creating shared value has evolved in the works of M. Porter and M. Kramer [26]. It is conclusively proven there that companies which develop close links between their business strategies and corporate social responsibility have achieved major success. It is particularly important to note that such phenomenon is typical not only of investment but also of all management aspects of socio-economic systems.

The characteristic feature of modern managerial systems is the focus on systems that implement "holistic" approach which considers the phenomenon at issue from different perspectives. From our point of view impact management excludes any

one-sided approach. Impact management implies management activities, the implementation of which suggests that all elements of a specific business unit as well as the entire staff of the organization are involved in the decision-making process.

It is clear that personnel management is one of the most natural subsystems in the framework of management system as a whole. The complex nature of cause-and-effect relations which determine the behavior of company's employees allows us to consider personnel management as an object of distinct holistic character. Personnel as a strategic resource of the company largely defines its competitiveness. In the present context the importance of human capital is determined not only by individual characteristics of the staff, but also by his willingness to work for the benefit of the organization. The employee's commitment in the company's overall performance determines the effectiveness of his work and therefore the company's certain position in competitive environment. That means there is a growing need to form an integrated incentive system which would consider human capital as a uniform, holistic set of abilities and needs. From this perspective, the application of impact management to personnel management is productive. The characteristic feature of this management approach is the use of both traditional outline of the remuneration system, and a number of motivating factors that go beyond material incentives.

Impact management as a management technology designed to stimulate the development of shared values and encouraging everyone's commitment in overall final work results, is of particular importance for high-technology enterprises, especially for the military-industrial sector. A typical representative of such complex is Motovilikhinskiye Zavody PJSC. Between 2010 and 2014 one of the authors of this article (N.Yu. Bukhvalov) held office as Director General of this enterprise. During this period Motovilikhinskiye Zavody PJSC drafted, discussed and adopted the "Modernization of Employees' Incentive System Concept" (hereinafter referred to as the Concept).

The use of best global practices in the field of motivation has allowed forming a model of employees' incentive system based on two equivalent units, one of them defines employer branding of the enterprise, the other – a system of total compensation. Employer branding implies favorable image making of the enterprise as an employer. This image forms company's recognition as a good workplace in the eyes of all concerned parties from different target groups. The image depends on the set of benefits (economic, professional, psychological, etc.) that is obtained or will be obtained by a worker who decides to join the team. The ways of identity construction of the enterprise are also of considerable importance, starting with basic principles and values, including how management

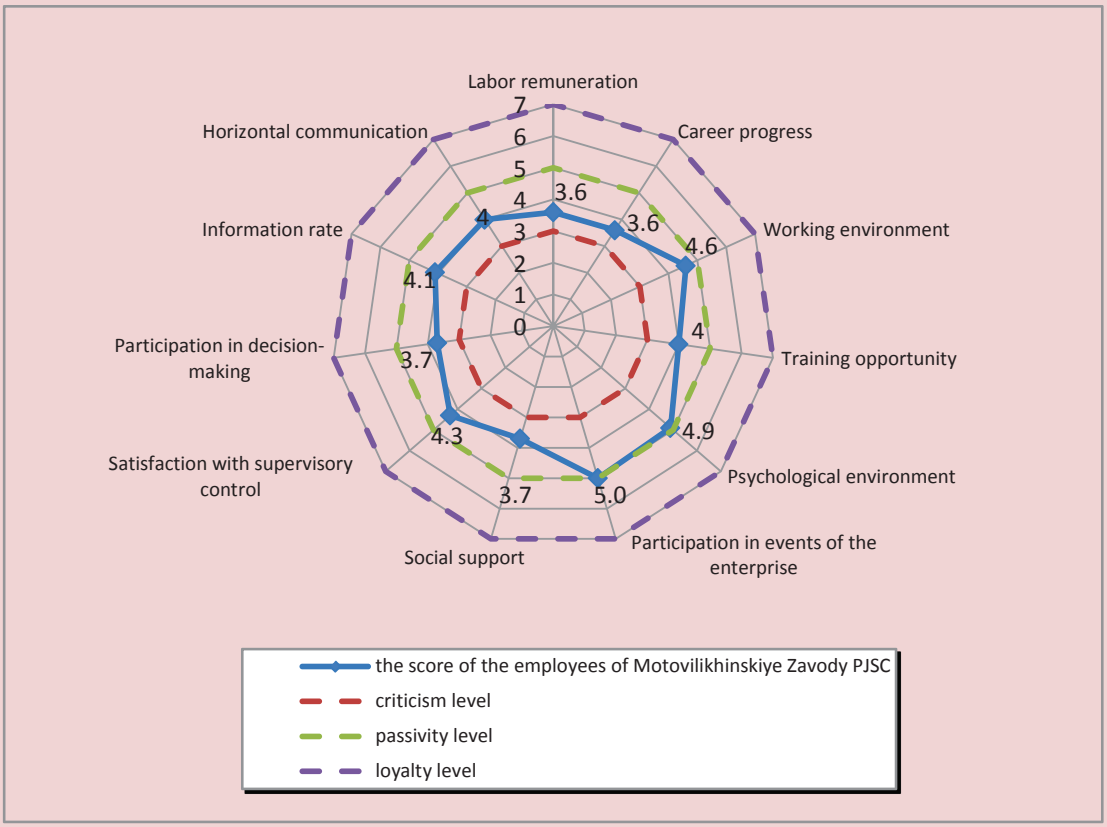
communicates this identity to all concerned parties from different target groups (internal and external communication). Effective employer branding describes a system of "shared values" comparable to value systems of other companies and characteristic of that particular company. Employer branding implies the formation of real "work environment", supporting both head hunting, which the company needs to achieve its goals, and further employee retention.

In compliance with the developed Concept, performance evaluation of incentive system of Motovilikhinskiye Zavody PJSC was estimated, which helped to appraise the level of its employees' satisfaction. The main research tool was the eNPS (employee Net Promoter Score). The approach implemented here is based on the modernization of the renowned method of measuring customer's loyalty to the company, the founder of which is Frederick Reichheld [16]. The feature of the eNPS method that is of great importance for impact management is its holistic nature. It lies, above all, in identifying the integral estimation of the system state as a whole, which enables to determine the influence of different aspects of activity on final results. The developed system creates a complex approach to the modernization of human resource management system and allows assessing the obtained results objectively. The satisfaction level of employees of Motovilikhinskiye Zavody PJSC is appraised in accordance with the method of eNPS (*fig. 2*).

Figure 2 displays that the majority of employees' scores are located in "passivity" zone. The highest GPA have options: psychological climate (4.9), participation in events of the enterprise (5.0), working conditions (4.6). The lowest scores were obtained for options: career progress (3.6), labor remuneration (3.6) and participation in decision-making (3.7). These estimations provide an opportunity to highlight the most problematic aspects from the point of view of employee satisfaction and to determine the boundaries of target action. This situation allows noting high relevance and potential development of employer branding of the company. Given the circumstance, significant results are expected to be achieved through the use of low-cost methods of effective employer branding formation.

The study helped to identify both problem and promising areas from the perspective of the employee level of satisfaction, and to determine the boundaries of the impact areas at this level. Five basic modernization blocks of the employee incentive system are distinguished: three of them within the framework of total compensation system, and two – as part of the employer branding. In the framework of total compensation, according to the three component parts

Figure 2. Satisfaction level of employees of Motovilikhinskiye Zavody PJSC , scores [5]



of labor remuneration, there are three blocks of incentives: for qualifications, for performance and for loyalty. The reward for qualifications is calculated on the basis of the actually worked hours according to the qualification on the wage rate scale. The reward for performance is defined in accordance with monthly results of shift-day tasks. Loyalty reward is determined arbitrarily by the direct supervisor. The supervisor entirely at his/her own discretion, but within established limits decides on the amount of the incentive. The ratio of the respective blocks of payment in the structure of total remuneration is taken in equal proportion. In order to develop the incentive system for loyalty, which has required detailed regulations, funds of process owners are being established. The level of the fund depends on final results of the entire company, but the size of the individual remuneration of a particular employee and his share in the distributable fund is established by the direct supervisor at his own discretion. Within the employer branding blocks such as factors in honor and career employment are also distinguished.

The latter refers to establishing a mechanism which would provide the possibility of predicting employees' personal and professional development, self-determination in terms of one-way vectors of personal development and the development of the enterprise as a whole. This mechanism allows increasing the opportunities for professional development. For this reason the scope of the wage rate scale has been extended and a more detailed subdivision of categorization levels has been introduced. It is important to note that we are referring exactly to a specific approach to the management of socio-economic and production systems, i.e. about impact management as a new development trend of impact investing. It may also be mentioned that control action in this case is transformative, contributing to the achievement of "common values" shared by the individual employee and the enterprise as a whole.

Inclusive development. The idea of impact investing, i.e. transformative investing has much in common with the ideas of inclusive development. The term "inclusion" is most often used in the field of public relations and is interpreted as a process of people's community involvement that allows us to talk about inclusive policy, inclusive culture and inclusive practice. The centre of inclusive development is a person, which implies the priority of a development model that ensures social stability in the determinants of economic development associated with scientific and technological progress, employees' cultural and intellectual level upgrade and the innovative nature of managerial work.

The systematization of development trends related to various aspects of inclusiveness has allowed identifying the four most important, in our opinion, aspects of inclusive development. The first aspect implies the need to democratize international relations and establish firm and fair political and economic world order. The second aspect of inclusive development is associated with the principles of state policy involving equal access to emerging opportunities and benefits of development as certain segments of the population and individual countries. Of particular importance here is the availability of quality education. The third aspect of inclusive development is an effective policy in the field of environment and climate. The fourth aspect is strong integration processes occurring inside various world territories, particularly in the Pacific Rim [8].

Comparative analysis of development trends and directions of impact investing and inclusive development has allowed stating the essential integrity of these processes, which reveals the possibility to converge fundamental principles of aforementioned conceptual approaches

as the key feature of the emerging new techno-economic paradigm. In the context of conveyance of the ideas of inclusive development it seems advisable to introduce such concepts as "structural inclusion" and "spatial inclusion".

We understand structural inclusion as the inclusion in a vector of high-tech development of medium-tech sectors and the modernization of low-tech sectors. The fundamental essence of spatial inclusion is, in our opinion, the involvement of weakly and moderately technologically and economically developed areas in the replenishment cycle of economic development.

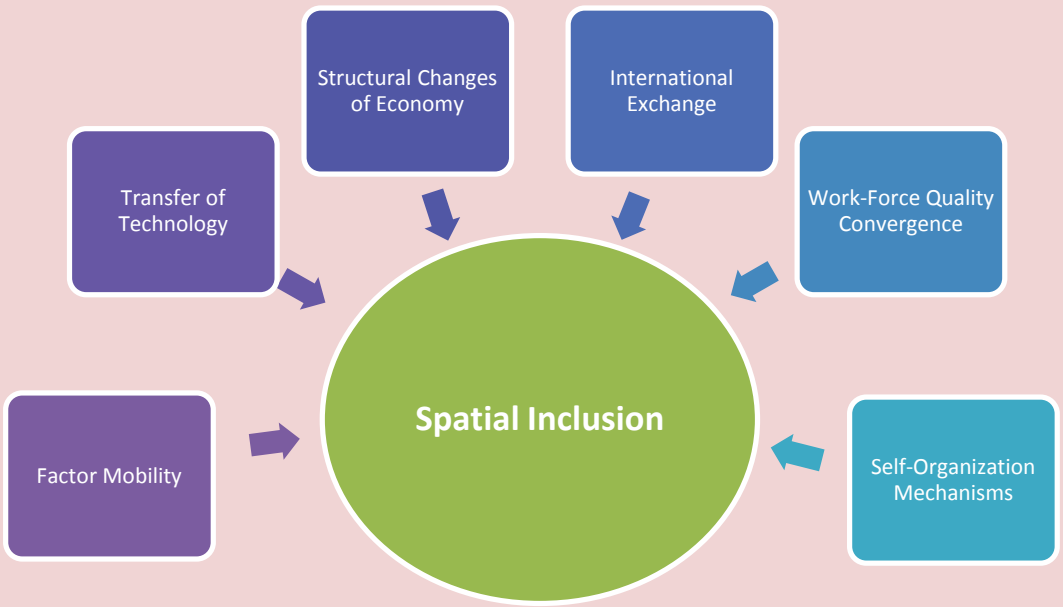
Structural development of the economy is subject to cycle fluctuations, which display the properties of self-organization, changeability and adaptability.

The process of modern techno-economic paradigms formation leads to the situation when the provisions of the obsolescent paradigm based on material factors in structural changes lose their significance. Intellectual assets become structure-determinant in the context of economy changes. Their wide use determines not only the processes of recurring change of technological modes, but also the inclusion of medium-tech sectors with high development potential in the process of formation of a high-tech basis of economy.

To sum up, technology convergence and high potential for medium-tech industries development are the prerequisites for the emergence of structural inclusion. Technology convergence involves both mutual influence and mutual penetration of industrial technology, where fundamentally new results appear at the intersection of different scientific fields, i.e. as a result of interdisciplinary research. It is necessary to remind that during the process of structural convergence the technological dynamics defines the establishment of a new technology basis as well as the inclusion of medium-tech sectors which can already become growth promoters on a short term basis.

Spatial inclusion, as it was previously noted, describes the process of including all types of territories into socio-economic and technological development of the country through convergence of their development levels. Researching the processes of spatial inclusion is becoming increasingly important, since the lowering of spatial inequality and consequent social tensions is one of the most important goals of the state. The hypothesis, which can be applied directly to spatial inclusion, prevails that despite the differences between regional economic systems they dismiss inefficient institutional forms, selecting and preserving efficient ones. For this reason all of them eventually become

Figure 3. Bases of formation of spatial inclusion



relatively identical after such evolutionary selection. The proponents of this hypothesis bring forward arguments that modern technology, means of communication and transport spread everywhere, creating a uniform technological basis for levelling country differences [22, 24]. Common trends and imperatives of scientific, technological and socio-economic progress determine convergence of the economies of a growing number of countries while preserving their national identities. The hypothesis allows identifying the factors that have a determining influence on the formation and development of spatial inclusion (*fig. 3*).

We may outline some of the management actions, leading to the reduction of interregional inequality: technological progress stimulation, measure for structural adjustment of regional economies, infrastructure development, interregional and international cooperation, etc.

The actions, mentioned above, represent the theoretic framework of our hypothesis, the main idea of which is that an integral feature of spatial inclusion is structural and functional changes within regional systems. These changes, in their turn, are linked to re-proportioning and role-changing of principal social institutions: the institution of self-organization and state regional administration. The hypothesis is based on the idea that an inherent feature of inclusion is the equivalence of dominant basic institutional orders. The process of spatial inclusion implies maximum complementarity and contingency of

these institutional orders. Therefore, the main advantage of spatial inclusion is the ability to simultaneously use the capacities of different institutional forms and orders based on self-organization and state administration.

In accordance with the proposed hypothesis of spatial inclusion, effective regional policy is capable not only of setting technologically backward regions on a path of development and preventing the escalation of interregional inequality, but it is also capable of increasing the rate of national economy development. Another argument in favor of the previously mentioned hypothesis is modern ideas about efficient policy embodied in a concept of "New Economic Geography" [20, 23]. This concept makes it possible to integrate basic principles and points of scientific, technological, industrial, socio-economic, innovative and regional policy into a single complex.

In our opinion, only such integration allows to address the issue of spatial inclusion. It should be based on coordinating the pace of development of various structures within a larger macrostructure by means of diffusion or dissipation processes. The significant difference between the levels of development of adjacent territories leads to the situation when the level of development of one area serves as a background to the development of another. Therefore, slowly developing, backward municipal units and regions serve as the so-called zero-background to quickly developing regions. The implementation of the principles of inclusion will promote the convergence of the levels of socio-economic and technological development of particular regions, increase their competitiveness within macro-regions and, in the long term, will help these regions to hold better positions in the system of national and international economic exchanges.

New approaches to the organization of regional spatial development implemented in the Middle Urals (the Sverdlovsk Oblast) may serve as an example. This is one of the few subjects of the Russian Federation where regional strategy is produced, made as a Law of the Sverdlovsk Oblast "On the Strategy for Socio-Economic Development of the Sverdlovsk Oblast for 2016–2030" [9]. This Strategy identifies three priority goals stated as the achievement of a new quality of life, the implementation of new industrialization and the development of the area, attractive for living and doing business. As far as the latter priority is concerned, its implementation fully corresponds to the principles of spatial inclusion. From the point of view of spatial development the industry of the region is more than 90% focused on its three key territories. More than 85% of investments are concentrated in these three areas. In an attempt to place greater focus on prospective growth-areas the Strategy suggests the formation of three

agglomerations. They have strong urban cores, high level of human and investment potential and a marked concentration of industrial and infrastructural sectors of the economy. This refers to the Yekaterinburg agglomeration (Yekaterinburg and the industrial area around it), the Gornozavodsk agglomeration (Nizhny Tagil, Verkhnyaya and Nizhnyaya Salda, Novouralsk , Lesnoy, Kachkanar, etc.), the Serov agglomeration, including Serov, Severouralsk, Krasnoturyinsk and others. Unlike other two agglomerations, the Serov agglomeration does not have a clearly defined dominant centre and it does not demonstrate strong preconditions for the development of the territory through the creation of an agglomeration. The Yekaterinburg agglomeration holds the highest potential as one of the most developed in Russia. This agglomeration may become a real development source of the entire region. It would also be extremely promising to use a unique situation when two major cities – Yekaterinburg and Chelyabinsk approximately of equal size and significance, are situated very close together. This creates a real basis for the formation of a large conurbation, i.e. an urban agglomeration of a polycentric type.

Creating agglomerations in the Sverdlovsk Oblast, including underdeveloped areas in their territory and increasing the mobility of labor resources will allow gaining certain benefits through the implementation of the principles of spatial inclusion. First of all, through the diversification of the agglomeration economy, the concentration of capital and resources in a particular area, the improvement accessibility of the population of remote areas to the comforts of civilization, the reduction of costs of industrial enterprises and through infrastructure facilitation due to the density of large agglomeration cores.

Conclusion. The principal feature of the formation of modern techno-economic paradigm is the development of the ideas of impact investing (transformative investing) and inclusive development as new components of technological and socio-economic development, forming a model of the best business practice. It would be reasonable to extend the practice of using impact investing to the level of business entities, which may increase the employee interest in the companies' performance, thus strengthening their position in a competitive environment. The implementation of the principles of structural inclusion will allow involving both medium-tech and low-tech modernized industries in a vector of high-tech development. Spatial inclusion will promote the inclusion of poorly and moderately technologically and economically developed areas in the reproduction cycle of economic development.

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Methodological Aspects in Forecasting Innovation Development of Dairy Cattle Breeding in the Region

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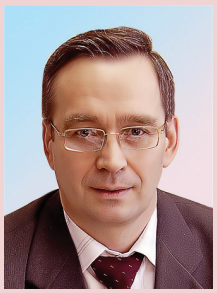

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Abstract. Due to the fact that Russia is now a member of the World Trade Organization, long-term forecasting becomes an objectively necessary condition that helps choose an effective science-based long-term strategy for development of dairy cattle breeding that would take into consideration intellectual and innovative characteristics. Current structure of available statistical information does not meet modern challenges of innovation development and does not reflect adequately the trends of ongoing changes. The paper suggests a system of indicators to analyze the status, development and prospects of dairy cattle breeding in the region; this system provides timely identification of emerging risks and threats of deviation from the specified parameters. The system included indicators contained in the current statistical reporting and new indicators of innovation development of the industry, the quality of human capital and the level of government support. When designing the system of indicators, we used several methodological aspects

of the Oslo Manual, which the Federal State Statistics Service considers to be an official methodological document concerning the collection of information about innovation activities. A structured system of indicators shifts the emphasis in the analysis of the final results to the conditions and prerequisites that help achieve forecast performance indicators in the functioning of Russia's economy under WTO rules and make substantiated management decisions.

Key words: forecasting, dairy cattle breeding, region, system of indicators, innovative development, information base.

One of the major current tasks that Russia has to deal with is the transition of its economy to an innovation path of development that will significantly improve the standard of living and quality of life of the population and ensure food security. Quality forecasting will improve the accuracy of development strategies for each economic sector and reduce risks in the agricultural sector. Economic forecasting issues are considered in the works of many domestic and foreign scientists. A scientific knowledge base that defines the features of forecasting in the conditions of innovation development has been formed. However, insufficient attention is given to the issues of methodological support of long-term forecasting in dairy cattle breeding on the basis of promoting innovation activity and enhancing the quality of human capital. The aim of the present study is to develop a forecasting methodology in dairy cattle breeding in the region and to develop practical recommendations for the substantiation of long-term strategies and conditions for their implementation on the basis of a structured system of indicators.

Vigorous innovation activity is one of the ways to change the situation in regional agriculture [14]. Basic directions of innovations implementation are as follows:

– organizational (innovation in the sphere of production organization and management, staff selection, systems of management, labor remuneration, document management, etc.);

– breeding and genetic (innovation aimed to increase the yield and fertility of soils, productivity of animals, etc.);

– technology (application of more productive agricultural equipment, advanced technology, introduction of information and telecommunication technology, etc.);

– financial and economic (innovation in the financing of the functioning and development of agriculture, loan technology, insurance, state support, etc.).

Innovation development of agriculture should be one of the priority areas, which also does not contradict the conditions of functioning of the Russian economy under WTO rules and necessitates the development of conceptual approaches in forecasting methodology.

Forecasting in the field of innovation, including scientific and technological discoveries and inventions and assessment of conditions that contribute to their implementation in practice becomes one of the most important forecasting areas [9]. We agree with the opinion of N.D. Kondratiev who points out: "Obviously, there is no reason to think about a random and transient nature of changes in technology.... The very development of technology is included in the rhythmic process of development of large cycles" [8, p. 176]. Karl Marx wrote: "Economic epochs differ in not what is produced, but how it is produced, by what means of labor" [10, p.94].

Forecasting innovations allows us to estimate their possible directions and consequences and substantiate strategic priorities. However, without strategic plans and target programs, possible innovations and priorities selected will not be implemented due to the inertia of the system. Therefore, the relationship between long-term forecasting and strategic planning is a prerequisite for transition to innovation path of development of the economy.

Ignoring science as a driving force of technological progress leads to the country's lagging behind the most economically developed nations. According to Russian Academician A.A. Dynkin, Director of RAS Institute of World Economy and International Relations, "in the modern world, globalization and innovation have become the main drivers of global economic growth. Globalization affects quantitative parameters of growth; innovation affects the quality and the very paradigm of development... The future of globalization after the crisis is, according to all estimates, uncertain... Money circulation will resume only if there emerge the products of a new quality, which can revive demand. These problems are solved by innovation" [7, p. 9].

The essence of the term "innovation" was revealed at the end of the 20th – beginning of the 21st century by K. Marx and N.D. Kondratiev. In the 1930s the theory of innovation was developed in the works of J. Schumpeter. Its further elaboration is connected with the names of Western economists such as J. Allen, K. Bowman, F. Valenta, P. Whitfield, R. Johnson, G. Mensch, etc., and also Russian scientists A.A. Dynkin, V.Ya Gorfinkel', V.L. Inozemtsev, G.A. Korolenko, B.N. Chernyshev, etc. Innovation is "new or improved technology, products or services, other organizational and technological solutions of industrial, administrative, commercial or other nature that are created or mastered and that promote technology, commercial products and services in the market" [6, p. 250]. Innovation is associated with obtaining certain effect. Back at the end of the 19th century, the outstanding Russian scientist A.S. Popov, assessing the importance of entrepreneurial activity of Guglielmo Marconi, said: "It is not about personal glory, but general benefit of a person. After all, why would you deny the usefulness of Marconi's work? A

businesslike and commercial approach to invention is sometimes no less valuable than the invention itself" [13, p. 56].

Most often, the effectiveness of innovative solutions is assessed with the help of the following types of impact: scientific, technological, social, and economic. The scientific effect is understood as the amount of new knowledge accumulated. The technological effect is usually evaluated through the growth of parameters and indicators of particular products; it is the result of implementation of the innovation in production. The social effect shows the contribution this innovation has made to improving people's lives. Such indicators can be the increase in people's incomes, increase in employment, reduction of production waste, etc. The economic effect is a quantitative characteristic of the social utility of innovation [11].

When forecasting the development of agriculture it is important to define indicators that help assess the development of phenomena taking into account scientific and technological progress aimed to improve the quality and competitiveness of products [4]. The following parameters reflect the introduction of innovation most accurately:

– growth of labor productivity due to the introduction and dissemination of innovations;

– reducing the material intensity of production as a result of the use of innovations;

– growth of actual annual economic effect due to the implementation of innovations;

– reduction in the share of manual labor due to the introduction and dissemination of innovations;

– increase in the share of products of the highest quality through the development of new products, equipment, and technological processes;

– reduction in the share of obsolete machinery, equipment, etc.

All these indicators are dynamic in nature. When assessing the indicators of innovation implementation, it is important to consider that they not only measure the phenomenon, but also provide a mechanism of direct influence. It is advisable to introduce a set of indicators that have a "threshold" value beyond which crisis phenomena emerge [3].

Indicators that reflect the level of innovation processes are not exposure but resulting. They reflect the combination of these two factors:

• comparative effectiveness, progressiveness of individual innovations introduced in relation to their analogues being replaced.

• extent of distribution of these innovations.

These indicators are less manageable than exposure indicators. Thus, controlled indicators of innovations implementation are:

• growth rate of the main technological and economic parameters of the innovation

(new product, equipment, technology) compared to the counterparts being replaced;

• volume of production and extent of use of innovations associated with the production and use of their analogues.

Indicators of performance and resource pace of innovation implementation are not the indicators that are managed directly. When making forecasts, it is necessary to use the indicators that would include comparative effectiveness of innovations in relation to the analogues being substituted, their volume of distribution and share of resources allocated to innovation; besides, these indicators should be subject to immediate management and planning. According to S.V. Valdaitsev, indicators of the pace of production renewal meet these requirements. Production upgrading is the material basis that provides certain productive pace of scientific and technological progress, and at the same time, it is a process, the preparation (in science) and implementation (in production) of which determine appropriate resource rate [5]. It is necessary to identify the factors that play a leading role in the development of agriculture.

The majority of regions in the European North specialize in dairy cattle breeding due to climate specifics and historical traditions [15]. Constraints to its development are as follows: reduction in the number of cows (in 3 times for the analyzed period), poor quality of forage of own production, its high self-cost, instability of prices for purchased material and technological resources and for agricultural products *(tab. 1)*.

Table 1. Number of cattle in farms of all categories in the regions of the European North of the Russian Federation at the end of the year, thousand head

Region	1990	2000	2005	2010	2011	2012	2013	2014	Position in Russia, 2014
Russian Federation, million tons	57043.0	27519.8	21625.0	19967.9	20133.8	19981.2	19564.0	19264.3	
Republic of Karelia	126.3	56.2	34.9	28.2	25.4	23.1	23.6	23.4	72
Republic of Komi	173.5	83.3	45.3	38.7	38.4	37.8	36.2	35.7	71
Arkhangelsk Oblast	354.7	129.4	74.1	56.9	54.3	52.7	50.6	45.8	69
including Nenets Autonomous Okrug	9.1	4.1	2.7	1.7	1.6	1.5	1.4	1.4	82
Vologda Oblast	613.3	317.0	233.1	196.7	184.9	179.0	166.7	162.6	44
Murmansk Oblast	43.8	11.9	8.7	7.8	7.8	7.8	7.6	7.5	79
Source: compiled by the authors using the data of the Federal State Statistics Service of Russia [1, 2].									

Table 2. Milk yield per cow in agricultural organizations of the regions of the European North of Russia, kg

Region	1990	2000	2005	2010	2011	2012	2013	2014	2014 in % to 1990, %
Russian Federation	2783	2341	3280	4189	4306	4521	4519	4841	
Republic of Karelia	3893	2900	4608	5494	5848	6480	6417	6811	174.9
Republic of Komi	2711	2096	2810	3491	3624	3999	3842	4008	147.8
Arkhangelsk Oblast	2662	1870	3593	4480	4772	5075	5124	5728	215.2
including Nenets Autonomous Okrug	3089	3088	3723	4543	4590	4574	4515	4713	152.6
Vologda Oblast	2736	2975	4218	4888	5127	5525	5521	6025	220.2
Murmansk Oblast	4869	4876	6414	7527	7910	7423	7182	5938	122.0

Source: compiled by the authors using the data of the Federal State Statistics Service of Russia [1, 2].

Production growth is achieved by increasing the productivity of cows *(tab. 2)*.

Specifics of medium-term and long-term forecasts of dairy cattle breeding development in the region are determined by the comprehensive nature of the issues of analysis of the status and dynamics of the most important parameters and by the need to identify the relationships with the factors that influence the development of this sector. Development of requirements to the system of statistical indicators, corresponding to the goals and objectives of medium-term and long-term assessment of the prospects of dairy cattle breeding development is one of the main conditions for improving the reliability and accuracy of the forecasts made.

Current structure of available statistical information does not meet modern challenges of innovation development and does not reflect adequately the trends of ongoing changes. When using a hierarchical organization of information flows that helps provide high efficiency of the processing, that is, the high speed of obtaining the data requested, there is no possibility of introducing additional indicators in the system. It is proposed to use the relevant arrangement of databases, which makes it possible to establish logical links between the essence of the phenomenon under study, the type and direction of information flow and get the necessary information about dairy farming in the region in the conditions of economic globalization. This problem is solved by developing a structured system of indicators. All the indicators included in the system have their own place, method of collecting and processing data for each indicator on the basis of clear written instructions. A structured system of indicators shifts the emphasis in the analysis from the final results to the conditions and prerequisites that help achieve forecast indicators in terms of

functioning of Russia's economy under WTO rules, it also shifts the emphasis on innovation development of the sector, the quality of human capital, and the level of state support. When designing a system of indicators, we took into account methodological aspects of the Oslo Manual, which is considered by the Federal State Statistics Service as an official methodological document that determines the collection of information about innovation activities. The structure of the system that we developed includes indicators contained in the current statistical reporting and new indicators that depend on contemporary challenges of statistics and agriculture development.

Having conducted an analysis and comprehensive evaluation of indicators of the information field, we determine that the system of indicators for forecasting the development of dairy cattle breeding should include the following analytical units *(tab. 3)*:

– socio-economic environment;
– size and composition of the population;
– employment and unemployment;
– indicators of the standard of living;
– agriculture;
– educational potential of the population;
– scientific and technological potential;
– innovation activity;
– quality of innovation policy.

Table 3. System of forecasts of development of dairy cattle breeding in the region

No.	Indicator	Data source
1.	**Socio-economic environment**	
1.1.	GRP per capita in the region, thousand rubles	Rosstat, Central Statistics Database
1.2.	Volume of investments in the development of dairy cattle breeding in the region, million rubles	Rosstat
1.3.	Share of investment in dairy cattle breeding in the total volume, %	Rosstat
2.	**Size and composition of the population**	
2.1.	Average annual population of the region, people	Rosstat
2.2.	Proportion of rural population in total population, %	Rosstat
2.3.	Share of working age population in rural areas at year-end, %	Rosstat
3.	**Employment and unemployment**	
3.1.	Number of economically active population, people	Rosstat
3.2.	Average number of employees in agriculture of the region, people	Rosstat
3.3.	Unemployment rate, %	Rosstat
3.4.	Unemployment rate in rural areas, %	Calculated
4.	**Indicators of the standard of living**	
4.1.	Per capita money income (monthly), rubles	Rosstat
4.2.	Real money income, % to the previous year	Rosstat

Continuation of Table 3

4.3.	Average nominal accrued wage in agriculture, rubles	Rosstat
4.4.	Actual consumption of milk per capita in the region per year, kg	Rosstat
4.5.	Coefficients of satisfying the demand for milk in the region	Calculated
5.	**Agriculture**	
5.1.	Agricultural products, total, in actual prices, million rubles	Rosstat
5.2.	Agricultural production indices in comparable prices to the previous year, %	Rosstat
5.3.	Milk production in the region, thousand tons	Rosstat
5.4.	Area of agricultural land at the end of the year, hectares	Rosstat
5.5.	Area of arable land at the end of the year, hectares	Rosstat
5.6.	Cow population in the farms of all categories at the end of the year	Rosstat
5.7.	Milk yield per cow, kg	Rosstat
5.8.	Profitability of milk production without subsidies, %	Rosstat
5.9.	Profitability of milk production with subsidies, %	Rosstat
5.10.	Profitability of livestock production without subsidies, %	Calculated
5.11.	Profitability of livestock production with subsidies, %	
5.12.	Share of unprofitable agricultural organizations, %	Rosstat
6.	**Educational potential of population in the region**	Rosstat, survey of the population on the subject of employment
6.1.	Proportion of population aged 25–64 with higher education in the total population of respective age group, %	
6.2.	Number of students enrolled in educational programs of higher education per 10,000 population, people	Rosstat, Form HPE-1
6.3.	Average score at the unified state exam among the students admitted to agricultural universities	FIS
7.	**Scientific and technological potential**	
7.1.	Domestic expenditures on research and development in agriculture on dairy cattle breeding, as a percentage of GRP, %	No reporting
7.2.	Domestic expenditures on research and development in agriculture calculated per researcher, thousand rubles	No reporting
7.3.	Share of persons engaged in research and development in agriculture in dairy cattle breeding in the average annual number of people employed in the economy of the region, %	No reporting
7.4.	Share of persons aged under 39 in the number of researchers engaged in scientific research on agriculture, %	No reporting
7.5.	Share of persons with academic degrees, the number of researchers in agricultural universities, research institutes, %	No reporting
7.6.	Number of articles on agriculture, published in peer-reviewed journals covered in the Russian Science Citation Index, per 100 researchers	No reporting

End of Table 3

7.7.	Number of patent applications for inventions in agricultural areas filed with Rospatent by national applicants, per 1,000 economically active population of the region	No reporting
8.	**Innovation activity**	
8.1.	Expenditure on technological innovation in dairy farming, thousand rubles	No reporting
8.2.	Proportion of agricultural products produced on the basis of innovation technology, %	No reporting
8.3.	Proportion of regional agricultural organizations that assess the reduction of material and energy consumption as the main result of innovation, in the total number of organizations engaged in technological innovation, %	No reporting
8.4.	Expenditures for advisory services in agriculture, thousand rubles	No reporting
9.	**Quality of innovation policy**	Internet portals, websites of state authorities of the subjects of the Russian Federation, specialized databases of regional legal acts
9.1.	Presence of innovation development strategy or a section in the strategy for the region's development that considers innovation development of dairy cattle breeding	
9.2.	Presence of a specialized legislative act that defines the basic principles, directions and measures of state support of innovation activities in dairy farming in the region	
9.3.	Presence of regional and district advisory services	

Grouping of the parameters in the blocks makes it possible to:

– identify the impact of individual factors on the efficiency of dairy cattle breeding;

– consider the goals and objectives of agricultural production;

– measure the consumption and production of agricultural products;

– link the forecast of scientific and technological progress to the forecast of production and economic activity in agriculture.

For the purpose of assessing the current state of dairy cattle breeding we propose to use an aggregate index as a tool for monitoring the system. The basis of this algorithm of calculation of the index is a comparison of the values of some indicators of development of the sector with the forecast scenario values, and strategic decision making on the basis of this comparison. The index should provide comparable information on the elements of the system.

For calculating the index of development of dairy cattle breeding it is advisable to use the following combination of effective indicators:

– agricultural products of the region in actual prices, million rubles (B_1=0.3);

– number of cows in all categories of farms in the region (B_2=0.25);

– milk yield per cow in the region, kg (B_3=0.25);

– profitability of milk with subsidies in the region, % (B_4=0.2).

The calculation of the index of development of dairy cattle breeding is determined by the formulas 1 and 2:

$$I = \sum_{i=1}^{6} B_i \times I_i, \qquad (1)$$

where B_i is a weight significance coefficient of the i-th indicator;

$$\text{Ii} = \frac{\text{actual value of the i - th indicator}}{\text{value of the i - th indicator according to the scena}}. \qquad (2)$$

If I > 1, then the level of development of the sector is high;

if I ≥ 0.75 – the level is median, but there is a possibility for taking measures to stabilize the situation;

if I < 0.75, then the level of development is low, dairy farming in the region is in crisis, it is not possible to improve the situation in the near future.

The values of weight coefficients expressing the degree of importance of each indicator is established by experts.

The composition of indicators and their degree of importance may vary depending on the region, the accessibility of statistical information and objectives of the research. The main purpose of the index consists in the fact that it provides an opportunity to conduct a comparative analysis to evaluate current dairy farming development. The use of qualitative methods of analysis of the situation helps make substantiated management decisions to correct the situation.

The state of the information base of the unified system of forecast calculations determines the quality of the forecasts made.

Currently, the main sources of information are:

– results of statistical observations conducted by Rosstat in the framework of official agricultural statistics;

– data of Rosstat, developed on the basis of the results of statistical surveys using different forms of accounting and statistical reporting;

– information obtained from departmental sources of statistical data;

– data obtained from foreign sources representing the results of developments and comparative studies of international organizations.

The main sources of formation of the initial system of indicators used in the development of medium-term and long-term forecasts are the data contained in the following forms of state statistical observation:

– Form No. 24-Agr. “Information on the situation in livestock breeding”, Order of Rosstat No. 319 dated September 17, 2010;

– Form No. 2-science “Information on scientific research and development”, Order of Rosstat No. 580 dated September 24, 2014;

– Form No. 21-Agr. “Information on the sales of agricultural products”, Order of Rosstat No. 319 dated September 17, 2010;

– Form No. 4-innovation "Information on innovation activity", Order of Rosstat No. 580 dated September 24, 2014;

– Form No. 9-AIC (meat) "Information on the processing of livestock and poultry and yield of meat products", Order of Rosstat No. 235 dated September 23, 2008;

– Form No. 14 "Information on the assessment of livestock and poultry, and area under crops in the farms of the population", Order of Rosstat No. 441 dated August 09, 2012;

– Form No. 2 "Agricultural production in personal subsidiary plots and other individual farms of citizens", Order of Rosstat No. 319 from September 17, 2010;

– Form No. P-1 (Agr.) "Information on production and shipment of agricultural products", Order of Rosstat No. 540 dated August 29, 2014;

– Form No. 1-Agr.-price "Information on the prices established by agricultural producers", Order of Rosstat No. 321 dated August 09, 2013;

– Form No. 2-MP innovation "Information on technological innovations of the small enterprise", Order of Rosstat No. 349 dated August 29, 2013;

– Form No. 3-farmer "Information on livestock production and livestock head", Order of Rosstat No. 309 dated August 06, 2013;

– Form No. 10-Mech (short), "Information on availability of tractors, agricultural machinery and energy capacities", Order of Rosstat No. 309 dated August 06, 2013;

– Form No. 21-Agr. "Information on the sales of agricultural products", Order of Rosstat No. 319 dated September 17, 2010 and others.

Information needs of innovation economy management should be satisfied by the formation of an effective system for statistical accounting and reporting. The availability of such information will help:

– work out a strategy for development of dairy cattle breeding in the region;

– implement current monitoring and operational management of the sector;

– forecast the main processes associated with the development of agriculture, science and innovation, including professional education;

– effect current and perspective planning of development of dairy cattle breeding.

Given the fact that development of science is global in its nature and goes beyond national boundaries, it is possible to say that each scientific discovery becomes the property of mankind. It is therefore important to study trends in the development of science in agriculture abroad. Undoubtedly, foreign experience was used quite extensively when strategies for the country's development were worked out, but in any case, it needs to be adjusted so that it could correspond to domestic environment.

Regional differences in the levels of innovation activity can be substantial, and identifying the main characteristics and factors contributing to innovation activity

and development of agriculture at the regional level can help understand innovation processes and be useful for the formulation of state policy [9]. Innovation processes in the regions can develop along with national innovation systems. These conditions create the potential for the development of contacts with suppliers, consumers, competitors and public research institutions.

Currently, there are problems with collecting data on innovation processes. First, a comprehensive analysis often requires additional economic data on the economic entities. Therefore, the data of research on innovation often have to be combined with the data obtained from other sources. Second, the implementation of innovation is a continuous process. Therefore, it is difficult to measure in general, especially in agricultural organizations, the innovative activity of which is mainly characterized by small improvement changes as opposed to single, significant measures to implement considerable change. We shall define innovation in agriculture as significant changes. Nevertheless, it is important to keep in mind that innovation can consist of a series of small improvement changes. Third, the data on expenditure on innovation are typically not reflected in financial documents of organizations, making them difficult to estimate. Fourth, when conducting the surveys, it is difficult to record the time of implementation of innovations and manifestation of their impact. Expenditures on innovation are made in hopes of obtaining potential future profit. However, it often happens that the benefit from the development and implementation of innovation manifested in increasing the innovation capacity of firms and their effectiveness does not have time to occur during the survey. Innovation survey should be linked to the education system, labor market and financial structures [12].

These types for innovation surveys can be defined in the following way:

1. Open sources of information: information in the open access, it does not require the purchase of technology or intellectual property rights, or interaction with the source of information.

2. Commercial sources of knowledge and technology: purchase of external knowledge and/or technology embodied in machines, equipment and services that do not involve interaction with the source.

3. Innovation cooperation: active cooperation with other enterprises or public research institutions for the purpose of innovation activities.

The issue concerning the staffing of agriculture in the region remains most urgent today. Forecasting the need for staff is considered to be an important part of the information required in order to develop measures on regulating and monitoring the changes on the market of educational services, measures on the strategic planning of the system for training and retraining of personnel focused on the needs of successful

functioning of Russia's economy as a WTO member. Staffing needs of the region should be forecasted for not less than 5–7 years, because plans of admission to vocational education institutions formed on the basis of the forecast results define the structure of training of professionals. Forecasting staffing requirements for agriculture should be focused on a practical outcome: evaluation and adjustment of the amount of training in the system of vocational education in the region in accordance with the future needs of socio-economic development and demands of production. Currently available statistical data do not allow us to assess the dynamics of employment in the context of professional qualification structure of employment in agriculture in the region. Economic development programs are based on the information that is received from state statistics bodies and reflects the structure of employment in sectors only. This information is insufficient for planning and forecasting the development of the staff training system.

The results of the research carried out by the authors of the paper will help make well-grounded management decisions using the forecast indicators of dairy cattle breeding development in the region taking into account the innovations and conditions for the development of higher education in the long term, and also improve the quality of the information base for analyzing, forecasting and monitoring the development of this sector.

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Modern Trends in the Formation of Human Resources as a Factor in Sustainable Development of China's Economy

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Abstract. The processes of human resources formation and development are among the topical areas of research on the growth of national economies. China, like other developing countries, is building an innovation economy, and considers its national human capital as a key factor in its further growth. China has the greatest amount of human resources among all countries of the world, which largely ensures its success in the global economy; however, birth control policy and other factors led to the emergence of several issues that may have a significant impact on the formation of human capital and further economic growth of the country. The purpose of the present study is to reveal modern trends in the formation of human resources of China by considering the demographic, urban and economic aspects. The paper defines the concept of national human resources, substantiates the urgency of a comprehensive research into the accumulation of human potential in a populous country such as China. The authors consider population dynamics in China, including able-bodied population, analyze the age structure of population, level of dependency, level of urbanization and specifics of spatial distribution of the population. Particular emphasis is placed on the problem of reduction in the share of working-age population, assessment of

the role of internal migration flows in the formation of human capital in cities, assessment of the total economic effect of urbanization, analysis of the uneven spatial distribution of human resources of China and its impact on the volume of production in regions. Several key indicators are presented in the context of major Chinese cities or provinces.

Key words: human resources, human resources in China, human capital in China, economic development of China, demographic development of China, Chinese urbanization, GDP of China, economy of China's provinces.

Human resources are nowadays in the focus of attention of the concepts of sustainable development – it is one of the most important modern economic categories combining various people's peculiarities and qualities, determining their ability to produce goods and serving as a summarizing indicator of the role of the human factor in public production development [5, p. 16]. All countries in the process of building a post-industrial economy consider human resources and human capital accumulated on their basis as a key factor in development, the priority of which is explained by the transformation of national economies, their innovative tendency and an increased share of high technology products in world export over the past half of the century. All the facts mentioned above explain high demand for analyzing various aspects of human resources and evaluating long-term trends of their development on a nationwide scale.

Given the multi-aspect nature of the concept of "human resources", the subject of the research should be specified. It is obvious that the research is referred to national human resources with macroeconomic specific nature. In a narrow sense, human resources of the country may be described as a set of quantitative and qualitative population characteristics, which determine the character and rate of national economy development. In a broad sense, they represent an intensive factor in socio-economic development of the country, a power source of the economic system or, in the context of human capital, a trigger for innovation waves [9].

The study of human resources as a national production factor stipulates the use of indicators that link the "human" component of the resource base of society to economic development of the country (*tab. 1*). A system of such indicators is necessary for complex characteristics of human resources. It also serves as an estimation basis for accumulated human capital in further research.

A rapidly developing country such as China creates on a complex and systematic basis the conditions for innovative development wave that involve accumulating and increasing human capital quality. China started its reforms with a rather technocratic approach to the management of human resources, where numerous uneducated and powerless workforce submitted to the

Table 1. Indicators characterizing human recourse formation trends as a factor in economic development

Indicator	What it indicates
Population size	Human resource physical inventory
Natural population growth	Human resource inventory dynamics
Working-age population size	Labor resource inventory, physical quantity of accumulated labor potential
Age distribution	Potential Support Ratio (PSR)
Demographic load level	The level of financial load, caused by incapacitated population
Urban saturation	The level of human capital concentration, potential rise of labor productivity
Spatial (economic and geographic) population structure	The features of working-age population distribution across the country, trends and rate of internal migration flows
GDP(Gross Domestic Product) per capita, average wage by regions	General efficiency of human resource use in a particular area compared to average rate countrywise

needs of national production. According to the specialists' research, the availability of almost inexhaustible workforce resource, its migration followed by capital migration to the areas of economic development delivered about one third of GDP growth from 1978 to 1988 [6, p. 11]. In the late 1980s after the emergence of the concept of sustainable development, which China held to, the Chinese society started to lean toward the humanist approach. The strategy of comprehensive construction of a moderately prosperous society suggested at the 16th National Congress of the Communist Party of China in 2002 clearly defined as one of the goals "...raising ideological, moral, scientific, cultural and physical quality of the whole nation, establishing an advanced modern education system, a system of scientific, technological and cultural innovation, a system of national physical training, medical aid and health care...as well as encouraging thorough personality development" [4]. The implementation of this concept, the restructuring of the spheres of education, health, information, etc. has forced China to create an innovative model of human resources management. As a result the "passive resource" of the Chinese economy has been regarded as an "active participant in the production process" and excessive and cheap workforce has become "a unique and unrivaled in the number and structure" of human capital [3, pp. 56-65]. Chinese scientists, following their Western counterparts, are currently considering the country's national human capacity as one of the most important strategic resources, which determine total national power and form so-called "hard power" (material resources), which, together with "soft power" (culture and mentality), ensure China's national competitiveness in the international economy [17].

However, many researchers recognize the dual and contradictory character of China's current demographic situation and

account it for the one child birth control policy implemented in 1979 [8; 10; 13; 19]. The main negative consequence of the policy is the reduction and aging of working population, which, according to some experts, results in a whole set of socio-economic problems. "Low-paid Chinese labor, which has long been used throughout the world, may be exhausted in the next few years. Workforce reduction may significantly slow down China's development" [19, pp. 86-87]. Widely discussed processes, derived from demographic problems, such as increasing social burden, falling domestic demand and investment and production opportunity loss "directly threaten the prosperous development of the Chinese economy" [10, p. 191]. The present study, developing a topical issue relevant to the whole world, sets as one of the objectives a number of China's socio-economic parameters coming from demographic changes and possible effects of these changes in the short and long term.

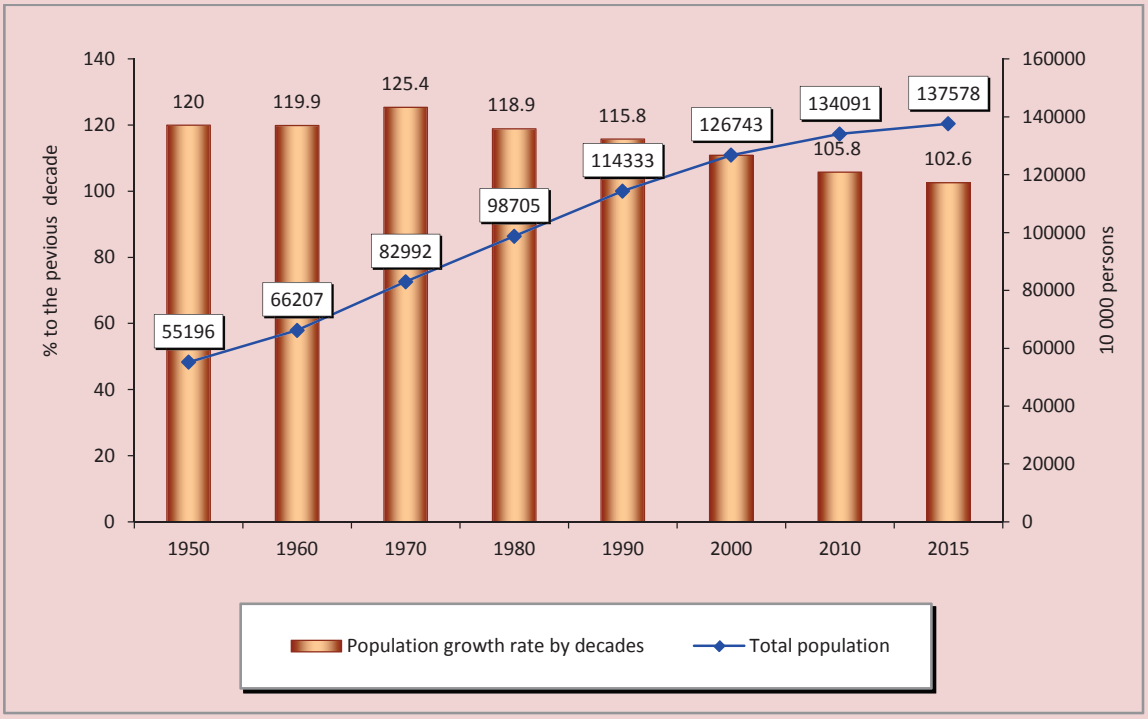
Nowadays China has one of the most dynamic economies in the world, displaying unrivalled high rate of national production growth. Taking up 16.6% of world's GDP (world's top in 2015), China comprises 18.6% of the world population [11], reflecting a unique situation of double leadership: none of the populous countries of the world has yet beaten China in terms of economic development and none of the developed nations can be compared with China in terms of demographic capacity. As of April 1, 2016 China's population comprises 1 375 787 thousand people, the population growth over the past 50 years amounts to 715 million people (208%) and annual average population growth rates over the same period equal 3.8% (*fig. 1*).

Despite positive natural population growth, the one child policy has substantially reduced the annual growth rate: in 1970s it comprised 1.9%, in 1980s – 1.6%, in 1990s – 1.1%, in 2000s – 0.6%, and from 2010 to 2015 – 0.49% [11]. Accordingly, the role of China in global population growth has been changing (*tab. 2*).

According to the UN forecasts, the population of China will peak at around 1,400 million people by 2030 and then will begin to decline [11]. Even despite the loosening of the demographic policy and the permission to have two children in the family, starting from 1st January 2016 [2], China may only succeed to return to a steady positive trend of population growth only after several decades. This may happen as a result of two main reasons: the consequences of artificial birth control in 1979–2015 and profound changes in the lifestyle and mindset of the Chinese people which occurred as a result of economic reforms.

Over the last 40 years tough but rather effective birth control measures have not only prevented 400 million births [2], but have also led to a significant deformation of population's age composition. In 1982 the proportion of young people aged 0–14 comprised 33.6% of the total population, and the proportion of older persons aged

Figure 1. Population Dynamics of China from 1950 to 2015



Source: China Statistical Yearbook 2015 / an official website of National Bureau of Statistics of China. – Available at: http://www.stats.gov.cn/tjsj/ndsj/2015/indexeh.htm.

Table 2. China's position in global population growth in 2010–2015, million people

Year	Natural growth	Growth rate, %	Natural growth	Growth rate, %	China's share in global population growth, %
	China		*World*		
2010	7 162	0.48	79 516	1.17	9.0
2011	7 206	0.48	87 741	1.28	8.2
2012	7 212	0.49	77 049	1.11	9.4
2013	7 127	0.49	79 813	1.13	8.9
2014	6 921	0.52	81 091	1.14	8.5
2015	6 613	0.48	82 383	1.14	8.0

Source: Concise Report on the World Population Situation,2014: the UN Report. The UN Official Website. Available at: http://www.un.org/en/development/desa/population/publications/.pdf.

65 and over comprised 4.9%, by 2015, the figures comprised 16.5% and 10.1%, respectively. The proportion of working-age population has rapidly risen over the 1982 to 2015 period from 61.5% to 73.9%, reaching its historical peak in 2010 at the level of 74.5% [15] (*tab. 3*).

Thus, besides poverty reduction and resources congestion, which was proclaimed as the main goal of the national population planning policy, the birth control policy has resulted in an influx into the economy of a large number of spare workforce, unoccupied with household or children. Nowadays China's working-age population comprises 1 billion 4 million people, representing a physical inventory of labor resources. From 1980 to 2015 the proportion of working-age population has risen by 379 million people (i.e. by 61%) which significantly exceeded total growth rate during the same period – 35% [15]. It should be noted that in 1987 natural population growth in China reached its maximum point at the rate of 1.66%, and in 1992 natural growth rate returned to historical levels of 1978, the year before the activation of the one child policy.

The combination of high economic development rates and working-age population growth is a historic opportunity for China, which it has successfully used. The population of China has provided its economy with excessive labor resources and the decreasing social burden on the budget has promoted an increase in the amount of government investments. According to the remark of E. Andreev, by 1990 "China has had a unique situation where there already were plenty of children and few elderly people. The decrease in dependency ratio and the GDP growth went on almost simultaneously" [1]. The comparison of economic and demographic growth ratios are displayed in *Table 4*.

However, it should be born in mind that a significant increase of human capital during the reform implementation period was achieved by the population decline of future generations: according to the forecasts, by 2020 China will experience

Table 3. Age composition and demographic load on working-age population of China in 1982–2014

Year	Population proportion			Dependency ratio		
	aged 0–14	aged 15–64	aged 65 and over	Child dependency level, %	Old dependency ratio, %	Gross dependency ratio, %
1982	33.6	61.5	4.9	54.6	8.0	62.6
1990	27.7	66.7	5.6	41.5	8.3	49.8
2000	22.9	70.1	7.0	32.6	9.9	42.5
2005	20.3	72.0	7.7	28.1	10.7	38.8
2010	16.6	74.5	8.9	22.3	11.9	34.2
2014	16.5	73.9	10.1	22.5	13.7	36.2

Source: China Statistical Yearbook 2015. Official website of National Bureau of Statistics of China. Available at: http://www.stats.gov.cn/tjsj/ndsj/2015/indexeh.htm.

Table 4. Dynamics of some economic and demographic ratios of China by 5-year periods in 1991–2014

Period	Annual average growth rates, %			Dependency ratio, %
	GDP	Working-age population size	Government investments	
1991–1995	12.3	1.33	10.8	48.8
1996–2000	8.6	1.85	30.5	42.6
2001–2005	9.8	1.19	15.7	38.8
2006–2010	11.2	1.22	27.1	34.2
2011–2014	8.0	0.11	19.8	36.2

Source: China Statistical Yearbook 2015. Official website of National Bureau of Statistics of China. Available at: http://www.stats.gov.cn/tjsj/ndsj/2015/indexeh.htm.

a lack of 31 million children aged 0–15, and by 2050, about 70 million children of the same age. The proportion of the population of young people in 2020 will only comprise 14%. The proportion of the elderly population, on the contrary, will increase and reach 20% in 2020, and by 2050 it will comprise 38% [2]. Thus the increase in the share of the working-age population will be replaced by its decline, and by 2050, according to authors' estimations, it will comprise 50–55%, which is significantly less than before the implementation of the one child policy.

The shift in trends is obvious even today: since 2010 dependency ratio has been steadily rising, and since 2013 there has been a decrease in the absolute number of working-age population by 1130–1500 thousand people (0.1%) per year. The highest percentage (9.1%) in the age distribution structure is occupied by the citizens aged 40–44, and the citizens aged 45–49 comprise 8.8% [15]. This means that in a 15–20 years' time, when the representatives of this age cohort retire, the Chinese population will experience rapid ageing. By 2020 the working-age population could decline by 89 million people compared to 2014. Many elderly Chinese, being the only child in the family, will have to support themselves and their children but also their parents and grandparents. Against a backdrop of underdeveloped pension system, lack of life savings due to low earnings and low financial awareness a "happy", and most importantly, secured old age for elderly Chinese people seems an unlikely outcome. It is still necessary for the country to build from scratch a powerful social security system for the growing number of ageing population.

In the long-term, working age depopulation will provide gradual depletion of growth drivers of human resources and formation of labor shortage that will inevitably lead to the increase of its cost. Economic reforms that have built China's reputation as a "world factory" were based on the use of excessive and, for this reason, cheap and competitive workforce.

A resource that is being changed from abundant to scarce can not be cheap by default. Given the increasing quality of the workforce which implies the increase of expense on education and training, as well as the increase of the social burden which will require extra expense on elderly population support, it should be noted that Chinese workforce may become one of the most expensive in the world by the middle of the 21st century. According to the scientists, "demography is no longer a positive factor in China's development" [8, p. 20].

Naturally, the increase of social burden, he depletion of workforce and the rise of its cost conflict with China's economic interests and have already promoted the abolition of the one child policy in December 2015. Specialists tend to give a negative answer to the expected question whether or not this will result in a rapid births rise. The main reasons for this are the changing social attitudes of the Chinese society and the focus on self-actualization and the improvement of the quality of life. These factors have become as important in birth control as state family planning policy. The media give the results of the surveys of the Chinese population: "In 2014, less than 1 million married couples applied for having the second child, which is half less than that expected. Urban families still prefer to confine to upbringing of only one child for financial reasons. Only 60–65% would like to have the second child and in rural families this proportion comprises 90%" [2].

Another important indicator characterizing the tendencies of China's human resources formation is the degree of urbanization. As a natural result of economic development and the optimization of the distribution of productive forces, urbanization largely determines the peculiarities of spatial distribution of labor resources. Urbanization is a process of concentrating the working-age population in the cities of industrial and cultural advance, resulting in the increase of population density, the intensification of socio-economic life and the rise of the capacity of human capital development.

The tendencies for urbanization and the expansion of cities in the context of human capacity development and for the improvement of the quality of life are fixed in many policy decisions and China's party documents. In that way, within the context of the 16th National Congress of the Communist Party of China in 2002, Jiang Zemin, considering urbanization as an inevitable industrialization and modernization trend, stated as one of the objectives of building a moderately prosperous society the need for "a significant raise of the proportion of urban population and gradual elimination of the tendency for the increasing differences between industry and agriculture, between the city and the country" [4]. Xi Jinping, the actual China's leader, directly marks the advancement of the urbanization process as the right way of modernizing companies and improving performance. At the same time he highlights the priority of the human factor, namely

the guarantee of equal access to basic public services, to the most favorable living environment, as well as the increase of people's content and happiness [14].

The process of urbanization in China which started in the 1950s was one of the most powerful in the world during the whole period of reforms, which intensified internal migration and stimulated the relocation of the rural population to the cities. In 1953 the number of urban population amounted to 77.3 million (13.2% of the total population) (which conforms to the level of underdeveloped African countries), nowadays 750 million people live in Chinese cities (54.8% of the total population) (the level of countries of Southeast Asia – the Philippines, Indonesia, etc.) [15]. By 2020, according to the plans of the Chinese leadership, the country should reach the level of moderately developed countries (60%), and by 2050 – the level of 70% [16, p. 166], which is comparable to the level of Russia's urbanization.

The process of urbanization in China has been developing unevenly, influenced by the government's political decisions. The most active implementation was practiced in the 1980s that coincided with the adoption of the one child policy. Over the last 35 years the urban population increased by 557.8 million, or in 3.9 times, and 48% of that increase falls on 1980–2000 and 52% – for 2001–2014. (*fig. 2*).

Figure 2. Dynamics of China's urban population in 1950–2014

Compiled on the basis of the following source: China Statistical Yearbook 2015. Official website of National Bureau of Statistics of China. Available at: http://www.stats.gov.cn/tjsj/ndsj/2015/indexeh.htm.

Table 5. Contribution of the natural and migration growth to the growth of urban population of China in 1981–2014

Period	Average annual urban population growth, mln people	Average annual rates			Share of internal migrations and administrative transformations in urban population growth,%	Urbanization ratio, %
		of increment of total urban population,%	including natural reproduction, %	including internal migrations and administrative transformations, %		
1981–1990	11 055	5.8	1.5	4.3	74.3	26.41
1991–2000	15 711	5.2	1.0	4.2	80.2	36.22
2001–2010	21 072	4.6	0.6	4.0	87.7	49.95
2011–2014	19 845	3.0	0.5	2.5	83.2	54.77
Calculated on the basis of the following source: China Statistical Yearbook 2015.Official website of National Bureau of Statistics of China. Available at: http://www.stats.gov.cn/tjsj/ndsj/2015/indexeh.htm.						

The period 1980–2000 was to a great extent characterized by the increase in the number of cities, and the period 2001–2015 – by urban sprawling and by active formation of agglomerations.

In order to judge the size of urbanization it is enough to imagine that for the past 40 years in China 1–2 cities like Moscow, or 3–4 cities such as present-day Saint Petersburg have been established. During just this period Chinese cities promoted rapid population growth, which was nearly four times bigger than the population of Russia.

The main sources of urbanization in China are the natural growth of the urban population, the internal migration from rural areas to cities, the emergence of new cities and the administrative expansion of urban areas, when in 1984 a city was considered as an economic center with a population of more than three thousand people (instead of 100 thousand) and with 85% of the residents off the agricultural employment. According to the calculations based on statistical data, during the period of intensive urbanization in 1980–2014 urban population growth was provided by at average 19% by natural growth and by 81% – by internal migration and administrative transformations (*tab. 5*).

According to the table, as natural growth capacity decreased, the transfer of excessive rural workforce to non-agricultural production sectors and cities was beginning to play a more and more important role in providing industrial centers with human resources. Thus the birth control policy has adjusted the age structure in favor of the working-age population and the urbanization has altered the spatial distribution of the labor army in favor of fast developing industries of the cities.

The main tendency of modern national migration is the shifting of workforce from labor-abundant to labor-scarce regions, i.e. from the inner (Western) to the coastal (Eastern) provinces. Eleven coastal

Table 6. Some socio-economic indicators of the biggest cities in China ranked by population size, 2014

City (province)	Population		GRP (Gross Regional Product)		GDP per capita		Range of export-import operations		Average wage of production and office workers	
	million people	share in total population of China, %	billion yuan	GDP share of China, %	thousand yuan	excess over average China's level, times	million dollars	Share in China's international economic activity, %	yuan	excess over average China's level, times
Chongqing (DCM*)	33.75	2.5	1 426	2.2	42.3	0.91	95 450	2.2	56 851	0.99
Shanghai (DCM)	14.39	1.1	2 357	3.7	163.8	3.52	466 622	10.8	92 190	1.61
Beijing (DCM)	13.33	1.0	2 133	3.4	160.0	3.44	415 538	9.7	103 400	1.80
Chengdu (Sichuan)	12.11	0.9	1 006	1.6	83.0	1.79	55 844	1.3	63 201	1.10
Shijiazhuang (Hebei)	10.25	0.7	517	0.8	50.4	1.08	14 400	0.3	48 282	0.84
Tianjin (DCM)	10.17	0.7	1 573	2.5	154.6	3.33	160 847	3.7	76 921	1.34
Harbin (Heilongjiang)	9.87	0.7	534	0.8	54.1	1.16	6 808	0.2	51 554	0.90
Shenzhou (Hebei)	9.38	0.7	678	1.1	72.2	1.55	46 431	1.1	49 756	0.87
Guangzhou (Guangdong)	8.42	0.6	1 671	2.6	198.4	4.27	130 590	3.0	74 246	1.29
Total	*121.67*	*8.9*	*11 894*	*18.7*	*97.8*	*2.10*	*1 392 530*	*32.4*	*68 489*	*1.19*

*DCM – direct-controlled municipality. Source: China Statistical Yearbook 2015. Official website of National Bureau of Statistics of China. Available at: http://www.stats.gov.cn/tjsj/ndsj/2015/indexeh.htm.

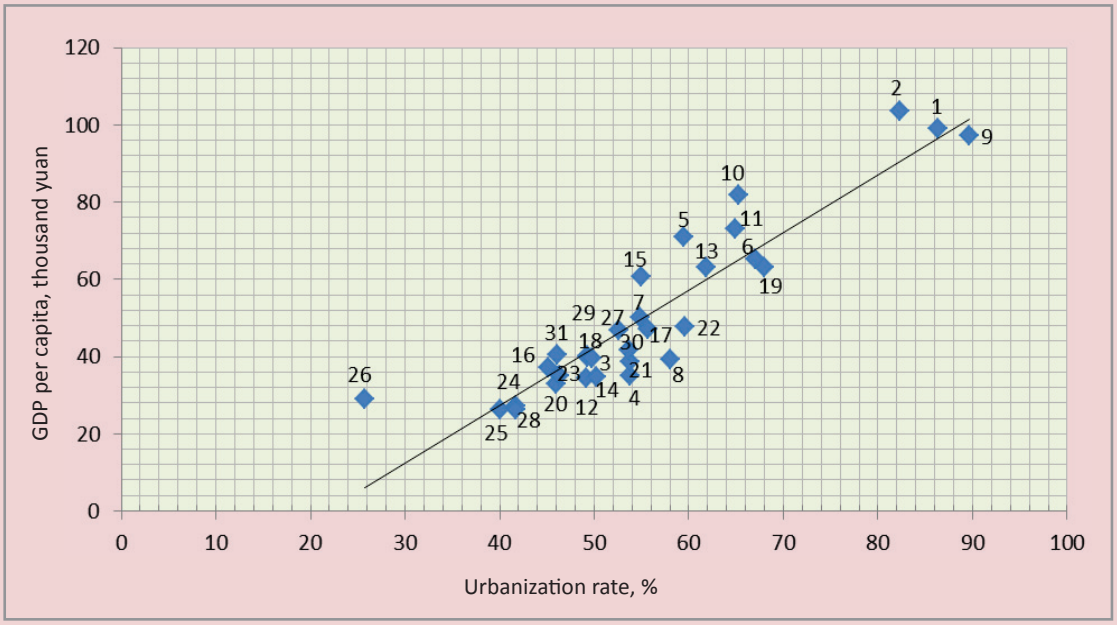
provinces, including direct-controlled municipalities such as Liaoning, Beijing, Tianjin, Hebei, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, Guangdong and Hainan amount to 60% of China's GDP and concentrate 42% of its population [15]. Since 1990s metropolises such as Beijing, Tianjin, Shanghai and Guangzhou have been the main labor force contributors. During the 1990s–2000s Guangzhou ranked first for level of immigration, taking up 20–30% of all migration flows, Shanghai ranked the second (about 7%) and Beijing – the third [3, p. 85]. In coastal cities, the economy of which is oriented toward the export of labor-intensive products, the share of migrants reaches 70–80% of the total workforce size [7, p. 72].

The economic effect of the human capital shift within the context may be estimated means of statistical data: *Table 6* displays some indicators which characterize the ultimate efficiency of workforce use and reflect the socio-economic capacity of China's largest cities ranked by population size (only cities with the population of more than 10 mln people as well as three cities which are close to hitting this number were taken into calculations). As the table shows, nine of the largest metropolitan areas out of 292 cities in China compose 1/5 of the national production and 1/3 of the country's export capacity. Among them are the above mentioned four major Eastern metropolitan areas such as Beijing, Tianjin, Shanghai and Guangzhou which, occupying 0.45% of the total area, and accommodating 3.4% of labor resources, produce 12.2% of the country's GDP and form its foreign economic capacity, comprising 27.3% of the country's total proportion. According to the Forbes list of "The World's Biggest Public Companies" in 2011, twenty-six Chinese companies were included in the list of 500 largest companies in the world, and all of these companies were founded in these provinces [18, p. 18].

Figure 3, compiled on the basis of the data from China's provinces in 2014, shows a direct and close relation (with determination coefficient of 0.84) between the proportion of urban population and the GDP per capita: the higher the urbanization rate, the more efficiently the human capital is used in the territory. It is noteworthy that indicators in Western and Central provinces such as Tibet, Yunnan, Gansu, and Guizhou are concentrated in the lower left corner of the chart, which indicates relatively low capacity of human capital accumulation and a high probability of "workforce drain" and "brain drain" in favor of the provinces located above and/or to the right in the chart.

Thus, urbanization as a process of concentration of human resources in the cities is an important factor in the increase of productivity and labor efficiency of the Chinese economy as a whole. Despite the active development of small and medium sized cities, human resources of China will still be unevenly distributed over its territory in the near future, graviating toward centers of export-led production in the Eastern

Figure 3. Correlation between the urbanization level and the level of GDP per capita in China, 2014



No.	Provinces	8	Heilongjiang	16	Henan	24	Guizhou
1	Beijing	9	Shanghai	17	Hubei	25	Yunnan
2	Tianjin	10	Jiangsu	18	Hunan	26	Tibet
3	Hebei	11	Zhejiang	19	Guangdong	27	Shaanxi
4	Shanxi	12	Anhui	20	Guangxi	28	Gansu
5	Inner Mongolia	13	Fujian	21	Hainan	29	Qinghai
6	Liaoning	14	Jiangxi	22	Chongqing	30	Ningxia
7	Jilin	15	Shandong	23	Sichuan	31	Xinjiang

Compiled on the basis of the following source: China Statistical Yearbook 2015. Official website of National Bureau of Statistics of China. Available at: http://www.stats.gov.cn/tjsj/ndsj/2015/indexeh.htm.

regions. In the medium term, with the stabilization of the population size and the improvement of the quality of life, there is a likelihood of people's relocation to the central regions and their concentration in the cities with a population moderate for China (1–8 million people).

The study showed that China's current amount of human resources, formed in the past (1980–2015), is sufficient and their structure is rather favorable. However, current trends reflect the emergence and aggravation of problems that may have a negative impact on human capital formation and further economic development of China (*tab. 7*).

It should be noted that the trends of demographic and urban development of the end of the 20th century and the beginning of the 21st century were fully exploited by China in order to obtain impressive results in economic development. In the future, in

Table 7. **Modern trends of human resources formation in China**

Indicator	Indicator value	Current trends
Population, million people	1376	• Population growth up to 2030.
Natural growth rate, %	0.48	• Negative natural growth rates (since the 1970s)
Working-age population, million people	1004	• Working-age population decline (since 2013) and underworking-age population (since 1982); • Elderly population growth (since 1982)
Share of working-age population (2014), %	73.9	• Declining share of working-age population in 2010 due to the growth of the share of elderly population
Dependency rate (2014), %	36.2	• Increase in dependency rate since 2010 due to an increasing rate of elderly dependency
Urbanization rate (2014), %	54.8	• Stable share growth of urban population, an increasing number of cities, the formation of agglomerations (since the 1970s); • Excess of urban migration growth over natural growth (since the 1980s); • Increase in labor efficiency in the cities, GDP per capita growth (since the 1980s)
Economic and geographic structure of the working-age population	42% of the population is concentrated in 11 coastal provinces; 9% of the population live in 9 biggest cities	• Activation and increase in internal migration flows from central and western regions to eastern (1990–2010); • Draining of internal migration capacity and the formation of sustainable irregular spatial structure of human resources (2010s); • Development of small and medium-sized cities, a tendency to a more equal distribution of human capital (by 2020 and further)

order to hold a leadership position in global economy and ensure further sustainable economic development, China will have to take some meaningful measures referred to the conservation and development of human capital, which will require fundamentally new approaches to human resource management.

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A Study on the International Tourism of Jiangxi Province under the Guidance of One Belt, One Road Strategy

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Abstract. In recent years, with the shift and violent development of economic globalization and sciences and technology, the connection between counties and citizens all over the world has become more and more intimate, so that the international tourism develops quickly and has become one of the important revenue sources gradually. In 2013, China proposed the new strategic thought of One Belt, One Road (the Silk Road Economic Belt and 21st Century Maritime Silk Road). Jiangxi province will bring its local regional superiority to full play under the guidance of the strategic thought, and powerfully cooperate with neighboring provinces and cities, in order to actively participate in the international tourism market and attempt to make its international tourism bigger and stronger. As the national strategic pillar industry, tourism plays an important role in the regional industrial structure adjustment and upgrade. Possessing the characteristics of strong integration, high interactivity and wide expansibility, tourism is the important engine to accelerate the development of urban economy. In September and October of 2013,during the visit of Chinese President Xi Jinping to countries of Central and East Asia, he successively proposed the significant suggestions of the Silk Road Economic Belt and 21st Century Maritime Silk Road, and the two of them were collectively intituled as One Belt, One Road New Strategic Thought. Silk Road Economic Belt covers the integration of the Southeast and Northeast Asian Economy entities which were eventually merged to lead to Europe. 21st Century Maritime Silk Road refers to unite Europe, Asia and Africa at sea in order to form a complete economic belt. Based on the increasingly deepening of economic integration, One Belt, One Road New Strategy is an international strategy which possesses the strategic importance of promoting industry upgrading and accelerating the transformation of economic growth mode for the purpose of mutual benefit and win-win result and joint development internationally.

Key words: Jiangxi Province, international tourism, competitive advantages, strategy for the realization of potential.

1. The historical status and outstanding contributions of Jiangxi Province of the One Belt, One Road history

2100 years ago, Zhang Qian was sent on the diplomatic mission to the Western Regions and 600 years ago, Zheng He voyaged to the west seas. They exported the silk, tea, ceramics and other products from China to the countries along the way, via the land and maritime silk roads, and showed the civilization and friendship from ancient China, meanwhile gained the praise and good reputation from the people of all countries. During cause of the formation and development of the land and maritime silk roads, Jiangxi Province took up an important historical position and made a highlighted contribution. Jiangxi's ceramics and tea went onto the world stage through the land and maritime silk roads, and the world began to know China with the ceramics and sea from Jiangxi.

In history, Jiangxi Province was the important transport corridor between south and north of China. From the Middle of Tang Dynasty to the Early of Qing Dynasty, the waterway of Canal: Yangtze River-Ganjiang River-Beijiang River-Zhujiang River was always the main national artery connecting south and north. Monopolized one quarter position of the artery, Jiangxi was the pivot of the general artery, and became the famous Golden Waterway for inland accessing to overseas. A large quantity of goods were continuously sold to other countries of the world from Jiangxi in the land and maritime silk roads trade.

2. Jiangxi's regional superiority of the international tourism under the guidance of the One Belt, One Road strategy

At present, Jiangxi grasps the developing opportunities to actively participate the national construction of the One Belt, One Road Strategy, and accelerates the tourism industry transformation and upgrade, in order to jointly promote the cultural exchange between east and west. In May, 2015, Jiangxi government issued the *Implementation Projects on Jiangxi Province's Participation of the Construction of the Silk Road Economic Belt and 21st Century Maritime Silk Road*, and put forward the comprehensive involvement of Jiangxi Province to the key strategy of One Belt and One Road. The Vice-director of Jiangxi Province Development and Reform Commission, Zeng Guangming said, "As the underdeveloped area of central China, Jiangxi must grasp the now-or-never chance to reshape the historic glory of Jiangxi on the silk road, and we must catch the historical development opportunity to support the national One Belt and One Road strategy by coordinated action".

Table 1 describes that the proportion of shopping in the non-basic tourist consumption is highest, while the proportion of entertainment and post & telecommunication is very low with slow development speed, and the foreign currency earnings excessively rely on shopping; the proportion of transportation in the basic consumption is over high, exceeding 50% of basic consumption, while the proportion of lodging, catering and sightseeing is low. Therefore, we can conclude that the consumption expenditure of inbound tourists in Jiangxi is mainly costed on the transportation shopping, and the transportation is at the first place; the

Table 1: Income from international tourism of Jiangxi Province (USD 10000)

Item	2010	2011	2012	2013	2014
Long Distance Transportation	**34630**	**41500**	**48473**	**52508**	**55687**
Civil Aviation	11324	14899	15463	16803	18042
Railway	7792	9296	7659	8926	10970
Highway	1420	2241	4266	3623	4065
Waterway	1281	2490	2472	2888	1838
Sightseeing	831	872	1066	1365	1169
Accommodation	1281	1992	3296	3255	3230
Food and Beverage	3498	3984	4460	5828	5624
Entertainment	3047	2532	2908	4201	4344
Shopping	2009	1411	2521	2363	2951
Post and Communication Services	9281	12409	13427	13705	16316
Local Transportation	623	871	969	1470	1225
Others	693	705	921	1050	1281
Прочее	2874	2697	4508	3833	2673
Source: Jiangxi Statistical Yearbook, 2015.					

proportion of lodging and catering is too low, compared with those developed tourist cities, like Shanghai, and etc. It principally due to the high number of tourists for one-day and cross-border tour, which results in the short average sojourn time of inbound tourist in Jiangxi, and most of passenger flow is just for passing away but not touring. The low consumption level and unscientific consumption structure influences deeply the tourist consumption structure. Hence, we can see that the consumption structure and level of inbound tourists in Jiangxi is actually staying in the low position.

3. The ecological advantages for Jiangxi in developing international tourism

Chinese President Xi Jinping has called for a change in local government development concepts on a visit to east China's Jiangxi Province on February, 2016. He urged local governments to protect the environment and strike a balance between economic growth and conservation. Development concepts, which must be adjusted to the changing environment and conditions of development, should guide the development mode and practices, Xi said during his tour in Jiangxi. Highlighting green development in the new concept, Xi stressed environmental protection in Jiangxi's economic growth."Jiangxi is a place boasting beautiful scenery. So it is a must to protect its ecological environment, which is the most important asset of Jiangxi."Xi said."

President Xi has spoken highly of the eco-environment and natural beautiful scenery of Jiangxi province for several times, and his praise "What appeal the world are the leisureliness of Mt. Lu, the gracefulness of Mt. Sanqing, and the gorgeousness of Mt. Longhu." encourages and inspires the 45 million Jiangxi people with enthusiasm.

Jiangxi owns excellent ecological environment with beautiful mountains and clean water. The good rate of air environment quality of Jiangxi reaches 90.1%, and its water quality control rate of surface water monitoring section is 81.4%. The quality of ecological environment ranks among the national top. There are many

picturesque scenic landscapes in Jiangxi: 2 World Natural Heritages (Lu Mountain and Sanqing Mountain), 2 World Geoparks (Lu Mountain and Longhu Mountain), 8 National Nature Reserves, 11 National Scenic Areas and 39 National Forest Parks. The forest coverage rate of Jiangxi reaches 60.05%.

Table 2 shows that in the view of population and market shares of passenger source countries of inbound tour in Jiangxi, the main passenger source countries of inbound tour in Jiangxi respectively are Japan, U.S.A, Korea, U.K, Germany, France, Singapore, Hong Kong, Macao, and Taiwan; If the economic growth is stable, the population change of outbound tourists in the passenger source countries increases by years, and vice versa, the concentration index of passenger source countries in Jiangxi is high, and the international annual passenger flow is greatly changeable. Therefore, Jiangxi government and each administrative department should attach importance to the development of inbound tourism, and improve the correlated ancillary facility to act on international convention; provide related preferential policies to encourage people to travel in Jiangxi; build up a good atmosphere for inbound tourism; continuously develop the new markets,

Table 2. Condition of oversea visitor arrivals in Jiangxi Province*

Item	2000	2005	2010	2013	2014
Number of oversea visitor arrivals (person-time)	**163057**	**372513**	**1140792**	**1636100**	**1716759**
Foreigners	55411	136270	399449	531533	549175
Indonesia	239	1982	12251	15585	11641
Japan	12282	23945	34956	23716	17971
Malaysia	1256	3639	12113	16766	12481
Philippines	270	1794	8320	12787	9906
Singapore	2018	8271	20249	25612	20228
Korea Rep.	1183	10809	36240	43872	40078
Thailand	2559	1716	4271	7168	8424
United Kingdom	2966	11543	21613	30324	23531
Germany	3080	5943	21689	28492	20426
France	1212	6488	15299	23702	21343
Italy	464	3320	9132	13384	14938
Spain	195	3757	5551	7745	8009
Sweden	195	1131	6705	9368	10187
Switzerland	236	364	6748	10822	11124
Russia	419	2329	16502	22544	17726
Canada	1069	4380	10886	14276	19560
United States	11997	27235	52339	67676	44831
Australia	640	4622	11888	15729	15321
New Zealand	164	1486	2911	4669	12087
Chinese Compatriots from Hong Kong and Macao	69375	154885	534537	808708	862927
Chinese Compatriots fromTaiwan Province	38271	81358	206806	295859	304657
Foreign exchange earnings from international tourism (USD 10000)	**6234**	**10395**	**34630**	**52508**	**55687**

Overseas Chinese are included in foreigners.
Source: Jiangxi Statistical Yearbook, 2015.

such as America , European countries, and Southeast & South Asia developing countries; reduce the dependency of the traditional market, and promote the multilevel demand and development.

4. The cultural advantages of Jiangxi in developing international tourism

Jiangxi is historically known as a marvelous place with rich resource and outstanding people. Its rich cultural resources become the particularly favorable advantage of developing tourist culture. There are one World Cultural Landscape, 3 National Famous Historic and Cultural Cities, 95 National Cultural Relics Protection Units in 24 locations, 258 Provincial Cultural Relics Protection Units. The ceramics metropolis of Jingdezhen city, the famous building of Tengwang Pavilion, the Taoism of Mt. Longhu, the classical learning of Bailudong Academy and the medicinal metropolis of Zhangshu City are all of deep cultural accumulation and long history. Linchuan Culture, Lu-ling Culture and Hakka Culture in Jiangxi have strong regional colors and unique charm, which will make a deep impression on the tourists from all over the world.

Jiangxi gives birth to talent people from generation to generation, for example, The Reformer of 11st Century in China-Wang Anshi, the three people of The Eight Prose Masters of Tang and Song Dynasties-Ouyang Xiu, Zeng Gong, and Wan Anshi, the master of Neo-Confucianism-Zhu Xi, The Oriental Shakespeare- Tang Xianzu, the national hero-Wen Tianxiang, the famous scientist- Song Yingxing, and the Father of Chinese Railway-Zan Tianyou. They like the stars shining in the Jiangxi cultural history.

The porcelain making in Jiangxi has a long history of 2000 years. It already condensed into a rich and long-age ceramics cultural connotation from fabulous ceramics art and outstandingly exquisite porcelain producing techniques with the high artistic state of "as white as jade, as bright as mirror, as thin as paper, and sound as loud as boulder(rock)". As the historical gathering place of porcelains in China, Jiangxi become the national ceramics center, and gradually establishes its historical status of "Ceramics Metropolis" in China and even in the world.

In 2015,the archaeological excavation of the Cemetery of Western Han Dynasty Haihun Marquis in Nanchang (the capital city of Jiangxi Province) became the new highlight in national archaeology. The cemetery have been unearthed more than 20 thousand kinds of cultural relics by now, and is evaluated by the State Cultural Relics Bureau and experts as an archaeological site having the most intact preserved relics, the most complete inner structure of the cemetery and main tomb, the most distinctive layout of cemetery district & city-wall-and-moat district, and the most abundant unearthed relics in categories and quantities, therefore, it's provided with the significance, conditions and value to declare the World Cultural Heritage and construct the world scientific archaeology base. The general cultural developing goal of Jiangxi Provincial 13th Five Year Plan is to be a "cultural powerful province". At the appointed time, the conditions to declare the World Cultural Heritage will be basically satisfied, when the Relics Park of Nanchang Western Han Dynasty Haihun Marquis Cemetery is mainly built, and the relics museum opens to the public.

5. The characteristic advantages for Jiangxi in developing international tourism

(1) Red tourism

Jiangxi province is the most significant and famous revolutionary area, where there are so many revolutionary resorts, for example, "the Revolutionary Cradle in China"-Mt. Jinggang, "the Birthplace of Chinese People's Army"-Nanchang City, "the Cradle Land of Republic"-Ruijin City, "the Original Place of Chinese Labor Movement"-Anyuan District, Pingxiang City, which are the significant bases for the revolutionary ideological education in the contemporary era, and played important roles in the contemporary history of China, and even of the world.

(2) Special tourist souvenirs

A survey found that the most interesting tourist commodities for the inbound tourist are those souvenirs with local features, secondly are the Chinese patent medicine, porcelain, cultural relic replica, and calligraphy & painting. In Jiangxi, we are no lack of kinds of featured commodities, like ceramics in Jingdezhen City, tea of Wuyuan County, Yunwu Tea of Mt. Lu, traditional medicine materials in Zhangshu City, writing brushes of Wengang Town, Jingxian County, and so on. What we need to do is to overall plan; form the joint force; enlarge the production scale and then build up the brands nationally, and even worldly.

Table 3 describes the amounts of inbound tourism in Jiangxi increases year by year, and the trend of its proportion in the total amounts of national inbound reception population and foreign exchange earnings from tourism continuously grows.

6. The opportunities and challenges of China trade in tourist service under the One Belt, One Road Strategy

(1) The establishment of Asian Infrastructure Investment Bank (AIIB) provides the important financing channels for the counties along the One Belt, One Road.

On 24, October,2014, China announced to establish the Asian Infrastructure Investment Bank(AIIB) which will give a series of financial assistance supplies for the infrastructure construction of counties along the One Belt, One Road, and will support their financing activities, like tourist resource development, and etc.

(2) The One Belt, One Road Strategy will furnish the national tourist service trade with a larger platform.

The One Belt, One Road Strategy which connects the Southeast and Northeast Asia with Europe so far as to parts of Africa, nowadays is the development corridor of economics and trade with the most abundant developing potentiality in the world. Taking the advantage of the corridor, China will hopefully further develop to be a trade power of tourist service with many-sides, multi-angles, and strong openness.

(3) The One Belt, One Road Strategy offers the opportunities for China to be the leader formulating the international rules of service trade.

In today's international trade, the new trade rules is taking shape. Supporting by the new strategy of One Belt and One Road, China will take the opportunities to propose the new trade rules in the international service trade, including the tourist service trade during the course of promoting the strategy, which will greatly avail the development of Chinese tourist service trade.

(4) The development of One Belt and One Road is faced with obstructions and safety problems.

Table 3. Development of Jiangxi provincial tourism

Year	Total tourism earnings (100 million yuan)	As percentage of total national tourism earnings (%)	As percentage of the province's GDP (%)	As percentage of tertiary industry in the province's GDP(%)
1991	4.30	1.23	0.90	3.04
1992	4.81	1.03	0.84	2.79
1993	5.31	0.47	0.73	2.47
1994	6.33	0.38	0.67	2.14
1995	8.39	0.40	0.67	2.14
1996	50.15	2.02	3.31	10.27
1997	79.35	2.55	4.63	13.64
1998	81.64	2.37	4.41	12.35
1999	111.29	2.78	5.67	15.03
2000	134.6	2.98	6.72	16.47
2001	161.4	3.23	7.42	18.31
2002	191.1	3.43	7.80	19.85
2003	197.47	4.04	6.98	18.93
2004	240.81	3.52	6.97	19.65
2005	320.02	4.16	7.89	22.67
2006	390.89	4.37	8.37	25.00
2007	463.67	4.23	8.43	26.44
2008	559.38	4.83	8.63	27.90
2009	675.61	5.20	8.83	25.62
2010	818.32	5.21	8.66	26.22
2011	1105.93	4.92	9.45	28.20
2012	1402.59	5.42	10.83	31.27
2013	1896.06	6.43	13.22	37.69
2014	2649.70	8.15	16.86	45.82

Source: Jiangxi Statistical Yearbook, 2015.

The counties along the One Belt and One Road are mostly in Central and South Asia, and there are various national political and economical systems among those counties with different economical levels and ideology & cultures. Some countries faces the problems of trade barriers and backward transportation & communication, which become the obstructions in the development of international tourist service trade.

7. At present stage, the current situation and problems of Jiangxi tourist service trade

(1) The tourism consumption structure is unreasonable

Although the tourist resources in Jiangxi are rich, our tourist industry stays at the sightseeing level with low additional value, for example, the consumption of entertainment and culture is insufficient, and the development of tourist production is imperfect. Inbound and domestic tours remain in the level of basically facing the tourists needs.

(2) The quantity of service needs to be enhanced

Comparing with the developed provinces and cities, our infrastructure facilities construction is obviously backward.

(3) The tourist laws and regulations are imperfect

The flaws in the laws and regulations causes that the human security and property safety of the tourist consumers have not been protected adequately.

(4) The moral qualities of some local consumers are not high

At home and abroad, the inelegant behaviors of local consumers badly impact the international image of Chinese people, and do harm to the image establishment of China to be international tourist power.

(5) Many scenic spots are developed fully, but are not adequately protected

(6) Advertising and marketing methods are not advanced, and the overall marketing level is relatively low

8. The development tactics of Jiangxi international tourist service trade with the background of One Belt and One Road

(1) To deepen the reform of tourism consumption structure

The structure of Jiangxi tourist products which are mostly sightseeing tour, is too single, and its service mode is comparatively old-fashioned and the overall international competitiveness is in an inferior position. To meet the international market need, multi-level and multi-aspect tourist products should be developed, and the entertainment & culture potentialities need to be more exploited, in order to promote the tourism additional value and accelerate the upgrading of Jiangxi tourism industry structure.

(2) To pay more attention to improve the soft environment of tourist consumption

We need to establish and perfect the standard of tourist products and service; standardize the operating service behaviors in tourism; and promote management & service level of hotels, restaurants, scenery regions and spots, travel agency, and etc. We should also vigorously renovate the tourist market order; severely crack down the tourist market maladies, like false advertisement, price fraud, cheating and overcharging the customers, cutthroat competition with super low prices, illegal one-day tour, and etc.; and put the record system of tourists' uncivilized behavior into practice. Meanwhile, more jobs are waiting for us to do, for example, completing & perfecting the mechanisms of tourist complaint settling and service quality supervision; improving the exit mechanism of the tourist market players; deepening the price reform of scenic spot entrance ticket ; adjusting & perfecting the price mechanism; standardizing the price behaviors; energetically promoting the civilized tourism conduct; actively carrying out the tourist volunteers public service; and promoting the civilized tourism moral quality of tourists.

(3) To perfect the law and regulations of tourist service trade, and improve the legal system management

Only by continuously improving the law & regulations, and reducing the vulnerabilities, we can upgrade the integrated service quality, and create a good development environment for the tourist service trade.

(4) To promote the service quality of Jiangxi scenic spots by establishing internationalized standards for service industries

We need to establish and improve the service quality standard of tourism industry, which meets the international conventions; standardize the operation procedure of tourist service quality in order to implement the standardized management of tourist service quality; provide the personalized first-rate service to satisfy the tourists' needs in accordance with the people oriented idea; innovate the work train of thought for tourism by

promoting the comprehensive qualities of senior executives in tourist enterprises and building up a senior executives troop who are qualified with international management abilities and acquainted with the international guide regulations, laws & regulations and operator schema of tourism industry; intensify the professional skill and ethics training for the tourism employees to meet the needs of service industry and enhance the service level of industry-wide employees; set up the city multilingual service system.

(5) To vigorously build up the Jiangxi Characteristic brands

We should insist on the Stepping-out Strategy, with basing on the industry comparative industry of Jiangxi, and strive to cultivate the new advantages of opening-up and cooperation to build up the brands of Jiangxi specialty industry, characteristic cultural tourism and green ecology; launch the featured tourist route of Silk Roads concept; energetically carry out the strategy of "To strengthen Jiangxi by promoting tourism"; reinforce the construction of the well-known scenic sports, such as Jingdezhen city, Mt. Lu, Mt. Sanqing, Mt. Longhu, Mt. Jinggang, and Wuyuan County, and etc., and create the international eco-tourist destinations; intensify the tourist propaganda, popularization through the cooperation with countries along the One Belt and One Road; vigorously market the brand of "The Landscape in Jiangxi is beyond Compare" to promote the international popularity of Jiangxi tourism; unite the related domestic provinces to market a series of characteristic tourist routes with Silk Road concept to attract the tourist source in the region of One Belt and One Road.

(6) To reinforce the construction of Jiangxi tourist feeder airports

Centering on the national key tourist routes and concentrated destitute areas, we will support the conditional areas to newly build or reorganize & expand a batch of feeder airports to be increased into the air lines of principal passenger source; allow full play to strengthen the market forces with encouraging the enterprises to develop the low-cost airline and business of domestic tourist chartered airplane; energetically exploit the tourist market in Thailand, Vietnam, Singapore, and Russia. We will also develop the tourist non-stop flight with the countries along the line of One Belt and One Road, and support open-up of the tourist chartered airlines to promote the international tourist market. In 2016, Jiangxi Province will carry forward the two airlines of Nanchang-Moscow and Nanchang-Los Angeles, and will work hard for the opening up of the first intercontinental airline.

(7) To creatively develop the internet plus tourism

We will creatively promote the development of the online platform tourist enterprises, support the conditional tourist enterprises to explore the internet financial business, create the third party payment platform for the online tourist enterprises, broaden the popularization and application of mobile payment in tourism, and promote the facilitation of drawback of consumption abroad. We also need to reinforce the cooperation with internet companies and financial enterprises, issue the citizen tourist real-name cards, implement the legal preferential policy, carry out the preferential merchant discount, broaden the admittance

permission and business license system of new commercial activities, like online holiday lease, tourist online shopping, online tourist car rental platform. By 2020, the functions, like free Wi-Fi, intelligent tourism guides, electronic interpretation, online reservation, information push service will widely cover the AAAA grade & above scenic spots , and test units of wisdom villages, and 10 thousand wisdom scenic spots and wisdom tourist villages will be constructed in China.

9. Conclusion

Tourism is the comprehensive industry of economic and social development in China, and is the important component of national economy and modern service industry. To promote the tourism investment and consumption by means of reform and innovation, is significant to promote the development of modern service industry, increase employment and resident income, and elevate people's life quality. The complicated and changeable global environment and severe economic situation determines that the international tourist service trade needs to be further developed as the tertiary industry in China by the means of being associated with the present international situation. Be analyzing Chinese tourism's disadvantages and insufficiency, in accordance with its development situation, we can find out its development direction in the future, and create the new development opportunity for it. Meanwhile, the proposition of One Belt and One Road strategy exactly gives a super excellent opportunity to Jiangxi international tourism service industry, and sets up a new pivot for its development. Facing the historical opportunity, our province must precisely estimate and decisively set out to deepen the tourism reform, promote the upgrade of tourism industrial structure, accelerate the transformation of tourism development pattern, and perfect the tourist consumption structure. So that we can firmly grasp the historical opportunity, come up with the new fashion of international economical development, accomplish the transformation from an inferior province in international tourism to be a powerful one, and set up a new image of international tourism.

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Methodology for Assessing the Work of Small Business at the Municipal Level

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Abstract. In order to promote sustainable socio-economic development in a municipality, its local authorities face the task of establishing an industrial and financial base on their territory, it will help increase its level of economic independence. On the basis of foreign experience and domestic research on territorial development it can be concluded that one of the most effective ways to enhance the level of socio-economic development of the municipality is to boost its small business. Effective management of this economic sector requires adequate assessment of its functioning at the municipal level. The analysis of existing methodologies for assessing the functioning of small business at the municipal level shows that none of them meets the criteria that the author of the present paper has selected and that are necessary for efficient research into the small business sector. In this regard, a methodology for estimating the work of small business at the municipal level was elaborated, and tested on the statistic data of municipal formations of the Vologda Oblast. The study reveals municipalities with the highest and lowest levels of small business development. In addition, municipalities were grouped in three blocks that represent different characteristics of their functioning. Taking into account the problems of business subjects, the study has developed measures to increase the level of development for each group of municipalities. Implementing these activities will help intensify the work of the sector of the economy under consideration, and increase the economic independence of territorial formations in the region. The paper can be used to assess the effectiveness of activities aimed to support small business in the region and to help regional and municipal authorities to work out a strategy for further development of this economic sector.

Key words: small business; business; municipal formation; typological classification, assessment of functioning.

Local government is one of the main civil society institutions which enables people to participate, at the closest lowest level, in state administration, independently solving the issues of local significance [6]. The main objective of local government is to ensure sustainable socio-economic development of the territory [17, p. 29]. Among the ways to achieving this goal is the formation by local government bodies of an in-house industrial and financial base that would provide an opportunity to increase the level of economic independence. Critical analysis of works of analysts such as N.V. Tarasenko, A.Yu. Chepurenko, E.G. Taran, A.O. Blinov, D.V. Filippov, S.E. Reiter, etc. [9], has revealed that development management of small businesses and creating conditions for the activation of their activities contribute to efficient achievement of the target goal [4; 8; 12; 13; 15].

Small business is a mass phenomenon implying specific activity of small units, mostly sole proprietors, in a competitive environment for the purpose of finding the most effective solutions in the field of the combination of economic, labor and other types of resources on an innovative, risk and legislative basis in order to make a profit [9]. Small business is an independent sector of market economy, which satisfies basic needs of the national economy [19, p. 14]. The development of small business is currently treated as an important mechanism of diversification of the economy at the federal, regional and municipal level. Small business predetermines accelerated economic growth, promotes local markets development and saturation, allowing at the same time to compensate for market economy costs (unemployment, market fluctuations, and crises developments) [5; 7; 14].

The purpose of this article is to study the category of small business and to evaluate its performance at the municipal level, aimed at revealing the main trends and problems of its development. To achieve the above-mentioned purpose the following *objectives* are set:

– study methodological approaches to the small business performance evaluation at the municipal level;

– develop the methodology of small business performance evaluation at the municipal level;

– evaluate the developed methodology of small business performance evaluation on the data of municipal units of the Vologda Oblast;

– elaborate a system of recommendations on the use of various measures of support and development of small businesses at the municipal level, taking into account existing problems and needs.

It should be noted that government authorities are developing new programs and bills aimed at encouraging small business development. However, there are no approved methods of performance

evaluation of small business entities in the municipalities and the scientific and analytical support of state administration bodies is not sufficient. All of the above determines the scientific rationale behind the study.

According to the conducted critical analysis of methodical approaches to small business performance evaluation of at the municipal level [9] it is clear that they differ from each other in the task composition, the set of indicators and in the method of calculation and reduction to a common value. Each of the approaches addresses its own specific objectives and has advantages and disadvantages, which, in their turn, are often reflected in complexity and quality of the submitted evaluation.

In order to compare the investigated methods of interest their main evaluation criteria have been identified:

– rating according to partial incises (comparative analysis of homogeneous indices);

– calculation of an integrated index (reduction of the investigated parameters to a common value);

– classification of municipal bodies according to the main small business performance indices (the identification of the main clusters of municipal bodies with similar small business performance indices);

– visual display of the obtained results (the results must describe the object under study and must be easily interpreted);

– the use of relative indices (the study of municipal bodies with the use comparable indices);

– simple calculation methods (the calculations must be simple and clear).

According to the results of comparative analysis, none of the existing methods satisfies the criteria. Therefore, we have developed a small business performance evaluation methodology at the municipal level which meets all the criteria required for effective analysis of the sector of small business.

The offered method is based on calculating integral indices according to the three blocks of indices which characterize small business performance and provides the basis for the classification of municipal units. The algorithm of analysis involves five stages.

The *first stage,* based on the studied methodological approaches to small business performance evaluation at the municipal level, revealed that the system of partial indices must include the implementation of the following basic principles:

– complex evaluation that ensures the selection of the indicators which mostly characterize the social and economic situation of the region;

– systematic evaluation aimed at identifying the correlation between individual indices;

– the relevance of the system of indices to regional development trends;

– a system of indicators adapted to the capabilities of the existing statistical database;

– maximized informational content of the results in order to making managerial decisions [1; 2; 3; 7; 11; 16; 18; 20].

Supported by these principles, a number of significant indices, which best characterize small business activities in a municipal unit, has been selected.

The analysis of the researches of E.E. Kolchinskaya, N.N. Petrenko, D.V. Filippov, S.B. Trofimov and the published materials of the Federal State Statistics Service has helped identify three groups of indices which reflect small business performance at the municipal level (*tab. 1*).

The identification of main groups of criteria identified key indices of small business performance evaluation in a municipal unit.

They are the following:

1. A number of small businesses per thousand people of a municipal unit. This index describes the density of small business units in the territory of a municipality with the population of the region taken into account.

2. A share of municipal unit population, employed in a small business sector, in the total number of the employed. Quantitative index reflecting the involvement of the municipality population in a small business sector.

3. Average sales, service and works revenue (excluding VAT, excise duties and other obligatory payments) of small business unit of the municipality (in comparable prices of 2014). Reflects the amount of money or other amenities, received on average by one small business of a municipal unit.

Table 1. Small business performance indices at the municipal level*

Group	Index
1. Indices of small business units incidence in the territory of a municipal unit	Number of small business units per 1000 people of a municipal unit, units/1000 people.
	Share of municipal unit population, employed in a small business sector, in the total number of the employed, %
2. Indices of the scale of doing business in the territory of a municipal unit **	Average sales, service and works revenue (excluding VAT, excise duties and other obligatory payments) of one municipal small business unit (in comparable prices of 2014), thousand rubles/unit.
	Average property value of one municipal small business unit (in comparable prices of 2014), thousand rubles/unit.
3. Indices of financial efficiency of doing business in the territory of a municipal unit	Profitability (unprofitability) level of sold goods, services and works субъектов of one municipal small business unit, %
	Current liquidity ratio of municipal small business units, %

* Compiled by the author.
** The scale of doing business in the territory of a municipal unit is understood by the author of the article to be a group of indices characterizing the scale of entrepreneurial activity performed by the subjects of small business. Territorial characteristics are not taken into account in the presented category.

4. Average property value of one small business of the municipality (in comparable prices of 2014). Reflects the average cost of fixed assets available to small businesses.

5. Profitability (unprofitability) level of sold goods, works, services of small business units of the municipality. Reflects the relation between the value of the balanced financial result (profit minus loss) from goods, works and services sales and the cost value of sold goods, works and services.

6. Current liquidity ratio of municipal small business units. Characterizes organization's financial solvency. Calcuated as a ratio of actual cost of current organization's assets to organization's short-term liabilities in the form of short-term credits and loans and payables.

The presented indices are based on the available official statistical information and form a list and index blocks which reflect various which reflect various aspects of small business performance at the municipal level.

The *second stage* is the calculation of standardized rates from the selected list of indices in order to bring them a comparable form. The standardized ratio for direct and reverse indices, the increasing values of which indicate positive and negative trends respectively, is calculated by the following formulas:

$$k_{\text{прям.}} = \frac{x_i - \min(x)}{\max(x) - \min(x)} \cdot \text{N} , \quad (1)$$

$$k_{reversed} = \frac{max(x) - x_i}{max(x) - min(x)} \cdot \text{N} , \quad (2)$$

where x_i – the value of a partial index in a particular region;

max*(x)* – the maximum index value among the entire set of the objects under study;

min*(x)* – the minimum index value among the entire set of the objects under study;

N – scale ratio (N = 1)[1].

The *third stage* is the calculation of the status index of all three of the identified blocks which characterize small business performance. This represents an arithmetical average of standardized ratios of each index group:

$$I = \frac{\sum_{i=1}^{n} k_i}{n} , \quad (3)$$

where k_i – standardized ratio;

n – number of parameters in a selected block.

At the *fourth stage*, an overall integral index is formed which characterizes the state of the analyzed systems of municipal units. It is calculated by the formula (3), with the replacement of standardized ratios with integral indices for each block, which characterize small business performance in the territory of a municipal unit.

[1] The presented ratio determines the specified interval of possible integral index values. In this article, N=1, thus k can assume values in the interval from 0 to 1. Scale ratio can be changed by the researcher if desired depending on the need for data interpretation.

Having in view the need of public and administrative authorities for the compilation of the overall rating of municipalities by level of small business performance, it is advisable to classify the municipalities under study. In order to analyze the calculated indices and divide territorial units into groups with different levels of small business performance it is necessary to calculate the deviation of the index under study (*d*). This deviation is calculated by the formula:

$$d_i = \left({}^{x_i}/_{\bar{x}} - 1 \right) \cdot 100\% , \qquad (4)$$

where d_i – deviation of the integral index of small business performance at the municipal level;

x_i –integral index of small business performance at the municipal level;

$\bar{x}$ – integral index average value of small business performance at the municipal level.

According to the approach implemented in the classification process, five groups of municipal units with different levels of small business performance are formed. The level of small business performance depends on value variations of calculated deviation from the average integral index of small business performance (*d*):

High level – the index value is more than 30%.

Upper-middle level – the index value is in the interval from 10 to 30%.

Middle level – the index value is in the interval from -10 to 10%.

Lower-middle level – the index value is in the range from -30 to -10%.

Low level – the index value is lower than -30%.

The *fifth stage* presents a classification of municipal units of the region into three blocks of integral index of small business performance. By means of distribution of index calculation data referred to average integral index of all three blocks it is possible to divide all municipal units into 8 groups (*tab. 2*). Using a mathematical method of classification, presented above, will allow us to conduct the most detailed analysis of current trends in small business performance, yet it will complicate the developed methodological approach, thus challenging the fulfillment of one of the requirements to the evaluation method (the simplicity of calculations).

The following classification will provide an opportunity to identify weak and strong points of small business development in selected municipal units, which is necessary for further elaboration of measures and their implementation aimed at effective entrepreneurship promotion.

The developed method allows us to perform a complex assessment of small business performance taking into account various factors in its activities. The use of the method makes it possible to define, to a high degree of scientific validation, specific measures (mechanisms), resources and directions of their use for support and development of small business of municipal

Table 2. Characteristics of groups of municipal units of the region*

Group	Small business incidence		Scale of small business		Small business financial productivity	
	High	Low	High	Low	High	Low
I	+		+		+	
II		+	+		+	
III	+			+	+	
IV		+		+	+	
V	+		+			+
VI		+	+			+
VII	+			+		+
VIII		+		+		+

* Compiled by the author.

units, which, in its turn, will ensure the implementation in a region of a balanced and reasonable socio-economic policy of its development.

The approbation of the method has been conducted based on the materials of municipal units of the Vologda Oblast. The empirical base of the study is presented by economic and statistical materials of the Federal State Statistics Service, which characterize the development of small business of the region in 2009–2014.

After calculating the composite index of small business performance in municipal units of the region it becomes possible to evaluate the development trends of a specific municipal unit by making a relevant ranking list (*tab. 3*). Taking into account the high dispersion of indices of small business performance, in order to estimate its performance level in the territory the following study uses average values of integral index in 2009 – 2011 and 2012–2014. According to the analysis data of these time periods, there have been rapid changes in small business performance indices due to the influence of external factors: the global financial crisis, the adoption of new legislative acts regulating the activities of the studied sector of economy, the rise in insurance payments for small business units and others [7, p. 87]. It is possible to conduct the study of performance level for each year of the period; however, the study does not pursue a goal of analyzing the rankings dynamics of municipal units by the criterion presented in the article.

The leading municipal units in the represented ranking list in 2009–2014 are and Tarnogsky District, Chagodoshchensky District and the cities of Cherepovets and Vologda, which demonstrate a high level of small business performance. At the same time 10 municipal units (about 36%) have a low and middle-low performance level and half of them (14 units) demonstrate negative

Table 3. Average value of integral small business performance index of the Vologda Oblast in 2009–2014*

Average integral index value by municipal unit				Deviation from integral index value by all municipal units, %			
Municipal unit (district, city)	2009–2011	2012–2014	Deviation, %	Municipal unit (district, city)	2009–2011	2012–2014	Deviation, %
Tarnogsky District	0.39	0.38	97.69	Tarnogsky District	88.67	52.08	-36.59
Cherepovets	0.30	0.37	123.58	Cherepovets	45.45	48.31	2.86
Vologda	0.27	0.37	138.06	Vologda	29.32	47.32	18.00
Chagodoshchensky District	0.27	0.32	119.56	Chagodoshchensky District	31.05	29.29	-1.77
Ust-Kubinsky District	0.22	0.30	135.98	Ust-Kubinsky District	7.65	20.78	13.13
Kichmengsko-Gorodetsky District	0.23	0.29	127.96	Kichmengsko-Gorodetsky District	10.41	16.57	6.16
Velikoustyugsky District	0.25	0.28	112.12	Velikoustyugsky District	20.25	11.25	-9.01
Babushkinsky District	0.28	0.26	92.40	Babushkinsky District	37.75	5.02	-32.72
Nyuksensky District	0.18	0.26	142.60	Nyuksensky District	-11.85	3.72	15.57
Cherepovetsky District	0.21	0.26	121.30	Cherepovetsky District	2.42	2.51	0.09
Babayevsky District	0.31	0.25	81.81	Babayevsky District	49.52	0.93	-48.59
Mezhdurechensky District	0.17	0.25	145.96	Mezhdurechensky District	-17.73	-0.92	16.81
Ustyuzhensky District	0.23	0.25	108.39	Ustyuzhensky District	10.10	-1.53	-11.63
Kharovsky District	0.23	0.24	104.35	Kharovsky District	12.89	-2.79	-15.69
Vashkinsky District	0.20	0.24	118.40	Vashkinsky District	-2.55	-4.80	-2.25
Nikolsky District	0.18	0.24	130.03	Nikolsky District	-11.77	-5.34	6.43
Kirillovsky District	0.06	0.23	414.63	Kirillovsky District	-73.19	-8.27	64.92
Kaduysky District	0.22	0.23	104.87	Kaduysky District	5.93	-8.34	-14.27
Syamzhensky District	0.19	0.22	120.96	Syamzhensky District	-10.10	-10.28	-0.17
Belozersky District	0.19	0.22	117.52	Belozersky District	-9.86	-12.59	-2.73
Verkhovazhsky District	0.16	0.21	135.79	Verkhovazhsky District	-24.31	-15.20	9.12
Sokolsky District	0.13	0.21	162.73	Sokolsky District	-37.52	-16.10	21.41
Vozhegodsky District	0.14	0.21	144.75	Vozhegodsky District	-31.10	-17.71	13.39
Sheksninsky District	0.19	0.20	107.15	Sheksninsky District	-9.14	-19.67	-10.53
Vytegorsky District	0.20	0.19	95.63	Vytegorsky District	-3.13	-23.56	-20.43
Gryazovetsky District	0.15	0.19	126.85	Gryazovetsky District	-28.70	-25.37	3.33
Vologodsky District	0.18	0.19	105.65	Vologodsky District	-15.03	-25.93	-10.90
Totemsky District	0.07	0.15	212.55	Totemsky District	-65.43	-39.38	26.05

* Compiled by the author.

Table 4. Classification of municipal units of the Vologda Oblast by level of small business performance*

High level	Upper-middle level	Middle level	Lower-middle level	Low level
2009–2011				
Tarnogsky District	Vologda	Ust-Kubinsky District	Syamzhensky District	Vozhegodsky District
Babayevsky District	Velikoustyugsky District	Kaduysky District	Nikolsky District	Sokolsky District
Cherepovets	Kharovsky District	Cherepovetsky District	Nyuksensky District	Totemsky District
Babushkinsky District	Kichmengsko-Gorodetsky District	Vashkinsky District	Vologodsky District	Kirillovsky District
Chagodoshchensky District	Ustyuzhensky District	Vytegorsky District	Mezhdurechensky District	
		Sheksninsky District	Verkhovazhsky District	
		Belozersky District	Gryazovetsky District	
2012–2014				
Tarnogsky District	Chagodoshchensky District	Babushkinsky District	Syamzhensky District	Totemsky District
Cherepovets	Ust-Kubinsky District	Nyuksensky District	Belozersky District	
Vologda	Kichmengsko-Gorodetsky District	Cherepovetsky District	Verkhovazhsky District	
	Velikoustyugsky District	Babayevsky District	Sokolsky District	
		Mezhdurechensky District	Vozhegodsky District	
		Ustyuzhensky District	Sheksninsky District	
		Kharovsky District	Vytegorsky District	
		Vashkinsky District	Gryazovetsky District	
		Nikolsky District	Vologodsky District	
		Kirillovsky District		
		Kaduysky District		

* Compiled by the author.

dynamics of this index. The transition to a group of a lower level was performed by only 8 municipal units (*tab. 4*).

In the course of analysis of deviation from average integral index value for the period under study the main groups of municipal units have been identified, ranging by the level of small business performance. The analysis has also enables a more detailed consideration of the index dynamics taking into account the overall dynamics trend of the region. That leads to a conclusion that in the territory of the Vologda Oblast a disparity reduction between municipal units by level of small business performance.

In order to determine the main problems which have the greatest impact on small business performance, it is necessary to classify municipal units into three blocks of small business integral index. The implementation of this classification has helped identify the main characteristics of small business performance in each municipal unit (*tab. 5*). The study of individual groups of indices of their performance allows us to conclude that negative factors to a greater extent affect financial efficiency of small business units' activity.

Nowadays, in most districts of the Vologda Oblast, namely in Verkhovazhsky, Vozhegodsky, Vologodsky, Vytegorsky, Gryazovetsky, Kirillovsky, Nikolsky, Nyuksensky, Sokolsky, Syamzhensky, Totemsky, Ust-Kubinsky and Sheksninsky districts and in the cities of Vologda and Cherepovets low prevalence of small business is observed. The main measures in this area, in our opinion, should be aimed at the formation of the acceleration of quality growth and development of small businesses. Such system is related to active promotion of their activities and the need for a dialogue

Table 5. Classification of municipal units of the region by three blocks of integral small business performance indices *

Groups of municipal units	Municipal units (district, city)
2009–2011	
I	Kaduysky, Chagodoshchensky
II	Cherepovets, Sheksninsky, Vytegorsky
III	Kichmengsko-Gorodetsky, Tarnogsky, Kharovsky districts
IV	Babayevsky, Babushkinsky, Belozersky, Velikoustyugsky, Nikolsky, Nyuksensky, Syamzhensky districts
V	Ustyuzhensky District
VI	Vologda, Gryazovetsky, Ust-Kubinsky districts
VII	Vashkinsky Mezhdurechensky, Cherepovetsky districts
VIII	Verkhovazhsky, Vozhegodsky, Vologodsky, Kirillovsky, Sokolsky, Totemsky districts
2012–2014	
I	Chagodoshchensky District
II	–
III	Babayevsky, Kichmengsko-Gorodetsky, Mezhdurechensky, Nyuksensky, Tarnogsky, Kharovsky districts
IV	Belozersky, Vozhegodsky, Kirillovsky, Nikolsky, Sokolsky, Syamzhensky, Ust-Kubinsky districts
V	–
VI	Vologda, Cherepovets; Sheksninsky districts
VII	Babushkinsky, Vashkinsky, Velikoustyugsky, Verkhovazhsky, Kaduysky, Ustyuzhensky, Cherepovetsky districts
VIII	Vologodsky, Vytegorsky, Gryazovetsky, Totemsky districts
* Compiled by the author.	

between government and business in order to reveal its specific problems and to ease administrative barriers.

The decreasing level of small business performance in districts such as Babushkinsky, Verkhovazhsky and Sheksninsky is explained by the deteriorating financial efficiency of small businesses activity. Along with this, Vytegorsky, Gryazovetsky, Kaduysky, Ust-Kubinsky and Ustyuzhensky districts demonstrate a reducing scale of doing business. Thus the municipalities of the Vologda Oblast, experiencing problems of different nature, require differentiated ways of small business support.

In our opinion, it is useful to determinate the orientation of small business to a particular sector in each municipal unit in order to specify the existing problems. For this reason a relative index of the prevalence of small businesses in each sector in respect of the population of a municipal unit has been calculated (*tab. 6*).

According to the analysis results, for urban districts of the region the most common are enterprises of bulk and retail sales, as well as organizations that provide services related to rental of premises and real estate transactions. This fact is explained by a large number of bulk warehouses supplying both the city and other municipal units of the region, and a number of industrial premises and offices for large and medium-sized enterprises and their representative offices.

In the territory of Chagodoshchensky District, major enterprises such as "Smerdomskii Steklozavod" OJSC, "Chagodoshchenskii Steklozavod and Co" LLC and others are functioning. The availability of a federal road and the remoteness from regional centers explain the leading positions of small enterprises providing transport service in the ranking list of small business prevalence. Thus, the key priority areas of small business activity are referred to the maintenance of large and medium-sized enterprises of the district.

The highest concentration of small manufacturing enterprises is observed in Tarnogsky District. However, their number has been reducing during the whole period under study. Logging is their area of priority.

Thus the analysis of small enterprises performance in the territory of municipal units has shown that for their development it is necessary to take into account their sectoral focus as well as the presence of medium- and large-scale enterprises.

While a specific sectoral focus or the resources necessary for the development of small business in municipal units are absent, a system of support measures should be used, which would take into account the problems of small enterprises. For groups of municipal units with low index values by specific blocks of integral indices of small business performance we have developed recommendations promoting the

Table 6. Average value of the number of small businesses per 1,000 people of a municipal unit in 2009–2014, units/person*

Municipal unit (district, city)	Agriculture	Manufacturing	Bulk and retail sales	Transport and communications	Real estate operations; renting and service delivery	Delivery of other municipal, social and personal service
Babayevsky District	7.53	1.98	14.05	3.82	1.94	1.84
Babushkinsky District	21.06	5.05	10.42	3.07	0.91	0.95
Belozersky District	6.71	1.94	10.92	4.52	2.37	2.23
Vashkinsky District	14.84	2.22	9.53	3.62	1.53	3.40
Velikoustyugsky District	7.33	3.58	16.12	7.10	3.77	2.13
Verkhovazhsky District	9.34	3.94	9.55	4.04	0.84	1.71
Vozhegodsky District	7.21	1.66	7.34	2.94	0.95	2.84
Vologodsky District	7.63	3.96	11.77	5.21	2.49	1.33
Vytegorsky District	8.45	1.61	9.76	4.62	1.39	1.44
Vologda	0.47	3.41	21.45	4.62	7.17	2.86
Gryazovetsky District	4.79	2.10	9.35	3.57	2.15	1.85
Kaduysky District	4.36	2.09	14.12	7.12	2.86	3.65
Kirillovsky District	7.27	2.20	10.85	3.55	1.84	1.10
Kichmengsko-Gorodetsky District	12.39	2.76	7.12	2.66	1.27	0.99
Mezhdurechensky District	25.34	2.34	10.92	2.28	0.91	0.57
Nikolsky District	12.52	1.98	9.08	2.08	1.58	0.90
Nyuksensky District	10.62	3.24	9.44	4.79	1.39	1.29
Sokolsky District	3.58	2.76	13.88	3.70	2.37	3.19
Syamzhensky District	23.33	3.89	9.86	4.27	2.30	1.83
Tarnogsky District	14.80	24.32	13.55	4.85	3.50	5.75
Totemsky District	6.68	2.51	13.84	4.13	1.79	2.37
Ust-Kubinsky District	8.88	2.53	10.43	3.25	1.58	0.74
Ustyuzhensky District	11.09	3.73	16.04	4.10	1.95	1.58
Kharovsky District	12.76	11.36	14.00	4.86	2.93	4.79
Chagodoshchensky District	6.69	2.81	7.82	10.02	1.84	1.54
Cherepovets	0.31	2.93	19.11	7.26	6.27	7.56
Cherepovetsky District	7.19	1.57	12.69	7.92	4.01	3.20
Sheksninsky District	2.33	2.00	9.92	5.31	2.19	2.53

* Compiled by the author.

Table 7. Recommended actions aimed at improving the level of small business performance in municipal units*

Weak points of small business of a municipal unit	Actions aimed at improving the level of small business performance in a municipal unit
Low level of small business incidence in the territory of a municipal unit	Building mechanisms expansion of best practices of small and medium business support at the municipal level. Entrepreneurship publicity
	Establishing a dialogue between government and business
Low level of small business scale in a municipal unit	Development of a system of financial support of small businesses in the territory of a municipal unit
	Improvement of efficiency of small business development programs and mechanisms of financial support of small business units at the municipal level
Low financial productivity of small business of a municipal unit	Promotion of small businesses integration into supply chains
	Providing access for local small business units to municipal procurements
* Compiled by the author.	

development of specific activities in order to raise the level small business performance (*tab. 7*).

In order to create new companies and encourage the existing companies toward quality growth and the achievement of target development indices it is offered to form, on the basis of the existing infrastructure, a small businesses "acceleration" mechanism.

The system of business "acceleration" must encourage the exercise of entrepreneurial initiatives for the population and the increase in the number of jobs and the volume of production as well as further enlargement for small businesses [5; 16]. It should combine new approaches to financial backing of small businesses, providing them with seamless access to the infrastructure and engineering utilities.

The process of business development should be considered as an integrated target space which includes three stages of business development: new business (microbusiness) – small business – medium business. At the same time, a set of measures stimulating enterprises' achievement of certain quantitative target indices and their transition to the next development stages [7, p. 95].

When building such a system it will become possible to unlock entrepreneurial potential of the area by means of active promotion and publicity of small business at the municipal level. The demonstration and provision of information on successful projects implemented through staged development will be an effective tool for increasing the prevalence of small businesses in the areas.

It is also worth noting that organizing open meetings and dialogues between government and management representatives and the members of a business community will help reveal the main problems which small businesses face at different stages of development, and to develop necessary measures to address these issues, thereby reducing the level of administrative barriers.

To address the problems related to low scale of small enterprises in a municipality it is necessary to develop systems of their financial support. [10, p. 176]. Information support, with regard to existing regional measures of small business support, loan and leasing companies' acquisition for creating regional representative offices will increase the possibility of fixed assets acquisition for activities implementation of small business in the territory of a municipal district.

Since almost all municipal units established their own proper small business development programs, it is necessary to increase their effectiveness by consideration of the specifics of the area and resources used by small businesses.

Considering the main business goal – profit maximization [8], the point to be emphasized is that certain measures must be initiated in order to improve small business financial efficiency. For this reason, local authorities must promote the integration of small enterprises into other organizations' supply chains, as entrepreneurs are currently experiencing a problem of lack of communication between each other. As a result, potentially profitable mutually beneficial opportunities for resource, communication, experience and knowledge exchange are not implemented [2, p. 64].

Participation of small enterprises in the implementation of state and municipal contracts is also constrained by the complexity of liquid assets refill, necessary for executing contracts (purchase of raw materials, other overhead costs, etc.) [14].

Analysis of information about procurement on the official website www.zakupki.gov.ru showed that a vast majority of contracts do not stipulate advance payments which may be delayed [10, p. 176]. In order to avoid cash deficiency competition (auction) winners are forced to apply for loans and bank guarantees provided on conditions of repayment and interest payment for a period of 90 days to 18 months.

The combination of defer payments, tough contract provision requirements, high tax burden and debt load leads to the situation where competition winners often lack financial resources for proper contract execution. As a result, they are enrolled on the blacklist of bad suppliers, which leads to extra expenses and company's bankruptcy.

A solution to this problem may be the distribution of a factoring mechanism, which will help raise funds through assignment of accounts receivable of a state customer. The burden of proper execution of state or municipal contract will remain to be performed by the winner of the competition and its implementation will be monitored by both government authorities and a fiscal agent who assumes the risks to payment under the contract [5, p. 125].

If these actions are taken, the enterprises will reduce the risks of doing business, increase the opportunity for potential development and formation of resources necessary for the development, the upgrade of the industrial base and new staff recruitment, and increase their financial productivity.

To sum up the approbation results, it may be noted that developed method of small business performance evaluation allows us to identify lagging areas and to determine the specifics of the existing problems. It is advisable to apply differentiated measures of small business support on the part of regional and municipal authorities for municipal units in the Vologda Oblast. In areas experiencing problems with small businesses financial productivity, it is required to implement measures to promote the integration of small enterprises in supply chains and to increase the participation of small organizations in municipal procurement. However, it is obvious that the majority of small businesses lack financial support, which suggests the need for improvement of mechanisms and programs of small business development in the territory of each municipal unit of the region.

The use of differentiated small business support measures by each municipal unit will enable them to use the allocated funds more efficiently, considering the specifics of its development. In addition, the development of special tools and mechanisms aimed at the implementation of differentiated small business development policies in municipal formations of the region is appropriate. The probable solutions to these issues will be presented in further publications.

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A Fundamental Work on the Experience of Research into the Prospects for Development and Distribution of Productive Forces

The article is devoted to the publication of the book: Adamesku A. A. *Pervaya General'naya skhema: opyt ob"edineniya nauchnykh organizatsii dlya obosnovaniya perspektivnogo razmeshcheniya proizvoditel'nykh sil* [The First General Scheme: the experience of research organizations consolidation for the purpose of substantiating the strategic distribution of productive forces]. Moscow: SOPS, 2016. 328 p.

The renunciation of the Soviet economic system and a forced transition in the 1990s to market economy in Russia was accompanied by the destruction of government planning bodies, the curtailment of the accumulated practices of pre-planning works and long-range forecasting. The reformers were convinced that market itself would choose optimal industry development trends and determine their rational distribution throughout the country. They also claimed that market mechanisms would promote a more efficient use of labor resources, ensure their rapid transfer to the location of priority industries. But forced implementation of free market principles has not resulted in intended progress, but brought tremendous losses in many areas of economic and social life of the country.

The process of market system formation in Russia demonstrates that its arsenal is much wider than a set of mechanisms called the free market. The experience of developed capitalist countries shows that the most important tools for ensuring national economy growth is planning and forecasting. The key points of this "tool set" are formed, as a rule, on the basis of the examination of the results of the Soviet practice of developing and implementing five-year plans. And it is not a coincidence that country's respected scholars, sober-minded analytical experts, economic managers and representatives of patriotic community emphasize the necessity of modern strategic approaches to the development of our country. In this regard, the fact that the Russian Federation began the development of a strategic planning system at both federal and regional levels is more than satisfying. According to the provisions of the Federal Law "On strategic planning in the Russian Federation" dated June 28, 2014 No. 172-FL, the Strategy of Spatial Development of the Russian Federation and the Strategies

of Socio-Economic Development of Macroregions and Federal Subjects of the Russian Federation are considered the basic documents at the level of goal setting, defining the spatial development of our country. The government of the Russian Federation adopted a resolution "On the Content, Composition, Execution and Approval Procedure of the Strategy of Spatial Development of the Russian Federation, as well as on Monitoring and Control Procedures of Its Implementation" dated 25 August, 2015 No. 870. According to the resolution, the Strategy "is a strategic planning document which determines the priorities, purposes and objectives of the integrated regional development of the Russian Federation aimed at maintaining a stable settlement system in the territory of the Russian Federation and lifting infrastructural restrictions in socio-economic development of the territories, including proposals for improving the settlement system and priority areas of distribution of productive forces in the territory of the Russian Federation".

The retrieval of unrivalled experience in strategic planning accumulated by the Soviet Union, especially since the early 1960s during the formation of high-integrated economy which held a leading position in the world by various indicators is, in these circumstances, more and more important. Such economy, being based on state property and command and administration system, required great effort to maintain and improve its proportions. At that period the heightened need for complex forecasting took place. Systematic, large-scale and comprehensive studies focused on complex analysis and forecasting became mandatory, covering all key problems of territorial development and distribution of productive forces in a vast and resource-rich country. This implied both the expansion of technical, economic and balance settlements and the transition to long-term comprehensive schemes of development and distribution of productive forces. That was the goal set before the Council for Study of Productive Forces (SOPS). The history of SOPS dates back to the beginning of 1915, when the Russian Imperial Academy of Sciences on the initiative of academician V.I. Vernadsky together with a group of leading scientists made a decision to establish the Commission for Study of Natural Productive Forces in Russia (KEPS). In 1930 it was transformed into the Council for Study of Productive Forces and still bears the name. The monograph under review is dedicated to the 100th anniversary of the Commission on the study of natural productive forces – the Council for study of productive forces (KEPS – SOPS).

In 1960, the SOPS passed to the control of Gosplan of the USSR (State Planning Committee). Under its leadership in the 1960–1980s SOPS developed General Schemes for the periods 1971–1980 (with a detailed emphasis on 1971–1975), 1976–1990 (with a detailed validation of 1976–1980), as well as for the period from 2000 till 2015 (completed in 1989).

In a recent monograph of A.A. Adamesku only the first General scheme for 1971–1980 is described. It was the first experience in our country of successful coordination of almost all leading institutes and scientific centers in economic research activities. Five hundred and sixty research and design institutes took part in the development of sectoral and territorial schemes, overall projects of which were included as sections into the General scheme. The process was supervised by the USSR Gosplan, its departments formed special work groups which controlled and adjusted schemes preparation and evaluation of results.

The final amount of deliverables to the General scheme amounted to more than 50 volumes. "One work, as the author himself notes in the preface, was not aimed at presenting in detail all the variety of problems studied in the first General scheme of distribution of productive forces in 1971–1980, that seems practically impossible". The author's attention is drawn primarily to methodological approaches, main trends and conceptual points of productive forces development in the period at issue. Nevertheless, almost every chapter of the book reflects wide personal experience of the author, who is an active participant in the development of the first General scheme, having worked at SOPS for over fifty years. This experience, as well as the ability to creatively summarize and concisely outline the results of work with archive funds have become scientific products which give their reader a feeling of true satisfaction.

Of course, as it is always extremely important in scientific works, the matter of greatest interest is the author's presentation of methodological and methodological aspects. According to the author, the methodology of pre-planned works included a short program of the General scheme, the organization of works, methodological provisions, including general provisions and basic materials for the development of the General scheme, schemes for development and distribution of leading national economy sectors, schemes for development and distribution of productive forces of the Union republics and Regions of the USSR, schemes for the development of new enterprises and the formation of industrial complexes. Along with the General methodology a complex of partial methodological materials was developed. During the process of research conducting, mathematical calculation methods were developed and implemented with the use of electronic computers for the first at this level.

The author characterizes in details the basic scientific principles of the General methodology the General scheme development for 1971–1980. That enables the readers to understand the economic nature of the problems which were solved by the developers.

The main scientific materials for the development of the General scheme included the analysis of the factual economic base of development and distribution of national economy and source data development of production levels for 1975 and 1980. By economic base, as A.A. Adamesku points out, the developers implied the USSR level of development of productive

forces and their distribution throughout the republics and the regions. The economic base of the sector and the economic base of the regions were considered separately according to a special list of research problems. The baseline for determining the scale of long term development of national economy was the estimation of social needs for products and services and the evaluation of real possibilities of their satisfaction taking into account scientific and technological progress, population growth and increasing consumption level. In our opinion, such conceptual approach, even in strategic economy development plans of modern Russia, would both contribute to a real change of situation and exclude overestimation of positive changes, rather small-scale and limited in variety.

A fundamental feature of the General scheme for 1971–1980 consisted in the fact that the calculations for production distribution of main product types by executive institutions were carried out on three-levelled options: the first – lower level, the second – middle level, the third – upper level. The availability of options was based on the differences in the national income distribution between consumption and accumulation funds and, therefore, different capital investments volumes. According to A.A. Adamesku, such three-option calculations help take into a more differentiated account the impact of scientific and technological progress and factors defining dynamics of economic sector development and the economy of the regions.

Exceptional scientific and practical significance of the methodology consisted in the establishment of the criterion of economic efficiency of production distribution and the overall system of indicators, uniform for all sections of the General scheme. The criterion of sector distribution efficiency and the complexity of area development were obtaining the planned quantities of products with lowest expenses. On a national economic scale this conformed to the objective of maximizing national income.

Production costs with regard to its delivery to consumers and relative capital investments were taken as specific performance indices of new production facilities. According to latest research, the rate of cost reduction, not profit growth reflects the nature of economic efficiency[1] .

The best option of production distribution was determined by the minimum of discounted costs by the formula:

$$D = P + C \times R ,$$

where D – discounted costs (combined costs);

P – product costs (including delivery to the consumer);

C – capital investments;

R – regulatory sector coefficient of comparative capital investment efficiency.

[1] See, for example: Gubanov S. Glavy goskompanii: s chem svyazat' ikh voznagrazhdenie? (Opyt politekonomicheskogo analiza) [Heads of state-owned companies: what their reward can be linked to? (An experience of political economy analysis)]. Ekonomist [Economist], 2016, no. 4.

The most important method of the General scheme development, as A.A. Adamesku emphasizes, was the balance method. In particular, balance calculations for 1975 were made, namely, calculations of production and consumption of major industrial and agricultural products by sectors, republics and regions; calculations of energy balance, labor and water resource balances.

Now that four decades have passed since the beginning of the work on the Scheme, it may again be emphasized that the methodology was prepared at the scientific level which optimally reflects the status of science and technology at the time productive forces distribution.

It is expected, judging by the very title of the monograph, that a considerable amount of its content will be devoted to the description of the contents of the first General scheme. And the expectations are met: the section with the description occupies three quarters of the monograph. The section title has, in our view, a very constructive wording: "The main development directions and trends of productive forces of the USSR in 1917–1980". Professor A.A. Adamesku not only extracts the key conditions for the reader, contained in the volumes of the General scheme, but also uses this construction to present, where appropriate, his own brief judgments from the perspective of modern times. This approach strengthens the reader's attention to the text, contributes to the author's willingness to share his experience with the specialists and developers of the prospective development strategy of the modern Russian state.

The combined products of the General scheme cover, first of all, problematic issues such as country's population and labor resources, main directions of industry development (by ten sectors), overall economic indicators of the national economy (gross social product, national income, capital investments). The author's overview of the composition of work on all these aspects is generated explicitly and with great professional skills generalizes and highlights the gist to the reader.

This qualitative aspect of the monograph is, in our view, particularly pronounced in the presentation of the content of schemes of perspective development of productive forces of the Union republics and economic regions of the USSR.

Let us make just one example in this regard. It concerns final concepts on the problems and trends of development of the Northwestern economic region in 1971–1980. At the time of framing the Scheme the Northwestern economic region included the city of Leningrad, the Leningrad, Arkhangelsk, Vologda, Murmansk, Novgorod and Pskov oblasts, and the republics of Karelia and Komi. The most important objectives of the North-West economy development, states A.A. Adamesku, were:

– alleviation of current excessive industry concentration by ceasing new construction in Leningrad, namely by creating a network of industrial centers complementing its industrial complex, and

by accelerating industry development in other oblasts and autonomous republics of the North-West;

– rationalization of the energy balance by improving its structure with the help of reduced imports of expensive fossil fuels and their replacement with more economical fuels (residual oil and natural gas), as well as by full use of energy resources;

– wide deployment of exploration work and geological researches in the Timan-Pechora Basin aimed at a significant increase in commercial oil and gas reserves and a sharp increase in their extraction and procession in the area;

– best use of fixed assets and labor resources of the area;

– commercialization of cost-effective for industrialization rich mineral resources of the Murmansk and Arkhangelsk oblasts, the Republic of Komi and the Karelian ASSR such as apatite, copper-nickel and iron ores and rare metals of the Kola Peninsula, Murmansk and Karelian mica and Severoonezhsk bauxite deposits;

– organization of complex use of wood materials, reconstruction of existing and construction of new large timber industry complexes for extensive chemical and mechanical wood processing with maximum use of low quality raw materials and wood in the basins of the Pechora and the Mezen rivers and in other Northwestern regions; reforestation on a larger scale;

– rapid development of chemical industry – significant production development of phosphate fertilizers based on the Khibiny apatites and local phosphate rocks; production development of nitrogen fertilizers, other chemical products on the basis of the using oil and natural gas resources and waste sulphurous gases of non-ferrous metallurgy;

– accelerated development of advanced branches of mechanical engineering for the needs of chemical industry and agriculture, tool, electronic and semiconductor engineering, power and electrical engineering and ship construction;

– elimination of disparities between the fishing fleet and its shore-based and depot ships;

– specialization of agricultural area in highly productive meat and milk cattle breeding, in flax cultivation and in production of potatoes, vegetables, pork and poultry products in suburban areas;

– development of all means of transport, completion of railway constructions which give access to rich natural resources of the North-West.

This article would like to introduce the author's conclusions which still have not lost its significance for the vast majority of economic regions of Russia. But the issue of fundamental importance is that the development of the General scheme contributed to significant progress in the amount of output produced within the territorial boundaries of all oblasts, krais and autonomous and union republics It also promoted the development of interregional relations and the improvement of inland proportions of economic and social development.

That was the case of the Northwestern region which was mentioned above. Thus in the Vologda Oblast (part of the region) in 1971–1980 the size of industrial and production assets increased by 2.7 times and industrial output – by 1.7 times in real terms. Labor productivity in industry increased by 1.5 times, which resulted in a three quarters of industrial output growth. Rolling manufacture commodity output, which in 1970 was 5.8 million tons, reached 8.7 million tons in 1980. The use in 1980 of increased production capacities provided 3 million conventional tons of mineral fertilizers and 77 million pieces of rolling bearings. The production of hardboards doubled from 14.7 million to 31.5 million units, and chipboard production multiplied from 54.9 thousand to 195.8 thousand cubic meters, i.e. by almost four times. Continued growth of basic production assets in agricultural sector provided productivity growth in state farms (sovkhozes) and collective farms (kolkhozes) by 1.5 times. Mass development of industrial technology in poultry and swine breeding along with cattle fattening provided an opportunity to increase (by 57.0%) meat production (in slaughter weight) from 54.3 thousand in 1970 to 85.7 thousand tons in 1980, and egg production – from 252.2 million to 426.3 million units. The settlement pattern of the region significantly changed: the proportion of urban population increased from 48% in 1970 to 64% in 1980, while the share of rural residents decreased accordingly, which was the natural result of accelerating industrial development in the region. Progress in material and cultural standard of living was also notable.

Salary raise of factory and office workers as well as collective farmers' wages led to an increase in turnover by one and a half times, to an increased acquisition of household appliances and other manufactured products[2]. But, unfortunately, the imbalance between the volume of consumption demands and the degree of their satisfaction was decreasing rather slowly, which affected public mood. It was necessary to strengthen the determination in long-term planning solutions to these issues.

Returning to the assessment of the monograph under review, its author's main achievement is the presentation of his judgments concerning the benefits of the experience of developing the General scheme of productive forces development in 1971–1980. "The General scheme, as A.A. Adamesku believes (and proves convincingly), represented a scientific forecast justification of regional distribution of country's productive forces for a long period with variant techno-economic balance calculation" (p. 276). This consolidated pre-planning document of analytical and predictive nature has

[2] The values presented in the article are calculated with the use of the following sources: *Narodnoe khozyaistvo Vologodskoi oblasti v vos'moi pyatiletke: stat. sbornik* [National economy of the Vologda Oblast during the eighth five-year plan: statistics collection]. Severo-Zapadnoe knizhnoe izdatel'stvo, 1971; *Narodnoe khozyaistvo Vologodskoi oblasti v devyatoi pyatiletke: stat. sbornik* [National economy of the Vologda Oblast during the ninth five-year plan: statistics collection]. Severo-Zapadnoe knizhnoe izdatel'stvo, 1976; N*arodnoe khozyaistvo Vologodskoi oblasti v desyatoi pyatiletke: v 2-kh chastyakh* [National economy of the Vologda Oblast during the tenth five-year plan: in two parts]. Vologda: Statisticheskoe upravlenie Vologodskoi oblasti, 1981.

justified optimal territorial proportions of the national economy, ways of increasing efficiency of public production and people's welfare based on the improvement of public territorial labor division, on a proper combination of target development and industry distribution combined with systematic formation of an economic complex of republics and regions.

Professor A.A. Adamesku still continues active research work. Therefore, it would be unnatural if he had not considered in his book the issues of improving the forecast development of Russia's socio-economic development at the current stage of its political, economic and social development. The monograph presents a separate section dedicated to this issue. The author elaborates further on the most relevant issues of the organization of strategic planning by current government. In the author's opinion, the country still lacks the necessary consistency and the correlation between industrial and regional development, which results in significant losses, reduced efficiency and, ultimately, hinders the development of Russia. As negative examples for addressing key issues of modern strategy A. Adamesku mentioned a non-integrated approach to the development of the zone of the Baikal–Amur Mainline and other regions of Siberia and the Far East, failures in establishing and implementing measures for labor resources use in the North-Caucasian and Southern Federal districts. A. Adamesku believes that insufficient attention is paid to the development of the complex project "Ural Industrial – Ural Polar".

Having acquired significant experience in life and science, A.A. Adamesku considered the possibility of elaborating a comprehensive document aimed at identifying and staged solution of country's long-term development issues conditionally entitled "The General scheme of development and distribution of productive forces of the Russian Federation". The author is convinced that "only within the General scheme may the geostrategic interests of Russia and economic space evolution under the conditions of globalization be taken into account, since the development of Russia will be determined by global economic, environmental and political trends" (p. 283).

Following the author's idea, argued in the final section of the monograph, we would also wish to add that only a document such as the General scheme is capable of fully ensuring the establishment of better productive and social infrastructure as well as of considering its long-term payback and subsequent exploitation by all economic entities, in due time and from a national perspective.

The final conclusion is as follows: the monograph of A.A. Adamesku, being a source of fundamental knowledge and its practical application, encourages the search for ways of reviving and developing Russia's economic power of the Russian state. It is one of those works which can be called a handbook for both qualified economists, managers and for young people engaging in professional environment of this type.

M.F. Sychev,
Ph.D. in Economics

The Journal "Economic and Social Changes: Facts, Trends, Forecast" Received a Certificate of Quality That Confirms Its Compliance with International Standards and Criteria of the Scopus Database

In the framework of the 5th International Scientific and Practical Conference "World-Class Scientific Publication – 2016: Publishing Ethics, Peer-Review and Content Preparation" (Russian Presidential Academy of National Economy and Public Administration (RANEPA), Moscow, May 17–20), there was an exhibition of the most authoritative journals of the conference participants and the journals of some commercial publishers that publish mainly articles of university authors. Russian SCAB experts evaluated the journals submitted, and selected those ready to apply for inclusion in Scopus. The editions selected received a Certificate of Quality confirming their compliance with international standards and criteria of this information system. This document is a recommendation for filing an application with Scopus. The journal "Economic and Social Changes: Facts, Trends, Forecast" (English version) is among those journals that got this recommendation.

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