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FACTS, TRENDS, FORECAST

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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.

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- 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;
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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

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

Russian Society: Transformation in the Regional Discourse (20 Years of Measurements): Monograph. Team of authors under the scientific supervision of Doctor of Economics, RAS Academician M.K. Gorshkov and Doctor of Economics, Professor V.A. Ilyin.

Mironov A.V. *Pulp and Paper Industry in Russia: Trends, Results and Their Effect on Regional Development: Preprint.* Under the scientific supervision of Ph.D. in Economics T.V. Uskova.

Shabunova A.A., Kalachikova O.N., Korolenko A.V., Povarova A.I., Rossoshanskii A.I. *Russia's National Security: Internal Threats to the Implementation of the Strategy: Monograph.* Under the scientific supervision of Doctor of Economics, Professor V.A. Ilyin.

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President Vladimir Putin's Third Four-Year Term: Contradictory Outcomes — an Expected Result

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In mid-March, Vladimir Putin's third four-year presidency came to an end. If the term of office of the head of state were not prolonged in 2008, then the seventh presidential election would take place today, and therefore, a critical question arises: "What has been done and what needs to be done?... What does the President have in store for the people?"[1]

Expert opinions about Vladimir Putin's work in the period since 2000, when he began his first presidential term, have been ambiguous so far. On the one hand, it is associated with stabilization of the socio-economic and demographic situation in the country after the "turbulent" 1990s", the rising standard of living in the middle of the "fat 2000s", the strengthening of national identity and international prestige of Russia in the 2010s.

On the other hand, the period of Vladimir Putin's presidency is called the period of "missed opportunities", which means, above all, the preservation since the 1990s of the oligarchic-comprador system of governance, and the chance for an industrial breakthrough lost in the mid-2000s, which would ensure Russia's economic security and competitiveness.

Both points of view have a lot of supporters and are fair because they reflect the contradictory nature of the results achieved by Vladimir Putin over the past 15 years. However, in our opinion, **the performance of a top-ranking politician like the head of state**

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[1] Razuvaev V. Vladimir Putin preuvelichil obeshchaniya [Vladimir Putin Has Exaggerated His Promises]. *Nezavisimaya gazeta* [Independent Newspaper], 2016, March 15.

should be evaluated primarily on the scope and quality of strategic vision of the country's development prospects taking into account its current situation, as well as the effectiveness with which the strategy chosen is implemented.

In this sense it is necessary to look into the past and recall once again the goals Putin set out during the period when he was elected President for the first time.

During the crisis period of the late 1990s, the elite that was in power needed a President who would allow it to preserve the privileges obtained as a result of the completely socially unjust and predatory privatization. Therefore, the successor of Boris Yeltsin on the post of head of state was doomed to be "in a serious emotional and moral dependence on the regime that had given him power by making him a successor".

However, V. Putin had a sober assessment of the current state of affairs in Russia largely thanks to his experience of working in law enforcement agencies before he became Prime Minister[2]. Having assumed office as Prime Minister (August 1999), Vladimir Putin was closely involved in the Chechen issue and through his determination in carrying out the anti-terrorist campaign he already showed

himself as a politician who was not going to confine himself to words only, and would consistently move from words to deeds[3].

It was about the preservation of the country as such: *"My colleagues, many presidents and prime ministers told me later that they had already decided everything for themselves: Russia would cease to exist in its present form. The only question was – when it would happen and what the consequences would be. They meant that Russia was a major nuclear power"*[4].

Putin described his understanding of the situation in the article "Russia at the Turn of Centuries", published in "Rossiyskaya Gazeta" on December 30, 1999.

In this article he highlighted "the main points for consolidation of the Russian civil society – what can be called the primordial, traditional values of the Russians" ("patriotism", "great power statehood", "social solidarity"). The article sets out clearly the measures that need to be taken for the recovery of the Russian economy and strengthening government authority.

The article "Russia at the Turn of Centuries" also shows that the notions that Vladimir Putin deals with, tasks and questions that he puts before himself and the country are designed not just for years, but for decades. "How do we see the place of our country in the

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[2] In 1985–1990, Vladimir Putin serves at the local intelligence office in Dresden. Starting in June 1991, Putin began to work as Chairman of the Committee for International Relations at the Saint Petersburg City Hall and from 1994, concurrently held the position of Deputy Chairman of the Saint Petersburg City Government. In March 1997, he was appointed Deputy Chief of Staff of the Presidential Executive Office and Chief of Main Control Directorate. In May 1998, Putin was made First Deputy Chief of Staff of the Presidential Executive Office, and in July 1998, he was appointed Director of the Federal Security Service. From March 1999, he also held the position of Secretary of the Security Council of the Russian Federation. In August 1999, Putin was appointed Prime Minister of the Russian Government (source: personal website of the RF President. Available at: http://putin.kremlin.ru/bio#y80-e).

[3] "The Chechen campaign was costly for Russia. Thousands were killed, and Chechnya was all but obliterated. But the people, already accustomed to feel like eternal losers, were not confused by this. Many said then that for the first time the government has seriously got down to business...the War in Chechnya has made Putin the man who could not lose the election" (source: Kendall B. Who is Putin? *BBC NEWS World Edition*. Available at: http://news.bbc.co.uk/2/hi/programmes/correspondent/1156020.stm).

[4] Politov Yu. Voskresnyi vecher s "Prezidentom" [Sunday Evening with the "President"]. *Rossiiskaya gazeta* [Russian Newspaper], 2016, April 26. Available at: http://rg.ru/2015/04/26/putin-site.html.

Russia has exhausted its limit of political and socio-economic upheavals, cataclysms, and radical transformations. Only fanatics or those political forces that are deeply indifferent to Russia and to its people are able to call for another revolution. The state and its people will not stand one more abrupt destruction of everything, no matter what slogans it may have: Communist, national-patriotic or radical-liberal. The patience and the ability of our nation to survive, as well as to create, are at the very limit of exhaustion. The society will simply collapse economically, politically, psychologically and morally.

Putin V.V. Russia at the Turn of Centuries. *Russian Newspaper,* 1999, December 30.

global community in the 21st century? What are the boundaries of economic, social and cultural development that we want to reach in 10 or 15 years from now?". When asking such questions, it is impossible to expect that the full answers will be obtained within one or two presidential terms. It characterizes Putin, first of all, as a politician who "takes a longer view", as a statesman who sets a historically significant goal for the country, who understands the need to achieve these goals, and who is aware of his historic responsibility before the country.

The program article "Russia at the Turn of Centuries" was prepared by V. Putin during his term in office as Chairman of the RF Government, in anticipation of Boris Yeltsin's resignation. On December 31, 1999, Yeltsin announced the appointment of Vladimir Putin as interim President of the Russian Federation. On the same day, Putin issued a Decree on the immunity of the first President of Russia and members of his family from any administrative or legal prosecution[5].

March 26, 2000 Russia held presidential elections, which Vladimir Putin won with 52.9% of the vote. After his inauguration on May 07, 2000, Putin officially became President of the Russian Federation, and Mikhail Kasyanov was appointed Prime Minister. The experts regarded this move "as part of the agreement between the new head of state and the "family" group, which, having lost its center (in the person of Boris Yeltsin), hoped to keep the key positions in power"[6].

One of the main tasks the President had to face in 2000 was to preserve the Russian economy. In order to increase the revenues of the federal budget, which in 1999 (the last year of Boris Yeltsin's presidency) was 615.5 billion rubles, Putin introduced mineral extraction tax through the amendment to the Tax Code of the Russian Federation from January 01, 2002. The oligarchic clan, weakened after the default of 1998, was forced to divide its revenue with the government. As a result, in 2002, budget revenues increased to 2,204.7 billion rubles, i.e. by 3.6 times compared to 1999.

In general, in the period from 1999 (the last year of Boris Yeltsin's presidency) to 2003 (the last year of Vladimir Putin's first presidential term), compared to the period

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[5] Ukaz Prezidenta RF ot 31 dekabrya 1999 g. №1763 "O garantiyakh Prezidentu Rossiiskoi Federatsii, prekrativshemu ispolnenie svoikh polnomochii, i chlenam ego sem'i" [Decree of the RF President of December 31, 1999 No.1763 "On Guarantees to the President of the Russian Federation Who Terminated His Authorities, and Members of His Family"]. *Argumenty i fakty* [Arguments and Facts], 2015, March 26. Available at: http://www.aif.ru/dontknows/file/1475256.

[6] Makarkin A. *Mikhail Kas'yanov, chinovnik-tekhnokrat* [Mikhail Kasyanov, the Technocrat Official]. Available at: http://www.compromat.ru/page_11446.htm.

of 1995–1999, there are positive changes in all the key indicators that show the development of the economy and standard of living *(insert 1)*.

February 24, 2004, Putin dismissed the Kasyanov government[7], noting later that "the first year and a half he tried to do something; during the second two years, the outcome was null"[8]. From March 05, 2004, that is, a few days before the next presidential election (March 14, 2004), the Government of the Russian Federation was headed by Mikhail Fradkov, whose views were "quite close to the views of the President's "power team""[9].

Thus, during his first presidential term, V. Putin's ability to address the issues that he set out in his election article were restricted considerably by dependence on the elites. However, the elites were surprised when they learned that "the strategic clean-up of the country will affect them directly"[10]. Nevertheless, Putin's main goal set out during his first presidential term was achieved. He managed to get positive results in solving the Chechen issue, one of the main problems of Russia, and the legally binding mechanism that helped withdraw part of the raw-materials-export rent allowed the budget to be replenished at the expense of the oligarchs.

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[7] In the period from February 24 to March 5, 2004, the Government was headed by Viktor Khristenko.

[8] Vlasova E. Vybrat'sya s "Bolotnoi" [To Get Out of Bolotnaya]. *Rossiiskaya gazeta* [Russian Newspaper], 2011, December 16. Available at: http://rg.ru/2011/12/16/putin-site.html

[9] Glikin M. Sil'nyi administrator [Strong Administrator]. *Nezavisimaya gazeta* [Independent Newspaper], 2004, April 2.

[10] Delyagin M.G. Vtoroi period pravleniya V. Putina: razrushenie liberal'nykh mifov [Second Period of V. Putin's Reign: Destruction of Liberal Myths]. *Nakanune. ru* [On the Eve.ru]. Available at: http://www.nakanune.ru/articles/17523/.

The country entered a period of stabilization, and the most dangerous degradation processes of the 1990s were suspended.

During the second presidential term (May 2004 – May 2008), it was necessary to increase Russia's economic power. The favorable period of growing oil prices helped deal with economic problems. The dynamics of official statistical data shows that in 2003–2007 (the last full year of V. Putin's first presidential term and the last full year of his second presidency), there was an increase in GDP growth rate (by 3.7% compared to 1999–2003), in industrial production (3%), in per capita monetary incomes (80.8%); the proportion of the population with incomes below the subsistence level decreased (6.2%). The improvement of economic situation was reflected in subjective assessments of the population: in 2003–2007 in comparison with 1999–2003, the share of positive judgments about the situation in the country continued to grow (+10 percentage points; see insert 1).

In order to preserve the possibility of pursuing the chosen course of development after the end of his second presidential term, on December 17, 2007, at the convention of the "United Russia" party, Vladimir Putin offered Dmitry Medvedev's candidacy for the post of Russian President. May 07, 2008, Dmitry Medvedev nominated Vladimir Putin for the post of Prime Minister. The next day the proposal was approved at an extraordinary meeting of the State Duma of the Russian Federation.

When carrying out a so-called reshuffle, Putin could not "look back" to the West. Everyone understood the superiority of influence on the part of the current Prime

Insert 1. Dynamics of the main indicators of development of economy and standard of living of Russia's population

Indicator	1995	1999	1999 compared to 1995, %	2003	2003 compared to 1999, %	2007	2007 compared to 2003, %	2011	2011 compared to 2007, %	2015	2015 compared to 2011, %
Economic development*											
GDP, trillion rubles	43.9	43.2	**98.4**	56.2	**130.1**	75.2	**133.8**	79.5	**105.7**	80.8	**101.6**
Federal budget revenues (billion rubles)	227.0	615.5	**271.1**	2586.2	**420.2**	7779.1	**300.8**	11386	**146.4**	13665.7	**120.0**
Industrial production, billion rubles	29.7	28.7	**96.6**	36.1	**125.8**	46.5	**128.8**	47.0	**101.1**	48.0	**102.1**
Consumer price index, % (December to the December of previous year)**	231.3	136.5	**787.7***	112.0	**250.7***	111.9	**169.2***	106.1	**159.1***	112.9	**151.4***
Standard of living*											
Average per capita money income, rubles	9886	9365	**94.7**	12151	**129.7**	25574	**210.5**	29608	**115.8**	30514	**103.1**
Average monthly accrued wages, rubles	9059	8574	**94.6**	16861	**196.7**	27584	**163.6**	33337	**120.9**	36692	**110.1**
Proportion of population with money incomes below the subsistence level, % of the total population	24.7	28.3	**114.6**	20.3	**71.7**	13.3	**65.5**	12.7	**95.5**	13.4	**105.5**
Data of sociological polls about the results of year for Russia (as a percentage of the number of respondents)*											
"Very successful", "good in general"	no data	19.6	no data	38.5	**+19**	48.6	**+10**	40.4	**-8**	19.2	-21
"Sooner difficult", "bad, very difficult"	no data	66.1	no data	41.6	**-25**	29.0	**-13**	42.7	**+14**	64.0	+21
It is difficult to answer	no data	13.8	no data	19.2	**+5**	22.3	**+3**	16.9	**-5**	16.7	0
		December 1999 Boris Yeltsin's second presidential term		January 2000 – May 2004 Vladimir Putin's first presidential term		May 2004 – May 2008 Vladimir Putin's second presidential term		May 2008 – May 2012 Dmitry Medvedev's presidential term		May 2012 – present time Vladimir Putin's third presidential term	

* At constant prices of 2015.

** Dynamics of change in the consumer price index for the period was calculated with the chain index.

*** The wording of the question is "How would you estimate the end of the year for Russia as a whole?" Instead of the data for 1999, the table provides the data for 2000 (the year when the survey started).

The data of the public opinion monitoring carried out by ISEDT RAS were used. The monitoring is conducted since 1996 once every two months with the participation of 1,500 respondents aged over 18 in Vologda, Cherepovets, and in eight districts of the Vologda Oblast (Babayevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District and Sheksninsky District). 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%.

Insert 2. Level of trust in the RF President in different socio-demographic groups
(as a percentage of the number of respondents)*

Socio-demographic groups	1999	2003	2003 compared to 1999	2003	2007	2007 compared to 2003	2007	2011	2011 compared to 2007	2011	2015	2015 compared to 2011
Sex												
Men	56.5	62.9	+6	62.9	57.9	-5	57.9	47.6	-10	47.6	56.2	+9
Women	57.5	65.4	+8	65.4	62.1	-3	62.1	52.8	-9	52.8	64.1	+11
Age												
Under 30	57.9	72.8	+15	72.8	61.9	-11	61.9	53.4	-9	53.4	57.4	+4
30-55	57.7	62.0	+4	62.0	60.7	-1	60.7	49.8	-11	49.8	62.1	+12
Over 55	55.2	59.4	+4	59.4	57.9	-2	57.9	49.2	-9	49.2	60.5	+11
Education												
Secondary and incomplete secondary	55.5	58.7	+3	58.7	54.2	-5	54.2	44.2	-10	44.2	51.7	+8
Secondary vocational	60.7	67.6	+7	67.6	59.4	-8	59.4	52.3	-7	52.3	62.4	+10
Higher and incomplete higher	55.8	66.4	+11	66.4	68.5	+2	68.5	55.6	-13	55.6	68.8	+13
Income groups**												
20% of the poorest people	51.8	52.3	+1	52.3	47.1	-5	47.1	36.2	-11	36.2	41.0	+5
60% of the people with median income	59.4	68.6	+9	68.6	62.6	-6	62.6	51.1	-12	51.1	64.9	+14
20% of the most prosperous people	57.9	72.3	+14	72.3	75.9	+4	75.9	65.5	-10	65.5	73.2	+8
Territories												
Vologda	59.2	74.1	+15	74.1	57.8	-16	57.8	51.4	-6	51.4	65.4	+14
Cherepovets	42.0	62.5	+21	62.5	77.4	+15	77.4	64.1	-13	64.1	72.2	+8
Districts	64.2	60.6	-4	60.6	52.9	-8	52.9	43.2	-10	43.2	51.4	+8
Oblast	57.1	64.3	+7	64.3	60.3	-4	60.3	50.5	-10	50.5	60.6	+10
	January 2000 – May 2004 Vladimir Putin's first presidential term			May 2004 – May 2008 Vladimir Putin's second presidential term			May 2008 – May 2012 Dmitry Medvedev's presidential term			May 2012 – present time Vladimir Putin's third presidential term		

positive change is highlighted in green (the increase in the proportion of positive assessments)

negative change is highlighted in red (the decrease in the proportion of positive assessments)

* Instead of the data for 1999, the table provides the data for 2000 (the year when the survey started).

Minister, but Medvedev's rhetoric was more acceptable to the mentality of foreigners. "This whole thing with the successor was in many respects an attempt to protect Russia from drastic revolutionary scenarios of power shift"[11].

During the period of his presidency, Dmitry Medvedev has not achieved any significant results and, in fact, remained President in a "technical" sense[12]. The results of sociological research clearly reflect the dynamics of public opinion concerning its work: in the period from 2007 to 2011, his credibility dropped by 6—13 p.p. in all socio-demographic categories (insert 2).

However, despite the many economic difficulties that Russia experienced in 2008—2012, Dmitry Medvedev managed to fulfil his main task — to maintain the strategic course pursued by V. Putin and to hand him the presidency in 2012.

Vladimir Putin's third presidential term began in May 2012 in difficult and contradictory conditions. On the one hand, Putin had the support of society, which by that time had already formed a need for a qualitatively new level of life. Putin was waited for and people pinned on him their hopes for a new round of economic well-being — the same as was in the mid-2000s. On the other hand, the four years of D. Medvedev's presidency consolidated the position of the liberal-minded elite in power. In fact, Medvedev chose the people surrounding him both as President (2008—2012) and as Prime Minister (since 2012 and up to the present).

In the beginning of Putin's third presidency, political scientists began to note that Vladimir Putin started to "quietly push the liberal party away", although, as some experts forecasted, "he cannot oust it completely, because he would become a hostage to the siloviki (a Russian word for politicians from the security or military services who came into power), on the one hand, and on the other hand, he would quarrel with the West"[13]. Nevertheless, the events of 2013—2015 showed that it is not a problem for Putin to "quarrel with the West". In September 2013, in his speech at the meeting of the Valdai International Discussion Club, he virtually declared Russia the center of the Eurasian integration. The Ukrainian conflict, which followed thereafter and which had its peak in 2014, led to the increased tension in relations between Russia and the United States to the extent that many compared this period to a new round of the "cold war"[14].

As a result of confrontation with the United States, even in difficult economic conditions caused by the global financial crisis, sanctions, and the remaining raw-materials-exporting model of the economy, Putin has managed

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[11] Delyagin M.G. Vtoroi period pravleniya V. Putina: razrushenie liberal'nykh mifov [Second Period of V. Putin's Reign: Destruction of Liberal Myths]. *Nakanune. ru* [On the Eve.ru]. Available at: http://www.nakanune.ru/articles/17523/.

[12] "Though Putin restyled himself as prime minister, there is a broad perception that Putin, rather than his successor Dmitry Medvedev, remains the dominant politician" (sources: Megan K. Stack "Putin Leads in This Power Dance". *Los Angeles Times*, 2008, November 14. Available at: http://articles.latimes.com/2008/nov/14/world/fg-russpower14).

[13] Delyagin M.G. Vtoroi period pravleniya V. Putina: razrushenie liberal'nykh mifov [Second Period of V. Putin's Reign: Destruction of Liberal Myths]. *Nakanune. ru* [On the Eve.ru]. Available at: http://www.nakanune.ru/articles/17523/.

[14] Mirovalev M. "Russian Premier: We have Slid into ... a New Cold War". *Los Angeles Times*, 2016, February 13. Available at: http://www.latimes.com/world/europe/la-fg-russia-nato-20160213-story.html.

to achieve one of the two conditions, which experts have noted as necessary for the industrial breakthrough, and which Putin had been expected to achieve in early 2012 — he was able to provide a "guarantee of national sovereignty"[15].

This can be considered one of the main results of the third four years of Vladimir Putin's presidency. "Strengthening the support of the authorities at the expense of foreign policy and the struggle for national interests is no doubt an important direction, and Vladimir Putin has taken the winning position in this field in the eyes of public opinion"[16].

Thus, during all his presidential terms, Vladimir Putin had to deal with global challenges in conditions of dependence from the political and financial elite that had come to power in the 1990s and had become an integral part of the Russian state. This dependence was different in different times: in 2000, it was dictated by the need to take into account the interests of the elite created back in the 1990s, in 2008 — the need to temporarily

"recede into the background" of the political arena so as to be able to continue his strategic line since 2012. Three things are obvious in this regard:

1. During the period from 2000 to 2015, Putin had to act cautiously, with an eye on the domestic political elite, on the reaction of foreign leaders, and on the requirements of the Russian society. He is a "very cautious politician. He looks before he leaps. He does everything gently, but his movement is directed all the time toward the recovery of our national sovereignty"[17]. So, can we reproach him for his desire to make an industrial breakthrough, similar to the 1930s but without using Stalin's methods and acting as cautiously as possible?[18] It no coincidence that "social justice, equal rights for all and a strong state that cares about its citizens" are deep in the mental foundations of the Russian society, and for the Russians they represent "the ideal model of government"[19].

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[15] S. Chernyakhovsky: "Many would like to divide the territory, and the resources of Russia. This can be prevented only in one case — if Russia will now make the leap, the same leap as it made in the 1930s, and will over 10 years restore its strength to be able to continue to keep this threat away. There are two points that need to be solved as a prerequisite. **It is the guarantee of national sovereignty. And second, we need to move away from a market economy**" (source: Delyagin M.G. Vtoroi period pravleniya V. Putina: razrushenie liberal'nykh mifov [Second Period of V. Putin's Reign: Destruction of Liberal Myths]. *Nakanune.ru* [On the Eve.ru]. Available at: http://www.nakanune.ru/articles/17523/).

[16] Turovskii R. Vnutrennyaya politika: obretenie strategicheskogo kursa [Domestic Policy: the Attainment of a Strategic Course]. *Nezavisimaya gazeta* [Independent Newspaper], 2016, April 18. Available at: http://www.ng.ru/ideas/2016-04-18/9_course.html

[17] Starikov N.A. *Prokladka oligarkhov* [Gasket of Oligarchs]. Available at: https://nstarikov.ru/wp-content/uploads/2014/05/Starikov-Prokladka-oligarkhov.rtf.

[18] Vladimir Putin:

1. "Stalinism is associated with the cult of personality and mass violations of the law, with repression and camps. Nothing like this exists in Russia today and, hopefully, it will never be anything like this again" (Stenogramma Pryamoi linii s Prezidentom RF V.V. Putinym ot 25.04.2013 [Transcript of the Direct Line with Russian President Vladimir Putin of April 25, 2013]. *Ofitsial'nyi sait Prezidenta RF* [Official Website of the President of the Russian Federation]. Available at: http://www.kremlin.ru/events/president/news/17976).

2. "Russia is not afraid to intervene in world affairs, it just acts with maximum caution. We are not afraid, we just behave more discreetly. And if we do something, then we try to protect ourselves from possible negative consequences". (Source: Documentary film "The World Order". TV channel "Russia-1" – RTR)

[19] Gorshkov M.K. "Russkaya mechta": opyt sotsiologicheskogo izmereniya ["Russian Dream": Experience of Sociological Measurement]. *Sotsiologicheskie issledovaniya* [Social Studies], 2012, no.12, p. 7.

2. Putin understood and understands very well the global historical tasks that the current situation places before him. He solves emerging historical problems consistently, despite the fact that it is contrary to the interests of the West and the liberal wing of the government. Sometimes it was necessary to "walk a tight rope" and make very tough decisions.

3. From the first years of his presidency, Vladimir Putin faced the necessity to oppose the oligarchic-comprador system developed in the 1990s. His independent position has become particularly evident in his third term in office. It should be remembered that Putin "took over" the country that was actually in ruins, which was the pessimistic result of a natural competitive struggle of the major powers for supremacy in the global political arena. He had to consider the interests of leaders of other countries, but as a result of successful implementation of his course, he made it possible for Russia to demand the same from them. Moreover, the events of the latest years (Ukrainian and Syrian conflicts) suggest that today Russia is one of the main contributors to the maintenance of legal mechanisms for peace and security that were founded after World War II.

Today, the personality of the President is "the key stabilizing factor for the political system", and this is very important because "the State Duma campaign of 2016 can become a turning point in Russia's political development... There is a critical issue of transformation of the political system, which would allow it to adapt better to different challenges — both external and internal, while addressing current social-political tasks"[20].

Today's political elite still comprises a constellation of bureaucrats who operate since the 1990s. Society and the President of the Russian Federation are more and more dissatisfied with their performance over the latest 15 years.

It is obvious that the Russian society needs the renewal of the elites and the revival of public life. "The attitude of the elite, the consciousness of which has been formed by strategic competitors of its country, is akin to that of the guard to his prisoners. The Pro-Western part of the elite, striving for integration and "basic human goods", loses its own civilizational (not to mention national) values and (often unconsciously) begins to serve the values of its strategic competitors (in Russia, for example, they serve the efficiency of the firm against the efficiency of the society, i.e. competition against justice)... This is what the erosion of the value system begins with, which then erodes the society. The growing misunderstanding between the society and the elite objectively increases the threat of destabilization, and with that — the need of the elite in foreign aid; and the force that gladly provides this aid has already been formed[21].

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[20] Turovskii R. Vnutrennyaya politika: obretenie strategicheskogo kursa [Domestic Policy: the Attainment of a Strategic Course]. *Nezavisimaya gazeta* [Independent Newspaper], 2016, April 18. Available at: http://www.ng.ru/ideas/2016-04-18/9_course.html.

[21] Delyagin M.G. Globalizatsiya i predatel'stvo elit [Globalization and Betrayal of the Elites]. *Zavtra* [Tomorrow], 2016, January 14.

The consistent implementation of Russia's strategic goals by the President indicates that favorable conditions are being created for the solution of another problem – nationalization of the elite. The levels of support of the head of state in the society are consistently high[22], and there is a new generation of public officials, politicians, public figures, which "inevitably accompany the sovereign growth"[23].

In addition, one of the latest steps of the President was the creation of the tool for the further implementation of the chosen strategic course of Russia's development. December 31, 2015, Vladimir Putin signed the Decree on the new National Security Strategy[24], which reconsiders the key issues pointed out by V. Putin in 1999 in his program article "Russia at the Turn of Centuries" at a new level, taking into account the internal and external environment that has changed over 15 years.

The strategy establishes personal responsibility of the head of state for ensuring the implementation of priority directions of state policy in the sphere of national security, which, of course, aimed at the effective solution of key tasks of Russia's development, including the nationalization of the elites, bringing the private needs of the liberal-minded top authorities in accordance with national interests.

Thus, on the one hand, the results of Vladimir Putin's work as President of Russia are controversial. Negative processes in the dynamics of the Russian economy are not associated with sanctions or with the consequences of the global financial crisis, but with the inefficiency of the current system of public administration – this is the task upon which the President focuses his attention. "There is a feeling that there exist two Russias: one is deeply embedded in the Western world, in Western consciousness, in Western way of life... The other Russia, which forms a new growing branch of the state, is in a very complex interaction with the former, but this interaction is not always hostile. But these two Russias reveal themselves in today's ideological and political clash. A new generation of Russian statesmen that inevitably accompany the growth of the sovereign power must have amazing flexibility, durability, multidimensionality of their activities and their judgments. This explains the imaginary inconsistency Russian politics. It is often a compromise, inaccurate rhetoric that is explained. These people are forced to move along the edge of political controversy. They have a complex consciousness and understanding of the fact that the new Russian state has to mature in conditions of confrontation and compromise. Let us be

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[22] According to VTsIOM, in March 2016, 74% of Russians were ready to vote for Vladimir Putin at the next presidential elections. This is the maximum for the past four years (source: *VTsIOM Press Release No. 3051.* Available at: http://wciom.ru/index.php?id=236&uid=115604).

[23] Prokhanov A.A. Gosudarstvo Polyarnoi zvezdy [The State of the Polar Star]. *Zavtra* [Tomorrow], 2016, March 1.

[24] Ukaz Prezidenta RF ot 31 dekabrya 2015 g. №683 "O Strategii natsional'noi bezopasnosti Rossiiskoi Federatsii" [Decree of the RF President of December 31, 2015 No.683 "On the National Security Strategy of the Russian Federation]. *Rossiiskaya gazeta* [Russian Newspaper], 2015, December 31. Available at: http://rg.ru/2015/12/31/nac-bezopasnost-site-dok.html.

far-sighted and patient, let us examine today's world not through the eyes of immediate fights, but with a foresight of future ideas about the destiny of the Russian state"[25].

However, on the other hand, the current contradictions existing in the state administration system are a natural result of the President's work and indicate, first, the ongoing but not yet complete struggle of the head of state for bringing the interests of the elites in line with the interests of national security.

The system of government is a single organism in which it is impossible to change everything overnight (Russia already had such an experience in 1917). Much of what was planned by Vladimir Putin in 1999 has been executed. Moreover, it has been done **consistently, on time and gradually,** as "softly" as possible for a society that went within one or two generations through the change of a social and political order, several economic crises and a radical restructuring of public consciousness.

However, many challenges still have to be addressed. The President should lead the country to a new stage of industrialization, and this transition should be implemented as smoothly and carefully as Vladimir Putin's strategic course was for the last 15 years.

Only four months are left before the elections to the State Duma, and we see that the strategy for Russia's development that Putin talked about back in 1999 is being consistently implemented by him, despite internal and external political and economic obstacles. The next two years until the 2018

> **How to make the new, market-based mechanisms work at full capacity? How can we overcome the deep ideological and political split in society, which is still evident? What strategic objectives can consolidate the Russian people? How do we see the place of our country in the global community in the 21st century? What are the boundaries of economic, social and cultural development we want to achieve in ten or in fifteen years? What are our strengths and weaknesses? What material and spiritual resources do we have today?**
>
> Putin V.V. Russia at the Turn of Centuries. *Russian Newspaper*, 1999, December 30.

presidential elections may become a transition to a new stage of development of the Russian society. The stage which was talked about after the "Crimean spring"[26] and which was delayed as a result of economic problems that have befallen the country in recent years[27].

How long will this transition period be? Will it be completed in 1−2 years (that is fast enough from a historical point of view) or will it require much more time? It will depend on how Russia can stay on the path chosen 15 years ago. And it will also depend on the

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

[26] Osipov G.V. *Ne upustit' predstavivshiisya shans! Sotsiologiya i ekonomika sovremennoi sotsial'noi real'nosti* [Not to Miss This Chance! Sociology and Economics of Contemporary Social Reality]. Moscow: ISPI RAN, 2014, pp. 16−18.

[27] "For the first time after the default of 1998, Russia found itself in conditions of unpredictable falling of incomes of the population. The hole in the budget for the first time exceeded 3.5% of GDP. Real incomes turned negative already in 2014 − for the first time in 15 years. Then in 2015, pensions began to decline in real terms". (Source: Bashkatova A. Ob ekonomike libo khorosho, libo nichego [We Say the Economy Is OK or We Say Nothing]. *Nezavisimaya gazeta* [Independent Newspaper], 2016, April 15)

actions of the head of state: whether he will be able through active work, to implement the provisions laid down in the National Security Strategy of 2015 and move to a mobilization version of the new industrialization, without which it is impossible to reduce the widening gap between the economies of the leading countries and Russia.

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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 February − April 2016, and also on average for the last six polls (June 2015 − April 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 February − April 2016, the assessment of work of the President of the Russian Federation did not change significantly (67−68%), which corresponds to the average indicators for 2015 (69%) and which is significantly higher than in 2011 − 2014 (59−64%). However, in the short retrospective, negative changes are observed. So, for the three latest surveys (from December 2015 to April 2016) the percentage of positive ratings of the President's work decreased by 3 percentage points (from 70 to 67%).

Over the past two months, the level of support for the Chairman of the Government of the Russian Federation did not change (54−55%). This is less than in 2015 (58%), and corresponds to the level of 2014 (54%).

For reference: the nationwide level of approval of the RF President's performance February − March 2016 remains stable (81−82% according to VTsIOM and Levada Center), but in comparison with December 2015, it decreased by 3 p.p. (from 85−86%).

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[1] The polls are held six times a year in Vologda, Cherepovets, and in eight districts of the oblast (Babayevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District and Sheksninsky District). The method of the survey is a questionnaire poll by place of residence of respondents. The volume of a sample population is 1500 people aged from 18 and older.

The sample is purposeful and quoted. The representativeness of the sample is ensured by the observance of the proportions between the urban and rural population, the proportions between the inhabitants of settlements of various types (rural communities, small and medium-sized cities), age and sex structure of the oblast's adult population. Sampling error does not exceed 3%.

More details on the results of ISEDT RAS polls are available at http://www.vscc.ac.ru/

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

Answer option	2007	2011	2013	2014	2015	June 2015	Aug. 2015	Oct. 2015	Dec. 2015	Feb. 2016	Apr. 2016	Average for the latest 6 surveys	Dynamics (+/-) the latest 6 surveys in comparison with…		
													2014	2011	2007
RF President															
I approve	75.3	58.7	55.3	64.1	69.1	69.5	72.0	69.3	69.7	68.1	66.9	69.3	+5	+11	-6
I don't approve	11.5	25.6	29.4	22.3	17.5	16.1	17.8	18.1	16.5	16.1	17.9	17.1	-5	-9	+6
Chairman of the RF Government*															
I approve	-*	59.3	48.9	54.2	58.1	59.1	60.7	58.1	57.9	54.9	53.5	57.4	+3	-2	-
I don't approve	-	24.7	32.8	27.6	21.7	19.5	22.5	21.0	21.7	22.6	25.7	22.2	-5	-3	-
Governor															
I approve	55.8	45.7	44.4	40.1	39.3	40.5	41.5	38.7	39.7	35.1	34.9	38.4	-2	-7	-17
I don't approve	22.2	30.5	33.2	38.9	36.2	35.4	35.4	36.0	35.3	38.2	39.6	36.7	-2	+6	+14
* Included into the survey since 2008.															

In February – April 2016, the share of the Vologda Oblast residents who think that the President successfully copes with the task of strengthening international positions of Russia did not change significantly (51%), which corresponds to the level of 2014–2015.

However, the assessment of success of the President's actions in addressing the key problems of the country in December 2015 – February 2016 slightly reduced:

– the share of the Vologda Oblast residents who think that the President successfully copes with the task of strengthening international positions of Russia decreased by 2 p.p. (from 53 to 50%);

– the share of the Vologda Oblast residents who think that the President successfully copes with the task of restoring order in the country decreased by 3 p.p. (from 51 to 48%);

– the share of those who believe that the President is successful in protecting democracy and strengthening citizens' freedoms decreased by 5 p.p. (from 41 to 36%);

– 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 decreased by 3 p.p. (from 31 to 28%).

In general, the assessment of the success of the President's work on all these issues remains at the level of 2014–2015, except for his work on economic recovery and improvement of the citizens' welfare (34–35% in 2014–2015, 28% in April 2016).

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	June 2015	Aug. 2015	Oct. 2015	Dec. 2015	Feb. 2016	Apr. 2016	Average for the latest 6 surveys	Dynamics (+/-) the latest 6 surveys in comparison with…		
													2014	2011	2007
Strengthening Russia's international standing															
Successful	58.4	46.2	45.7	50.4	51.7	51.1	52.2	50.7	53.2	50.9	50.7	51.5	+1	+5	-7
Unsuccessful	24.9	33.7	36.2	32.4	31.3	32.5	32.4	33.1	31.5	29.1	30.9	31.6	-1	-2	+7
Индекс успешности	*133.5*	*112.5*	*109.5*	*118.0*	*120.4*	*118.6*	*119.8*	*117.6*	*121.7*	*121.8*	*119.8*	*119.9*	*+2*	*+7*	*-14*
Imposing order in the country															
Successful	53.2	36.6	39.4	48.0	50.2	49.9	51.7	48.6	50.5	47.7	48.1	49.4	+1	+13	-4
Unsuccessful	34.0	50.0	47.5	39.1	37.9	38.0	37.9	38.7	38.0	37.2	38.2	38.0	-1	-12	+4
Index of success	*119.2*	*86.6*	*91.9*	*108.9*	*112.3*	*111.9*	*113.8*	*109.9*	*112.5*	*110.5*	*109.9*	*111.4*	*+3*	*+25*	*-8*
Protecting democracy and strengthening the citizens' freedoms															
Successful	44.4	32.4	31.8	37.5	40.4	42.2	42.6	38.1	41.0	36.9	35.6	39.4	+2	+7	-5
Unsuccessful	37.0	48.3	51.0	45.4	41.5	38.3	41.7	44.3	43.7	44.3	45.3	42.9	-2	-5	+6
Index of success	*107.4*	*84.1*	*80.8*	*92.1*	*99.0*	*103.9*	*100.9*	*93.8*	*97.3*	*92.6*	*90.3*	*96.5*	*+4*	*+12*	*-11*
Economic recovery and increase in the citizens' welfare															
Successful	47.2	30.7	31.3	34.8	34.2	36.2	36.6	32.1	30.9	28.0	27.6	31.9	-3	+1	-15
Unsuccessful	39.1	56.1	56.8	53.4	52.3	49.9	52.6	54.3	55.7	57.0	57.9	54.6	+1	-2	+15
Index of success	*108.1*	*74.6*	*74.5*	*81.4*	*81.8*	*86.3*	*84.0*	*77.8*	*75.2*	*71.0*	*69.7*	*77.3*	*-4*	*+3*	*-31*
* 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. At the same time, the proportion of people who believe that today no party expresses their interests increased (by 3 p.p., from 32 to 35%).

The "United Russia" retains its leading positions. The level of its support corresponds approximately to the indicators of 2014 (33–34%). However, in the short-term dynamics, negative trends are observed − for the period from December 2015 to April 2016 the proportion of the Vologda Oblast residents who say that the "United Russia" expresses their interests, decreased by 5 p.p. (from 39 to 34%).

The positions of other parties remain stable: LDPR is supports by 7−8%, KPRF − by 7-9%, the "Just Russia" − by 3-4%.

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	June 2015	Aug. 2015	Oct. 2015	Dec. 2015	Feb. 2016	Apr. 2016	Average for the latest 6 surveys	Dynamics (+/-) the latest 6 surveys in comparison with…		
															2014	2011	2007
United Russia	30.2	60.5	31.1	33.4	29.4	32.8	38.8	40.3	38.5	38.0	39.0	35.1	34.1	37.5	+5	+6	+7
LDPR	7.5	11.0	7.8	15.4	7.2	7.6	6.2	5.4	5.9	6.1	7.1	6.9	8.2	6.6	-1	-1	-1
KPRF	7.0	9.3	10.3	16.8	11.3	9.7	7.1	6.8	7.1	6.9	6.5	9.4	7.2	7.3	-2	-3	0
Just Russia	7.8	8.8	5.6	27.2	4.6	3.5	3.6	3.3	3.5	3.3	3.7	2.7	2.7	3.2	0	-2	-5
Other	1.8	–	1.9	–	0.6	0.3	0.2	0.2	0.1	0.1	0.4	0.5	0.2	0.3	0	-2	-2
No party	17.8	–	29.4	–	34.9	34.4	31.8	32.5	33.8	32.3	30.5	31.7	34.9	32.6	-2	+3	15
It is difficult to answer	21.2	–	13.2	–	10.2	11.7	12.2	11.6	11.1	13.3	12.9	13.7	12.7	12.6	+1	-1	-9

In February − April 2016, the assessments of social feeling of the Vologda Oblast residents improved slightly):

− the proportion of people who describe their mood as "normal, good" increased by 4 p. p. (from 63 to 67%);

− the proportion of those who say that "everything is not so bad; it's difficult to live, but it's possible to stand it" increased by 5 p. p. (from 73 to 78%).

− the share of those who consider themselves "poor and extremely poor" decreased by 2 p.p. (from 51 to 49%).

The consumer sentiment index for the period from February to April 2016 did not change significantly (75 − 74 p.).

The assessment of social well-being in general corresponds to the level of 2014−2015.

However, in the short-term dynamics, some negative trends are observed. So, for the period from December 2015 to April 2016:

− the proportion of positive characteristics of social mood decreased (by 3 p.p., from 70 to 67%);

− the percentage of people who say that they "can't bear such plight" increased (by 3 p.p. from 13 to 16%);

− the consumer sentiment index decreased (by 4 points, from 78 to 74%).

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

Answer option	2007	2011	2013	2014	2015	June 2015	Aug. 2015	Oct. 2015	Dec. 2015	Feb. 2016	Apr. 2016	Average for the latest 6 surveys	Dynamics (+/-) the latest 6 surveys in comparison with…		
													2014	2011	2007
Mood															
Usual condition. good mood	63.6	63.1	68.6	69.4	68.7	69.5	73.1	70.4	69.6	63.4	67.0	68.8	-1	+6	+5
I feel stress. anger. fear. depression	27.8	28.9	26.2	24.9	25.9	24.4	23.5	25.4	24.3	28.9	25.4	25.3	0	-4	-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	79.0	82.2	78.2	78.0	73.1	77.5	78.0	-3	+3	+4
It's impossible to bear such plight	13.6	15.3	14.2	12.6	14.5	14.7	13.3	13.9	12.7	16.1	16.4	14.5	+2	-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	39.4	39.9	39.2	38.9	39.9	40.9	39.7	-4	-3	-9
The share of people who consider themselves to be poor and extremely poor	42.4	44.3	46.9	49.1	50.7	48.0	50.5	50.2	50.5	51.4	49.4	50.0	+1	+6	+8
Consumer sentiment index															
Index value. points	105.9	89.6	90.3	87.6	77.1	80.1	77.9	77.7	77.7	75.0	74.4	77.1	-10	-12	-29
* Question: "Which category do you belong to. in your opinion?"															

In the annual dynamics, the proportion of people who describe their mood as "good, normal, smooth" has remained stable since 2013 (69−70%) and higher than in 2007 and 2011 (65−67%).

Over the past two months, positive changes took place in all categories of the population (with the exception of people with higher and incomplete higher education) and in all income groups. And among the 20% of the poorest, the proportion of people describing their mood as positive increased by 8 p.p. (from 43 to 51%).

However, negative changes are observed in some socio-demographic groups of the population in the short-term retrospective.

Thus, in December 2015 − April 2016, the share of positive assessments of social mood decreased in the following categories of population:

– men (by 3 p.p., from 70 to 67%)

– people aged 30−55 (by 3 p.p., from 69 to 66%);

– people with secondary and incomplete secondary education (by 3 p.p, from 65 to 62%) and people with higher and incomplete higher education (by 5 p.p., from 77 to 72%);

– people who according to their own assessment of their income belong to the groups of the 60% who have average income (by 4 p.p., from 72 to 68%);

– residents of Vologda (by 5 p.p., from 74 to 69%).

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	June 2015	Aug. 2015	Oct. 2015	Dec. 2015	Feb. 2016	Apr. 2016	Average for the latest 6 surveys	Dynamics (+/-) the latest 6 surveys in comparison with…		
													2014	2011	2007
Sex															
Men	65.9	64.5	69.9	68.9	69.5	72.7	75.2	69.8	69.9	63.9	66.5	69.7	+1	+5	+4
Women	61.7	62.0	67.5	69.8	68.0	66.8	71.3	70.9	69.2	63.1	67.5	68.1	-2	+6	+6
Age															
Under 30	71.3	70.0	75.5	75.1	77.1	79.4	78.9	82.8	76.9	69.9	75.4	77.2	+2	+7	+6
30-55	64.8	62.5	69.2	69.5	67.2	67.6	72.1	68.0	69.0	62.1	66.0	67.5	-2	+5	+3
Over 55	54.8	58.3	62.4	65.4	65.5	65.9	70.8	66.0	65.9	61.5	63.7	65.6	0	+7	+11
Education															
Secondary and incomplete secondary	58.4	57.4	60.6	62.5	63.6	64.0	70.2	65.7	64.6	57.8	62.4	64.1	+2	+7	+6
Secondary vocational	64.6	63.6	68.1	70.4	70.1	73.6	75.3	70.3	67.7	60.7	67.3	69.2	-1	+6	+5
Higher and incomplete higher	68.6	68.3	77.4	76.2	72.7	70.6	74.1	75.8	76.9	72.9	71.5	73.6	-3	+5	+5
Income groups															
20% of the poorest people	51.6	45.3	46.2	50.8	51.8	57.1	55.7	54.2	49.8	42.6	51.3	51.8	+1	+6	0
60% of the people with median income	62.9	65.3	71.9	72.3	71.0	71.3	77.7	70.1	72.2	66.3	67.6	70.9	-1	+6	+8
20% of the most prosperous people	74.9	75.3	83.3	84.8	82.0	82.5	85.1	87.1	78.8	77.9	81.0	82.1	-3	+7	+7
Territories															
Vologda	63.1	67.1	75.0	76.4	73.9	75.6	77.9	77.6	73.6	65.1	69.1	73.2	-3	+6	+10
Cherepovets	68.1	71.2	75.3	76.3	70.6	71.2	74.9	71.4	73.2	66.4	70.5	71.3	-5	0	+3
Districts	61.6	57.1	61.6	61.8	64.6	65.1	69.4	65.9	65.0	60.9	63.9	65.0	+3	+8	+3
Oblast	63.6	63.1	68.6	69.4	68.7	69.5	73.1	70.4	69.5	63.5	67.1	68.9	-1	+6	+5

Conclusion

in February–April 2016, there is an improvement in the estimates of social well-being of the population, which may be associated with the coming of spring, and with a number of events that occurred in March 2016 (for example, the withdrawal of the majority of Russian troops from Syria,

celebration of the second anniversary of accession of Crimea to the Russian Federation). However, economic problems remained the center of attention of people, making these issues a key factor in the political struggle unfolding in the run-up to the State Duma election (September 2016).

The evaluation of the work of the President and Government, as well as the level of support of the "United Russia" party for the past two months did not change significantly. The proportion of positive judgment is higher than in 2013–2014, but in the short-term dynamics (from December 2015 to April 2016) there are slight negative changes. This indicates that the population is becoming more demanding. As the results of VTsIOM opinion polls show, society requires a new economic policy: "65% of the Russians believe that the authorities should develop economic policy that is different from the current one. Society is tired of the fact that the success or failure of the economy depends on the oil market and return of commodity prices to a comfortable level. A clear majority of the population want the current economic course to be changed, and they link this change to the reliance on internal resources and substantial stimulation of economic activity"[2].

Further dynamics of public opinion will depend, firstly, on how effective the work is carried out to "upgrade the performance of not only the Government but also the entire state machinery", especially regarding the implementation of the "targeted approach in the work of ministries and departments"[3]. Secondly, the dynamics of public opinion will depend on how the effective implementation of the main provisions of the National Security Strategy – 2015 that reinforces personal responsibility of the President for the implementation of key national security priorities, including those in the sphere of economy, standard of living and quality of life.

As Vladimir Putin noted, "we have to think about how to deal with our domestic affairs and problems, our roads, our healthcare, education, how to develop our economy, restore it and reach the required growth pace. If we do all this, we will not have to deal with anybody because then – only in this case – we will be invulnerable people with bright prospects who want to live in this country and are proud of it"[4].

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[2] *Krizisnaya ekonomika: v poiskakh vykhoda: press-vypusk* [Crisis Economics: in Search of a Solution: Press Release], 2016, no. 3046, February. Available at: http://wciom.ru/index.php?id=236&uid=115594

[3] Stenogramma Pryamoi linii s Prezidentom RF V.V. Putinym ot 14 aprelya 2016 g. [Transcript of the Direct Line with Russian President Vladimir Putin of April 14, 2016]. *Ofitsial'nyi sait Prezidenta RF* [Official Website of the President of the Russian Federation]. Available at:: http://www.kremlin.ru/events/president/news/51716

[4] *Ibidem.*

THEORETICAL ISSUES

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Exclusion as a Criterion for Selecting Socially Vulnerable Population Groups*

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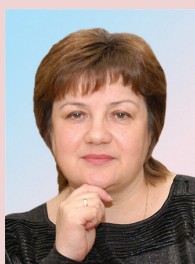onk82@yandex.ru

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Abstract. The article considers theoretical aspects of a scientific research "The Mechanisms for Overcoming Mental Barriers of Inclusion of Socially Vulnerable Categories of the Population for the Purpose of Intensifying Modernization in the Regional Community" (RSF grant No. 16-18-00078). The authors analyze the essence of the category of "socially vulnerable groups" from the legal, economic and sociological perspectives. The paper shows that the economic approach that uses the criterion "the level of income and accumulated assets" when defining vulnerable population groups prevails in public administration practice. The legal field of the category based on the economic approach is defined by the concept of "the poor and socially unprotected categories of citizens". With the help of the analysis of theoretical and methodological aspects of this issue, the authors show that these criteria are a necessary but not sufficient condition for classifying the population as being socially vulnerable. Foreign literature associates the phenomenon of vulnerability with the concept of risks, with the possibility of households responding to them and with the likelihood of losing the well-being (poverty theory; research areas related to the means of subsistence, etc.). The asset-based approaches relate vulnerability to the poverty that arises due to lack of access to tangible and intangible assets. Sociological theories presented by the concept of social exclusion pay much attention to the breakdown of social ties as a source of vulnerability. The essence of social exclusion consists in the inability of people to participate in important aspects of social life (in politics, labor markets, education and healthcare, cultural life, etc.) though they have all the rights to do so. The difference between the concepts of exclusion and poverty is manifested in the displacement of emphasis from income inequality to limited access to rights. Social exclusion is characterized by the situation and state of exception that is linked to social status and self-perception of human rights and expressed through the senses of inferiority, anger, fear, despair, depression, shame. The status of social exclusion has many criteria: poverty, limited opportunities for employment and education, lack of access to social and community networks and activities, inability to plan one's own life. The explanatory concept of social exclusion is based on the construction of the attitude toward socially vulnerable layers as the devalued social status. The barrier of social inclusion consists in the formation of a negative image of a representative of this category of the population in the eyes of more secure population groups; and the reason for this phenomenon lies in individual characteristics of an individual: lack of purpose, apathy, laziness, low motivation to labor and training, and bad habits. The prevailing social stereotype contributes to the stratification of entire families, including children, who are in advance deprived of the most important economic, political and cultural resources of society, and have no opportunities for the upward mobility. If no measures are taken to overcome social exclusion, it can lead to the fact that part of the population will fall out of social development and slip into a state of stagnation and complete social dependence. The concept of social inclusion shifts the priorities of state social policy from the allocation of social transfers to actively changing the mindset in society.

Key words: social exclusion, socially vulnerable groups, the poor, poverty concept, social inclusion.

Relevance of the study

Leading Russian scientists have repeatedly stresses the non-economic factors (especially those that lie in the sphere of public consciousness) in economic development of any country. These factors play a "significant and increasingly important role among the factors that determine the content and vector of the changes happening in our world and country"[1].

Nowadays, the Russian society is once again involved in the cycle of fundamental changes that determine the vector of its modernization and further development in the coming decades. We are talking about the formation of national identity, preservation of national sovereignty, enhancement of the role of society in public administration, overcoming of the crisis of confidence in state and non-governmental institutions, rejection of the pro-Western ideology of the "consumer society" and return to the native Russian roots of development based on spiritual and moral values[2]. In this connection, there emerges an acute issue concerning the modernization of society, search for ways to intensify modernization processes, which are constrained by both economic and social factors[3]. Scientific research pays more attention to the former. At the same time, mental barriers, behavior stereotypes (non-economic "agents"), along with economic factors, not only influence the reduction in labor supply, but also impede the full and effective implementation of labor potential, increase the load on the economically active part of the population, increase social tensions and create a society of unequal opportunities. Exclusion of socially vulnerable population groups also hinders modernization processes and limits the use of their resource potential. The present paper consider theoretical and methodological foundations of exclusion, the phenomenon that in these conditions becomes one of the cornerstones of the study.

Basic definitions

It should be noted that the conceptual framework of the study includes a number of definitions that require theoretical and methodological substantiation. The first one is mentality, because this concept and the framework of its empirical study are developed insufficiently[4]. Second, it is the category of socially vulnerable population that, as an object of social policy, requires special attention on the part of the government. But which groups of the Russian society can be

[1] Osipov G.V. Ne upustit' predstavivshiisya shans! [Do Not Miss This Chance!]. *Sotsiologiya i ekonomika sovremennoi sotsial'noi real'nosti. Sotsial'naya i sotsial'no-politicheskaya situatsiya v Rossii v 2013 godu* [Sociology and Economics of Contemporary Social Reality. Social and Socio-Political Situation in Russia in 2013]. Moscow: ISPI RAN, 2013. P. 17.

[2] Morev M.V., Korolenko A.V. Subjective Factor in Social Development as a Key Resource for the Consolidation of the Russian Society. *Economic and Social Changes: Facts, Trends, Forecast*, 2014, no. 5. DOI: 10.15838/esc/2014.5.35.6.

[3] Ilyin, V.A., Shabunova A.A. O nekotorykh tendentsiyakh v ekonomicheskom razvitii Rossii i regiona [About Some Trends in Economic Development of Russia and the Region]. *Sotsis* [Sociological Studies], 2015, no. 8, pp. 34-41.

[4] Firsov B. Mental'nye miry sovremennogo rossiiskogo naseleniya (stat'ya tret'ya) [Mental Worlds of the Contemporary Russian Population (Article Number Three)]. *Teleskop: zhurnal sotsiologicheskikh i marketingovykh issledovanii* [Telescope: A Journal of Sociological and Marketing Research], 2007, no. 6, pp. 14-27.

referred to this category and in accordance with what criteria? Modern Russian society has substantial differences in the provision of various population groups with economic, social, administrative, cultural and other types of resources. The socio-economic reforms of the 1990s and the permanent waves of economic, financial and political crises of the 21st century led to a profound differentiation in the Russian society and sharp polarization of people's incomes. Part of the Russians lost these resources, and more and more groups of the Russian society were pushed out to the periphery of social space. Transformation of the social structure of regional community[5] that is happening today in Russia is due to the existence of a hierarchy of life opportunities (privileges and deprivations) in the distribution of access to desired benefits and values such as wealth, power, prestige and knowledge[6]. Socially vulnerable categories of population found themselves in isolation from the good things in life.

The concept of "socially vulnerable groups" is used in the legal and economic sphere, and in the practice of charitable organizations. Theoretical studies of social vulnerability were actively carried out abroad in the second half of the 20th century. A new surge of interest to this issue in the West was caused by a World Bank study of social risks initiated in the 1990s[7]. In Russia, the requirements of changing social practice also stimulated the research on vulnerability and social assistance in the early 2000s.

The concept of social vulnerability

In Western scientific literature, socially vulnerable groups are defined in accordance with the concept that treats vulnerability as a reaction to risks, which include social risks. The main components of risk are: a) risk events themselves; b) risk management; c) the result in terms of loss of welfare. A key role belongs to the indicators of magnitude, timing and history of risks and risk response. A household may be able to mitigate a risk or set of risks or cope with them in the current period, but this process can result in a limited ability to manage risks in subsequent periods, the ability characterized by resource constraints[8]. The basic principles of the concept are: prospect (vulnerability is defined as the probability of

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[5] We understand regional community as a community of people who are united by temporal and spatial conditions of life, interact with each other in the framework of social institutions, groups and organizations in the interests of the region and influence the formation of social relations in it. Find more information on regional community in: Khomukha V.I. *Institutsional'nye determinanty transformatsii sotsial'noi struk-tury regional'nogo soobshchestva: dis. ... kand. sotsiol. nauk* [Institutional Determinants of Transformation of the Social Structure of Regional Community: Ph.D. in Sociology Dissertation]. Stavropol, 2006. 157 p.; Motalov Yu.G. *Regional'noe soobshchestvo i etnicheskie migranty: sotsial'no-filosofskii analiz sootnosheniya potrebnostei: avtoref. dis . ... kand. filosof. n.* [Regional Community and Ethnic Migrants: A Socio-Philosophical Analysis of the Correlation of the Needs: Ph.D. in Philosophy Dissertation Abstract]. Moscow, 2013. 23 p.

[6] Sztompka P. Ponyatie sotsial'noi struktury: popytka obobshcheniya [The Concept of Social Structure: An Attempt to Generalize]. *Sotsiologicheskie issledovaniya* [Sociological Studies], 2001, no. 9, p. 6.

[7] Abrahamson P. Sotsial'naya eksklyuziya i bednost' [Social Exclusion and Poverty]. *Obshchestvennye nauki i sovremennost'* [Social Sciences and Modernity], 2001, no. 2.

[8] Holzmann R. Jorgensen S. *Social Protection as Social Risk Management: Conceptual Underpinnings for Social Protection Sector Strategy Paper. Social Protection Discussion Paper No. 9904.* The World Bank, Washington, D.C. 1999; Siegel P., Alwang J. *An Asset-Based Approach to Social Risk Management: A Conceptual Framework. Social Protection Discussion Paper No. 9926.* The World Bank, Washington, D.C. 1999.

experiencing a loss in the future); temporal dependence; relation to households in general; dependence of the degree of vulnerability on risk characteristics and on the ability of households to respond to risks; limited access to assets and limited ability to respond to a risk. The vulnerability of individuals within the household and its dynamics are crucial for understanding household vulnerability. Social actions can reduce risk or exposure to risk, this is why the main interest of social policy lies in the outcome of the process of households' responding to risks in terms of the loss of welfare.

Economic approach: the concept of poverty

Economic theories represent vulnerability within the concept of poverty as a result of responding to potential threats. Vulnerable households, according to economists, are those that have entered or can go into a state of poverty or destitution due to the cumulative process of risk and response measures. The main and most convenient tools for measuring vulnerability are the monetary indicators, especially when assessing the vulnerability as related to consumption deficiency. *The monetary approach* uses the indicators of per capita incomes and the subsistence level as instruments to measure vulnerability (the concepts of absolute poverty by C. Booth, L. Gordon, N. Rimashevskaya), and the median level of economic welfare (P. Townsend's concept of relative poverty). The findings of the research on poverty and vulnerability of the population in the Russian Federation conducted by a team supervised

by L. Ovcharova consider that the household is poor if it has incomes below the subsistence level, and other forms of restricting access to resources are proposed to be considered as manifestations of vulnerability[9].

The *non-monetary approach* to assessing poverty as a criterion of population vulnerability takes into account the indices of opportunities and deprivations that determine the mismatch between the level of consumption of individual households and the standard accepted in society, and the lack of access to a specific set of benefits.

However, economic concepts have been criticized precisely because of the underlying idea that all losses can be measured in monetary terms. The theoretical-methodological problem of the concept of poverty is that it studies only one of the many aspects of vulnerability — the vulnerability that is expressed in the variability of incomes[10]. Researchers believe that the measurements of only income or consumption of households limit the analysis of the state of vulnerability (A. Coudouel, J. Hentschel): "Vulnerability is a broad concept that encompasses not only income vulnerability but also risks such as those associated with health, ... and result from violence or social exclusion ..."[11]

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[9] *Dokhody i sotsial'nye uslugi: neravenstvo, uyazvimost', bednost': kollektivnaya monografiya* [Income and Social Services: Inequality, Vulnerability, Poverty: A Collective Monograph]. Supervised by L.N. Ovcharova; Nezavisimyi institut sotsial'noi politiki. Moscow: GU-VShE, 2005.

[10] Coudouel A., Hentschel J. *Poverty Data and Measurement. Preliminary Draft for a Sourcebook on Poverty Reduction Strategies.* The World Bank, Washington, D.C. 2000. April. P. 34.

[11] Ibid.

Theoretical and methodological issues in the study of vulnerability should include the necessity to consider the dynamics of the process and complexity of comparison of different types of vulnerability between each other due to the lack of comparability of individual categories of social risks. For example, what economic criterion should be chosen when comparing vulnerability to disease, social unrest or lack of education? Russian researchers refer the emergence of vulnerability to uncontrollable openness of the Russian society that generates specific risks associated with social fears and anxieties about instability and uncertainty in life, and external apprehensions[12]. Local wars, ethnic conflicts, terrorism, wherever they occur, pose a threat for almost every Russian. In addition, the production of new marginalized groups increases – they consist not of temporarily unemployed people, but of the people who cannot adapt to the cultural innovations of an open society. At that, new social risk groups inevitably emerge.

"A minimum level of the quality of life in different areas" and the definition of vulnerability as the probability of falling below this level are considered as output. For instance, the work of Lant Pritchett and colleagues define vulnerability as the risk that a household will move into a state of poverty at least once over the next few years[13]. Vulnerability, therefore, is defined as the probability of falling below the poverty threshold for a certain period of time. In this case, households have a greater or lesser degree of vulnerability. Judging by the amount of the time that a household spends below the poverty line, researchers define the structural (associated with chronic poverty) and temporal vulnerability (A.Coudouel[14], M. Ravallion)[15]. The disadvantage of these ideas lies in the necessity to measure the probability associated with future conditions to compute current vulnerability, which complicates management decision-making.

Economic approach: resource concepts

The asset-based approach links vulnerability to the state of poverty that is considered to be a consequence of insufficient access to tangible and intangible assets. Tangible assets include land, labor, capital, savings (i.e. natural, human, physical and financial assets). Intangible assets include social, institutional and political relations, social infrastructure, and location[16]. This concept is based on the ability of households to manage risks by

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

[13] Pritchitt L., Suryahadi A., Sumarto S. *Quantifying Vulnerability to Poverty: A Proposed Measure, Applied to Indonesia. Policy Research Working Paper #2437.* The World Bank, Washington, D.C. 2000.

[14] Coudouel A., Ezemenari K., Grosh M., Sherburne-Benz L. *Preliminary Draft for A Sourcebook on Poverty Reduction Strategies.* The World Bank, Washington, D.C. 2000. April.

[15] Ravallion M. Expected Poverty Under Risk-Induced Welfare Variability. *Economic Journal*, 1998, March, pp. 1173-1183.

[16] Siegel P., Alwang J. *An Asset-Based Approach to Social Risk Management: A Conceptual Framework. Social Protection Discussion Paper No. 9926.* The World Bank, Washington, D.C. 1999. Pp. 10-12.

expanding the responses to risks: "Vulnerability of the population also depends on its assets... Cashing in these assets during the crisis helps people survive. The differences in the types and amounts of such assets owned by different households and individuals partly explain the differences in their vulnerability"[17].

The *livelihoods literature* points out that vulnerability has two sides: an external side of risks, shocks and stress, and the inner side manifesting in helplessness, lack of means to mitigate the blows, or the inability to do without losses[18]. Proponents of this concept distinguish between the "structural" vulnerability and "proximate" vulnerability[19]. Structural vulnerability is manifested in the families that due to their composition are more prone to risk and stress (for example, households with disabled members): they face high risks in the infrastructure, while having minimal opportunities for responding. The state of proximate vulnerability may vary from year to year, because vulnerability is not a steady condition but an evolving process[20].

Economic and legal approach

Despite the above drawbacks, it is the monetary approach, due to its clearly defined criteria and availability of statistical information, gets enshrined in the Russian legislation. In determining the socially vulnerable segments of the population, Russian laws use rather broad definitions — "the poor and socially unprotected categories of citizens", as, for example, in the Tax Code of the Russian Federation (Item 8 of Article 217, Item 14 of Article 251 of the RF Tax Code)[21]. However, the federal and regional legislation specifies only the term "poor citizens" on the criterion of per capita family income (income of the citizen who lives alone)[22]. A family obtains the status of needy if its amount of per capita income is lower than the subsistence level. In this case, the individual (family) receives the right to obtain targeted social assistance from the state. Thus, in accordance with Federal Law No. 512 dated August 20, 2003, the needy families (low-income citizens who live alone) include individuals in a state of neediness, regardless of demographic characteristics, social status, employment, and health status[23]. Some socially unprotected

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[17] Eade D., Williams S. *The OXFAM Handbook of Development and Relief*. Oxford: Oxfam Publications, 1995. P. 931.

[18] Chambers R. Editorial Introduction: Vulnerability, Coping, and Policy. *IDS Bulletin*, 1989, vol. 20, no. 2, pp 1-7.

[19] Davis A.P. Targeting the Vulnerable in Emergency Situations: Who is Vulnerable? *Lancet*, 1996, no. 348 (9031), pp. 868-871.

[20] Davies S. *Adaptable Livelihoods. Coping with Food Insecurity in the Malian Sahel*. New York: St. Martin's Press, 1996. P. 24

[21] Nalogovyi kodeks Rossiiskoi Federatsii (chast' vtoraya) ot 05.08.2000 N 117-FZ (red. ot 15.02.2016) [Tax Code of the Russian Federation (Part 2) of August 05, 2000 No. 117-FZ]. *Konsul'tantPlyus* [ConsultantPlus Legal Reference System].

[22] Article 5 of Federal Law 512 dated August 20, 2003 "On the Procedure of Accounting the Income and Calculating the Average Per Capita Family Income and Income of Citizens who Live Alone for the Purpose of Recognizing Them Poor and Grant Them State Social Assistance". The list of types of income used in the calculation of per capita family income and income of citizens living alone for the purpose of providing them with state social assistance is approved by the Decree of the Government of the Russian Federation of August 20, 2003 No. 512 (as amended by the Decree of the Government of the Russian Federation of December 30, 2005 No. 847).

[23] Kozhevnikov D.E. *Gosudarstvennaya sotsial'naya pomoshch' maloimushchim grazhdanam: pravovye voprosy: avtoref. dis. … kand. yurid. nauk*. 12.00.05 [State Social Assistance to Needy Citizens: Legal Issues: Ph.D. in Law Dissertation Abstract]. Yekaterinburg, 2010. Pp. 13-14.

categories of citizens (minors in difficult life situations, disabled people and participants of the Great Patriotic War, combat veterans, blockade survivors, orphans, the disabled, etc.) are specified in other federal laws[24].

When implementing the economic and legal approach in practice, public authorities face many contradictions. Is the lack of income source a necessary and sufficient basis for defining people as socially vulnerable segments of the population, given the fact that the level of per capita income is not considered a reliable criterion of poverty. The standard of living is determined not only by current income, but by overall wealth. According to the viewpoint of M.I. Mallaeva and Kh.M. Khadzhalov, the standard of living is demonstrate much better by indicators such as the "volume and structure of consumption"[25].

Sociological approach

Representatives of the sociological approach believe that indicators such as income or consumption are not able to describe adequately the state of vulnerability. Sociologists often discuss the vulnerability of social groups in terms of their socio-demographic characteristics or social status[26], i.e. they identify the groups that can be generally described as vulnerable (such as the elderly, people with disabilities, children in difficult life situations, families with single mothers, large families).

Social anthropologist Caroline Moser defines vulnerability as "insecurity of the well-being of individuals, families or communities in a changing environment"[27]. She notes that the concept of vulnerability reflects more fully the processes of change, and the vulnerability analysis includes both the threat and the tolerance for risk – the ability to use all the opportunities to counter the threat and recover from negative shocks.

Sociologists propose to expand the definition of assets and, in addition to the physical and financial areas, they propose to include social capital and family relationships[28]. Several authors draw attention to the fact that individual vulnerability cannot be separated from the concept of "social vulnerability"[29], because the presence of relationships between individuals forms the collective nature of vulnerability.

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[24] Federal Law of August 02, 1995 No. 122-FZ (as Amended on November 21, 2011) "On social Services provided to the Elderly and Disabled"; Federal Law of January 12, 1995 (as Amended on October 16, 2012) No. 5-FZ "On Veterans"; Federal Law of December 21, 1996 No. 159-FZ (as Amended on February 29, 2012) "On Additional Guarantees on Social Support of Orphaned Children and Children Left without Support of Their Parents; Federal Law of June 24, 1999 No. 120-FZ (as Amended on December 03, 2011) "On the Fundamentals of the System for Preventing Child Neglect and Juvenile Delinquency".

[25] Mallaeva M.I., Khadzhalov Kh.M. Metodicheskie podkhody k opredeleniyu ob"ektov sotsial'noi zashchity naseleniya [Methodological Approaches to the Definition of Objects of Social Protection]. *Vestnik Dagestanskogo gosudarstvennogo universiteta* [Dagestan State University Bulletin], 2011, no. 5, p. 22.

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[27] Moser C. The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies. *World Development,* 1998, vol. 26, no. 1, p. 2.

[28] Putnam R.D. *Making Democracy Work: Civic Tradition in Modern Italy.* Princeton: Princeton University Press, 1993.

[29] Dilley M. Climate, Change, and Disasters. *Managing Disaster Risk in Emerging Economies.* Ed. by A. Kreimer, M. Arnold. The World Bank, Washington, D.C. 2000; Morrow B.H. Identifying and Mapping Community Vulnerability. Disasters, 1999, vol. 23, no. 1, pp. 1-18.

The concept of social exclusion

Especially great attention to the disintegration of social ties is given in the *concept of social exclusion*. An aspect of social vulnerability is the loss of man's connection with the rest of society. And in this case we can speak about his social exclusion, under which A. Giddens understood a "mechanism that separates groups of people from the main social stream"[30]. The term "social exclusion" was introduced by R. Lenoir in 1974 in his work "Les Exclus" to describe the life situation of the people who are rejected and not included in the social insurance system of the state of welfare; R. Lenoir also drew attention to the uneven distribution of wealth in society and access to its resources.

The civil law version of the concept in the context of social rights and social justice connected social isolation with the fact that an individual (or a group of people) has no access to rights. If the economic concept of poverty linked the essence of social vulnerability to the low income and low financial standard of living, then the definition of social exclusion is linked to social rights such as the right to work, housing, medical services or education[31]. According to A. Sen, social exclusion occurs when an individual is deprived of liberty to take those actions he considers necessary[32]. A. Sen emphasizes the objective reduction in the range of capabilities of an individual. The essence of social exclusion consists in the inability of people to participate in important aspects of social life to which they have all the rights: participation in political processes, labor markets, education and healthcare systems, and cultural life of the community. When the focus is shifted from income inequality to the restriction of access to rights, there emerges the distinction between the concepts of exclusion and poverty[33].

People may encounter two different types of exclusion: that which occurs as the result of deliberate policies and practices in society ("active" exclusion) or that which is a combination of social processes that are not a deliberate attempt to reject ("passive" exclusion). The factors leading to active social exclusion are: discriminatory practices, unequal position in the power hierarchy, and institutional barriers that impede access to public services and political participation. Z. Bauman argues that even under the most democratic regimes, the government claims the "right to exclude"[34]. Both active and passive social exclusion may lead to the limitation of human capabilities. Limited capabilities in one area may lead to deprivations in other spheres of life and contribute to the process of social exclusion.

[30] Giddens A. *The Third Way. The Renewal of Social Democracy*. Cambridge: Polity Press, 1998. P. 105.

[31] Lister R. *Poverty, Key Concepts*. Cambridge: Polity Press, 2004.

[32] Sen A. Social Exclusion: Concept, Application and Scrutiny. *Social Development Papers*, 2000, no. 1. Office of Environment and Social Development, Asian Development Bank.

[33] Learn more about the differences between the concepts of poverty and exclusion in: Abrahamson P. Sotsial'naya eksklyuziya i bednost' [Social Exclusion and Poverty]. Obshchestvennye nauki i sovremennost' [Social Sciences and Modernity], 2001, no. 2, p. 160.

[34] Bauman Z. Wasted Lives. *Modernity and Its Outcasts. Cambridge,* UK: Polity, 2004. P. 21.

In the past decade, several works that study the concept of social exclusion were published. The authors of these works are F. Borodkin (about the situation and condition of social exclusion), N. Tikhonova (on the phenomenon of social exclusion in Russia), V. Antonova, A. Dmitrieva (analysis of the concepts of social inclusion and exclusion)[35]. The works of V. Shmidt are devoted to the issues of the interdisciplinary approach to the study of social exclusion[36]. According to N.E. Tikhonova, it is possible to describe the processes that are happening in modern Russian with the help of "horizontal stratification, individualization of risks and social exclusion".

According to F. Borodkin, social exclusion is characterized not only by a situation of rejection, but also by a certain condition associated with social status and self-perception of the individual, including feelings of inferiority, anger, fear, despair, depression and shame[37]. The status of social exclusion has many criteria: poverty, limited employment and education opportunities, lack of access to social and community networks and activities, inability to plan one's own life[38].

The concept of social exclusion helps explain why there is no use in the proposals of the economic theory to alleviate poverty with the help of government subsidies and grants. The fact is that people who live on government allowances are subject to social stigma, and the risk of their exclusion from social resources increases. There develops the attitude toward poverty as an impaired social status and the reasons for this phenomenon are seen in individual personality characteristics: lack of commitment, lack of will, laziness, low motivation to work and training, and bad habits. A negative image of the representative of vulnerable groups is formed in the eyes of more prosperous groups, this image shows pessimism, depression, helplessness, extreme poverty and bad luck. The prevailing social stereotype of this category of people exposes their children to stratification as well; thus, they are in advance denied the most important economic, political and cultural resources of society, and their opportunities for upward mobility are impeded.

[35] Antonova V. Kontsepty sotsial'noi inklyuzii i eksklyuzii v global'nom obshchestve: dreif po sotsial'nym institutam, aktoram i praktikam [The Concepts of Social Inclusion and Exclusion in Global Society: the Overview of Social Institutions, Actors and Practices]. *Zhurnal issledovanii sotsial'noi politiki* [Journal of Social Policy Studies], vol. 11, no. 2, pp. 151-170; Borodkin F.M. Sotsial'nye eksklyuzii [Social Exclusion]. *Sotsiologicheskii zhurnal* [Sociological Journal], 2000, no. 3/4, pp. 5-17; Dmitrieva A.V. Sotsial'noe vyklyuchenie/isklyuchenie kak printsip strukturatsii sovremennogo obshchestva [Social Exclusion as a Principle of Structuration of Modern Society]. *Sotsiologicheskii zhurnal* [Sociological Journal], 2012, no. 2, pp. 98-114; Tikhonova N.E. Fenomen sotsial'noi eksklyuzii v usloviyakh Rossii [The Phenomenon of Social Exclusion in Russia]. *Mir Rossii* [World of Russia], 2003, no. 1, pp. 36-83.

[36] Shmidt V. Mezhdistsiplinarnyi podkhod k probleme sotsial'noi eksklyuzii [Interdisciplinary Approach to the Issue of Social Exclusion]. *Zhurnal issledovanii sotsial'noi politiki* [The Journal of Social Policy Studies], 2004, vol. 2, no. 4, pp. 547-566.

[37] Borodkin F.M. Sotsial'nye eksklyuzii [Social Exclusion]. *Sotsiologicheskii zhurnal* [Sociological Journal], 2000, no. 3/4, p. 6.

[38] Tikhonova N.E. Fenomen sotsial'noi eksklyuzii v usloviyakh Rossii [The Phenomenon of Social Exclusion in Russia]. *Mir Rossii* [World of Russia], 2003, no. 1, p. 40.

The chances of the risks leading to social vulnerability and social exclusion depend on the socio-economic policy of the government that determines the result of the interaction between these risks and social norms, social institutions and behavior patterns. One of the solutions to these problems lies in changing the attitudes in society toward people who need support, in changing the very consciousness and perception in the representatives of the categories under consideration.

Criteria of social vulnerability

Many researchers argue that at present, the most important criteria for identifying socially vulnerable population groups as objects of social protection should include objective reasons that prevent individuals from living a decent life and being financially secure. There can be very different reasons for this: health status, social status, loss of breadwinner, temporary or permanent disability, old age[39]. They are connected most often with the fact that the individual cannot work and thus cannot provide for his/her living. Therefore,

several researchers put forward the ability to work as the main other criterion of social vulnerability[40]. However, the application of this approach to the determination of socially vulnerable population groups has its disadvantages. For example, a disabled citizen can count on his/her family for support, and the worker can only earn very low wages that do not provide a decent standard of living. We agree with N.M. Rimashevskaya, who points out that "...the working poor are a purely Russian phenomenon"[41].

Vulnerability of the Russian family is the second point which should be highlighted. Due to increased dependency burden, the following categories of families are often included in the vulnerable population groups: families with minor children, families with many children, single-parent families, families that have children left without parental care and orphans in their care, families with disabled members, including children with disabilities, families of the unemployed, families consisting of the elderly who live alone, and the families of forced migrants. Therefore, the work with socially vulnerable population should be part of the family policy and should be based on a careful definition of the groups of families that require social assistance, and targeted

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[39] Luk'yanova T.N. *Sovershenstvovanie regional'noi sistemy sotsial'noi zashchity sotsial'no uyazvimykh sloev naseleniya: dis. ... kand. ek. nauk* [Improvement of the Regional System for Social Protection of Socially Vulnerable Population Groups: Ph.D. in Economics Dissertation]. Moscow, 2009; Mal'tseva E.V. *Sotsial'no uyazvimye kategorii naseleniya na rynke truda i organiza-tsiya ikh sotsial'noi zashchity: dis. ... kand. ek. nauk* [Socially Vulnerable Categories of Population in the Labor Market, and Organization of Their Social Protection: Ph.D. in Economics Dissertation]. Moscow, 2001; Sergeeva E.A. *Sotsial'naya podderzhka uyazvimykh semei (sotsiologicheskii analiz): dis. ... kand. sots. nauk* [Social Support of Vulnerable Families (Sociological Analysis): Ph.D. in Sociology Dissertation]. Moscow, 2006; Pokruchina A.A. *Politika sotsial'noi zashchity uyazvimykh sloev naseleniya (sotsiolo-gicheskii analiz): dis. ... kand. sots. nauk* [Policy of Social Protection of Vulnerable Population Groups (Sociological Analysis): Ph.D. in Sociology Dissertation]. Moscow, 2000.

[40] Mallaeva M.I., Khadzhalov Kh.M. Metodicheskie podkhody k opredeleniyu ob"ektov sotsial'noi zashchity naseleniya [Methodological Approaches to the Definition of Objects of Social Protection]. *Vestnik Dagestanskogo gosudarstvennogo universiteta* [Dagestan State University Bulletin], 2011, no. 5, p. 23.

[41] Rimashevskaya N.M. Bednost' i marginalizatsiya naseleniya [Poverty and Marginalization of the Population]. *Sotsis* [Sociological Studies], 2004, no. 4, p. 7.

measures for its implementation. In addition, it is necessary to pay special attention to the categories of population, which in addition to their low material well-being feel a strong additional deprivation: former prisoners, persons of no fixed abode, etc.

Taking regional context into consideration

It might be possible to link social vulnerability not just to low income, but to a low quality of life. In this perspective, there arise additional criteria for allocating the population in need of social support for the reason that the specifics of a region (territory) and living conditions in modern Russia are extremely important factors that determine the quality of life. If a regions has a tense socio-political situation or unfavorable natural-climatic conditions, then the government has to pay increased attention to their residents and even allocate the categories of the population (or families) who are in need of social protection according to the criterion of socio-territorial problems. It has a negative impact on the quality of life, which makes the issue of classification of the territories critical.

The regions where the socio-political situation is tense are characterized by increased insecurity of population caused by military action or active migration. The increase in the number of displaced persons and forced migrants, as representatives of socially vulnerable population groups, places the region among the socially disadvantaged ones and increases the burden on social expenditure items of the regional budget.

Regional factors that may increase individual risks and affect social exclusion are as follows: the situation in the labor market and basic infrastructure, environment, the presence of necessary facilities in rural settlements, the relationship between the city and the village, the presence of social or ethnic conflicts.

Thus, under *socially vulnerable categories of the population* we understand the population groups that at present have limited access to tangible and intangible resources or for which there is a risk of social exclusion in the near future if there is no support on the part of society.

Inclusion of socially vulnerable population groups

The opposite of the process of social exclusion is inclusion as the extension of opportunities for people who are at the bottom of society to participate in economic, social, cultural and civil processes. It involves the integration of excluded population groups in institutions and social networks with the help of the following methods:

1. Improving the accessibility of essential services corresponding to actual needs and adapted to changing conditions and the specifics of the individual for all residents of the region. First of all, we are talking about high-quality and affordable education, healthcare, housing, utilities, transportation and sanitary services. It is very important for social inclusion to understand the inertia of education systems and their potential role in the chain of social exclusion.

2. Expansion of employment opportunities for the population that can suffer social exclusion, improvement of professional education, active policy on the labor market, development of social economy.

3. Changing the way of thinking in society, increase in the level of tolerance.

4. Changing the way of thinking in socially vulnerable groups for the purpose of increasing their involvement in society.

5. Engagement of citizens in state management at different levels. Representatives of socially vulnerable groups should be involved in making the decisions that affect their lives, and they should have access to fundamental rights.

6. Orientation toward economic growth in the regions.

Summary

Summing up, we acknowledge the fact that the economic-legal approach to the problem of social vulnerability prevails in the state management practice; this approach based on the notion of absolute poverty and the criteria of "low income" has a number of disadvantages. First, it is criticized by the scientific community for the substitution of social vulnerability with the concept of economic insecurity. Recent works in this area reveal the limitations of the "financial" ("money") approach to the problem – the indicator of the level of income is not a necessary and sufficient one to determine social vulnerability.

Second, under this approach, the provision of support from the government to low-income population is reflected in the allocation of social transfers, which secures the dependency position of recipients of state assistance and causes the growth of social tension in regional communities. Managerial decisions in social policy must be based on the analysis of economic indicators, and criteria of the risk of social exclusion for households and the ability to respond to it.

In our opinion, in view of the above, it is necessary to develop more definite criteria of socially vulnerable segments of the population who need protection and support from society. The basis for the development of criteria should be the concept of social exclusion, this fact is confirmed by the shift in the focus of the research from the concept of poverty as a static phenomenon (insufficient consumption) traditional for economics to the study of social exclusion as a dynamic process. If no measures are taken to overcome social exclusion, it can lead to the fact that part of the population will fall out of social development processes, slipping into a state of stagnation and complete social dependence, thus limiting modernization of regional community. The use of the concept of social exclusion shifts the priorities of state social policy from the allocation of social transfers to actively changing the way of thinking in the society and changing the mentality of the Russian population. Changes should be made in all areas of social exclusion – exclusion from economic life, social services, civil society, social life and networking. New value orientations and behavior patterns will contribute to the consolidation of various segments of the population and help intensify modernization processes.

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The Genesis and Mechanisms
to Overcome Systemic Economic Crises

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Abstract. The paper aims to look into the origin and nature of global economic crises, the least studied phenomena of the global economic life – the phenomena, the nature of which still has not received a generally accepted explanation in economic science. Market economy has its own laws, the spontaneous nature of which is revealed in times of crises. However, the analysis of global "crisis experience" draws attention to an important feature in the implementation of various forms of crises that remains at all the stages of economic development. Some economic shocks, despite their urgency and scale, gradually give way to recovery and then – to complete recovery. Other end up with weak revival and depression, gradually turning into a new recession. Such crises, depressions, and periods of sluggish economic recovery form the "waves of crisis development" that hold the economy in a depressed condition for a long time. The impact and the consequences of these "waves" of economic shocks that are sequential or overlapping in time go beyond the medium-term economic dynamics. They occur within a long-term (Kondratiev) cycle and coincide with its descending phase, when, according to empirically confirmed ideas of the great Russian economist Nikolai Kondratiev, the economy is undergoing a difficult stage of the crisis-depression development that shapes the parameters of future economic growth. The present paper unites the economic events of this stage in the concept of "systemic economic crisis". This concept is introduced for the purpose of structuring in the single economic process the diverse phenomena occurring at the downward phase of the long-term cycle. Each of them may be due to special causes and have a separate history, but initially, all these events are subordinated to the decision of general systemic problems, and for this reason can be considered as part of the single systemic crisis, the overcoming of which provides the rise of the society

to qualitatively new frontiers of economic development. The present paper is an attempt to understand the causes and consequences of systemic economic crises as a fundamental phenomenon of the long-term economic cycle.

Key words: economic development, long-term economic cycle, recession, depression, systemic economic crisis, systemic problem, innovative upgrading, economic modernization.

The occurrence of crises as a periodic economic phenomenon, the conditions and the time of their appearance remain a controversial and unresolved issue of economic theory. Most researchers are of the opinion that recurring crises happened long before the formation of the industrial production system. So, one of the most prominent representatives of the American economic science W. Mitchell states the presence of economic crises in the last decades of the 18th century, although then they were less significant for economic development than in the 20th century [25, p. 88]. Some researchers try to find recurrence in the series of economic events of earlier periods, erroneously including quite different economic shocks in the unified process of cyclic development, such as the tulip mania in the Netherlands (the 1620–1630s), the 1696 monetary crisis in England, the fall of John law (France, 1716–1720.), the collapse of the South Sea Company (England, 1720–1721), etc.

L.A. Mendelson, by contrast, believes that only gradually economic shocks acquired a character of cyclical crises and discloses a methodological error in the approach of "bourgeois experts", when the nature of crises is interpreted metaphysically and the development process is ignored [13, p. 238]. Presenting the traditional approach of the Soviet economic science, the scientist tries to link the occurrence of periodic crises with the formation of capitalist economy and, consequently, the prospects for alignment of economic development – with the elimination of the main source of "turbulence" in the economy – a capitalist economic system.

The identification of the time of occurrence of economic crises as a recurrent phenomenon is of theoretical interest; however, the determination of sources and nature of this crisis, which is the purpose of this article, also has a practical value. It is possible to form a set of tools and methods to influence the nature of cyclic processes.

Even in the pre-industrial period the economic dynamics was characterized by considerable inconsistency: the periods of economic activity activization interchanged with the periods of economic stagnation. At the same time, the recurring economic crises were usually represented as financial shocks and their causes were out of the reproductive process. The main factors that provoke worsening of the balance of payments and cause crises were the following: mass epidemics that took away millions of lives; bloody and destructive wars; serious crop failures and epizootic, involving galloping prices for essential food and commodities [18, p. 8].

The successive crises were of entirely different nature; they were generated by internal conditions, occurred in time of peace and were provoked by quite sudden phenomena: bankruptcies, poverty, unemployment, etc. These events were recorded in the 2nd quarter of the 19th century, when with the strengthening of market relations and development of industrial society the national economies experienced imbalance between industrial production and solvent demand. The economic crises that became severe and painful elements of market dynamics started to fulfil, according to Yu.V. Yakovets, three key functions: 1) "eliminate obsolete, inefficient and non-competitive economic systems (destruction function)"; 2) "clear the way for strengthening shoots of the future system, already born, but still weak and suppressed by outdated elements (creative, "obstetric" function)"; 3) "clear and transmit a genetic core of the system, a hereditary to future generations (hereditary function)" [22, pp. 216-217].

The analysis of the world "crisis experience" draws attention to an important feature in the various crises forms that persists at all stages of economic development since the early industrial period. Some economic shocks, despite the urgency and great scale, gradually gave way to revival and then to full-fledged economic recovery (1825–1826, 1857–1858, 1866–1867, 1890–1894, 1900–1903, 1907–1908, 1920–1922 , etc.), others led to weak recovery or depression, gradually turning into new recessions. Such crises and periods of sluggish economic recovery together formed waves of crisis development, leaving the economy in a depressed condition for a long time. For example, the 1857–1872 period was marked by 2 great economic revivals lasting for 7 and 6 years, preceded by the severe crises of 1857–1858 and 1866–1867, However, the subsequent period of 1873–1886 witnessed depressive development, called as "Long depression" by contemporaries [23, p. 10]. Such depressive periods were also observed in 1836–1842, 1929–1938 and 1967–1982 [20; 21]. The long period of depressed global economy, which started with the 2008–2009 global crisis and included a number of other economic shocks of regional and country scale, suggests the unfolding of another wave of depressive development, which can last until the end of the 5th Kondratiev's "big cycle", i.e. presumably until 2018–2020.

Relying on the ideas of N.D. Kondratiev, considering economic dynamics as a "continuous and diverse stream of qualitative and quantitative changes" [10, p. 24], we can assume that the above differences in the crises realization are caused by quantitative and qualitative processes in the economy. According to the Russian scientist, in the situation when the economic system elements undergo transformation, not reduced to the change in their number and volume, it is necessary to speak about the presence of qualitative changes (for example, a change in organizational principles, technologies, content and nature of social needs, etc.). In other cases (e.g., for prices, rates, rent, etc.)

the movement of quantitative indicators plays the leading role. "The value of quality changes is only important when the nature of these elements changes, for example, when the price changes from free to fixed or from market to monopoly" [10, pp. 20, 24].

This approach (further not developed by Kondratiev) allows us to create and scientifically justify a prospective "method of quantitative and qualitative decomposition", aimed at disclosing the substance of the phenomena observed in economic reality. The division of economic dynamics into two fundamentally different (although connected by feedback channels) types of processes: 1) quantitative (streaming, market) and 2) qualitative (cumulative- transformative) is a powerful way to study the nature of economic phenomena that enables us to understand the essence of events included in the overall cyclic process.

Both quantitative and qualitative processes form negative phenomena, which, in the first case, are expressed in the violation of economic proportions (imbalance of supply and demand, price disparities, etc.) and, in the second, — in the violation of internal connections (internal harmony) of the economic system. G.B. Kleiner rightly points to the differences in terms of "disproportionality" and "disharmony", which are often incorrectly presented as identical. In fact, disharmony is a condition of more serious distortion of the economic system than disproportionality. It is caused by the quality problems of the economic system

and "hinders the improvement of imbalances within the economy" [8, p. 73]. Accordingly, disharmony as a result of negative processes of qualitative order requires fundamentally different solutions for elimination of its consequences, than disproportionality.

So, the quantitative violations of internal balance of the economic environment (disproportionality), formed in the phase of economic growth, give rise to common (in the "traditional" sense) cyclical economic crises. So, the crisis is "a painful process to liquidate inconsistencies and disproportionality of production and distribution, supply and demand, created under the influence of certain conditions" [11, p. 208]. The crisis processes occurring within the economic system are, in this case, of streaming nature and, generally, realized within the medium-term economic cycle. The crisis is overcome due to the restoration of old or establishment of new quantitative proportions, providing further development for the medium term. In turn, the corresponding change in spatial configuration of the system does not entail changes in its properties and functional content. Such an understanding of the economic crisis allows us to consider it as an *economic phenomenon, caused by the violation of quantitative proportions (internal balance) of the economic system in the phase of economic growth, overcome by the restoration of old or establishment of new quantitative proportions, providing further development in the medium-term economic cycle.*

At the same time, in the economic system there arise contradictions of qualitative nature (disharmony), which are a "reaction against abnormal changes, growths and inconsistencies in the relationship of economic elements and conditions of their development" [11, p. 254]. These contradictions reveal the necessity of institutional changes, management model replacement, new technological base creation, etc. The scale and acuteness of these contradictions do not give an opportunity to eliminate them within the medium-term cyclical process, thus involving the accumulation and transfer of emerging dysfunctions for the next cycle. The accumulation of crisis potential (unresolved problems of economic system development) provokes the system or, as defined by G.B. Kleiner, mega-economic crisis [7], which determines the need to implement drastic changes in the quality of system relations between structural entities in space and in time. In this case, the crisis processes, which are a "consequence of accumulative conditions during the previous time" [10, p. 397], have a cumulative-transformative nature and require modifications of intra-system relations, carried out within long-term (Kondratiev's) cycles.

The term "systemic crisis" in economic literature is often used to indicate the depth and scope of crisis shocks, the scale and destructiveness of a certain economic phenomenon. In such a context this concept is used associatively and practically does not bear any methodological content. However, when used correctly, it can quite aptly reflect the content of crisis processes taking place in the format of long-term economic dynamics.

There are terms alternative to a "systemic crisis" in scientific literature. For example, C. Perez [17] writes about a "turning point". G. Mensch introduced into scientific circulation the concept "technological stalemate" [24]. At the descending stage of the Kondratiev's economic cycle the founder of the innovation theory I. Shumpeter singles out an economic event, calls it as "depression" and treats as an "unmanageable" condition amid falling business profits. "The economic essence of the depression process is to promote — through the mechanism of the pursuance of balance — technical achievements in all national economy", — considers the Austrian economist [19, p. 427]. The author of the theory of long-term economic development S.Yu. Glazyev uses the concept "depression" to describe the economic environment, characterized by the decline in production of the current technological structure and maturing of the key innovations of a new stage of economic development [3, p. 41]. However, in the recent works the academician Glazyev also writes about a "turbulent mode" and "systemic crisis" using these concepts as well-established for identification of crisis events of long-term cycle [4, pp. 7, 57]. It appears that the term "systemic economic crisis" summarizes controversial and multifactorial events of the descending stage of the Kondratiev's cycle, where the

economy is undergoing a difficult stage of crisis and depression development, forming the parameters of future economic growth.

In this study the systemic (mega-economic) crisis is *a set of phenomena conjugate in a single economic process that arise due to the formation of internal contradictions of qualitative nature in the economic system related to the need for fundamental transformations in the institutional environment, the change in a management model, the qualitative renewal of a technological base, etc. Overcoming the systemic economic crisis requires a radical change in the quality of intra-system connections and relationships between structural entities, carried out within long-term cycles.*

The systemic economic crisis is not an isolated economic event, but is an economic process — a target-oriented process system, which in the form of functional elements includes a variety of economic phenomena, ensuring the achievement of the fundamental objective — qualitative transformation of the economy. Systemic economic crises (process systems) differ from normal cyclical crises, representing certain economic events (event systems). Each event performs its function and has a separate goal — elimination of quantitative imbalances and restoration of economic balance. This separation based on fundamental categories of the system economy [see: 7; 5, pp. 66-68] helps avoid equating the concept "systematicity" with the acuteness and severity of crisis consequences and, consequently, the erroneous inclusion of usual cyclical shocks (events) in the

category of "systemic crises" (processes) (for example, crises of 1857−1858 and 1907−1908 in the works [12, pp. 169-170; 2, p. 39]). The first ones occur and reach their goal during a medium-term cycle, while the latter — systemic economic crises — during a long-term (Kondratiev's) cycle (i.e., period, exceeding a medium-term one by 4-5 times by its duration). They are realized in "waves" of sequential or coincident in time economic shocks of different intensity and duration, separated by brief periods of depression or weak economic recovery. Each can be caused by certain reasons and have a separate history; however, initially all these events try to solve common systemic problems, and for this reason can be considered as parts of a systemic crisis. Its overcoming lets the society achieve a qualitatively new level of economic development.

The attempt to structure diverse phenomena occurring at the descending stage of a long-term cycle in a single economic process was undertaken in the late 1980s by S.M. Menshikov. He stated that these phenomena "are often studied in isolation, they are considered as autonomous, only coinciding with the phase of a long crisis", whereas "they should be viewed as part of the general structural crisis of the economy" [15, p. 88]. The mentioned thesis lays foundations for comprehensive research in multifaceted and heterogeneous processes of the descending stage of the Kondratiev's cycle, which includes not only periods of economic stagnation, general recessions of

the economy, sectoral shocks of the crisis (industrial, financial, resource, etc.), but also brief periods of weak economic growth. However, the applied term "structural crisis" significantly narrows possibilities of the qualitative characteristics of crisis processes of a long-term cycle, which in addition to direct technological aspects should assess institutional, behavioral, ideological and other changes required for the implementation of growth potential laid down in the economic system [16, p. 104].

At the descending stage of a long-term cycle the economy approaches a so-called "acceleration threshold", which is *a set of economic circumstances formed in the process of previous development that limit prospects for further economic growth due to the exhaustion of possibilities to satisfy social needs at the achieved level of economic development and under the current structure of consumption.* In general, we can distinguish 3 kinds of constraints that could form a basis for the next acceleration threshold: 1) resource (in particular, energy[1]) threshold; 2) environmental threshold; 3) technological threshold.

The first constraint (resource) was observed during the 1967−1982 systemic economic crisis (waves of the energy crises of 1973−1974 and 1979−1982). The second constraint (environmental) includes contradiction between the rapid development of a modern technocratic civilization, accompanied by explosive growth in the global consumption of natural resources, and the environment's capacity to address growing anthropogenic pressure. The third limitation (technological) is not of natural character and relates only to the level of society's scientific and technological development and its ability to present new innovative solutions ensuring further progressive growth of the world economy in the process of overcoming the acceleration threshold. To date, the challenges of technological limitations prevailed in the long-term economic development. However, the influence of natural factors will increase and the technological solutions will be focused not so much on boosting economic growth as on reducing pressure from the natural limitations of economic activities. In this case the most popular solutions will be the innovative ones aimed at mitigating tensions caused by the negative anthropogenic impact on the environment in the process of people's life support.

Today the most studied forms to curb long-term economic development are as such: insufficient level of technological equipment, dysfunction of technological innovation processes in the system that are in conflict with the progressive nature and pace of external environment elements development. According to this understanding, there can the following solutions: radical update of a technological base, introduction of the latest

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[1] The concept "energy threshold" is introduced by G.M. Krzhizhanovskii (1872−1959), who in 1920 was a chairman of the Commission for Electrification, in 1921−1923 and 1925−1930 a chairman of the State Planning Committee, in 1930−1932 — a chairman of the Main Directorate of Energy Resources, since 1930 − Director of the Power Engineering Institute of the USSR (now − named after Krzhizhanovskii).

scientific and technological developments, earlier unrequired by the economic mechanism. Even N.D. Kondratiev noted a pattern (the first "empirical correctness") that "before the beginning of each upward wave of a big cycle, and sometimes at its very beginning, there are significant changes in the conditions of economic life of the society", manifesting themselves in important discoveries, inventions, etc. [9, pp. 47-48]. Using modern terms we are talking about the process to introduce innovation that will determine a technological shape of the next great cycle. Thus, Kondratiev laid the foundations of the innovative theory of long waves at the time when its future founder I. Schumpeter referred innovation to the medium-term fluctuations. According to the scientist, they are first and foremost capital expenditures on the introduction of new products [15, p. 181]. Unfortunately, N.D. Kondratiev did not present a deeper analysis of the impact of technical innovation on the economic dynamics process. J.J. Van Duijn notes in this regard: "the irony is that the ingredients necessary for the endogenous theory of long waves were in his (Kondratiev's) hands. He recognized the importance of technological innovations and specified them for the relevant phases of rise and fall; he also knew that the rise in the long wave is associated with the growth in basic capital goods. However, he could not tie them together: did not see that innovations create new industrial sectors and, therefore, require their own infrastructure" [26, p. 67].

However, invention itself does not automatically become an economic event: it requires a certain incentive to be adapted by the market. We can mention a stimulus, such as a sum of circumstances, together forming systemic economic crises, which, therefore, can be regarded as innovative – not only in terms of technological and institutional renewal, but also in terms of emergence of new industries, economical sectors, a new generation of managers, a new type of consumption, etc.

In any of the above cases, overcoming a systemic economic crisis is connected with qualitative reconfiguration of inner ties between elements of the system itself, fundamental changes in the system profile. Paraphrasing A. Einstein, believing that no problem can be solved at the level of consciousness it was created [6], we can argue that a systemic problem can not be solved at the level of system development it emerged. Resolved systemic problems involve not only the update of technological bases, but also the change (or correction) of organizational principles and governing structures responsible for maintaining quality parameters of the system.

We take into account that in practice the synergy effect from the set of innovations, introduced in the result of overcoming a system crisis, is achievable only in the leading economies, while the geo-economic periphery is often in a depressed state and participates in economic recovery solely as a supplier of raw materials and low-paid workforce,

as well as a market for developed countries [3, pp. 39-40]. This can be illustrated by the unprecedented recovery of Western economies, carried out on the wave of overcoming the systemic economic crisis of 1967–1982. For almost two decades the advanced economies witnessed powerful long-term processes of an ascending stage of the cycle (with the rate of economic growth over 25% per year in its core complex of information and communication technologies), while the so-called "transitive economies" (former Soviet Union countries and the CMEA) were in a state of deep decline.

However, at the turn of two long-term cycles for the countries of economic periphery, created necessary capacities in the form of promising scientific and technical developments, there is a possibility of technological breakthrough on the crest of a new long wave [3, p. 8]. There is a bright example: the US made a "breakthrough" to the subsequent dominance in the world economy through the introduction of European technologies at the ascending stage of the 3rd Kondratiev's cycle (1890–1896 – 1914–1920). At the same time, the same breakthrough was recorded in Germany, where, however, the rapid economic recovery was interrupted by the World War I [1]. It is noteworthy that both countries did not copy a development model of the industrial leader of the world economic system of that period – England and primarily developed heavy industry [14, p. 134]. The chosen strategy played an important role in narrowing the lag from

the UK and further outrunning it in terms of industrial development. After the World War II the same way was chosen by Japan that on the basis of active implementation of a number of Western key technological innovations of that period (textile, steel, automobiles, petrochemicals, electronics, microelectronics) implemented a "catch-up" development strategy and at the ascending stage of the 4th cycle (1939–1950 – 1968–1974) reached an economic level of the developed Western countries [1].

We should add to the described above that missing an "acceleration threshold" involves inertial development of the economy, leading to economic stagnation in the framework of the obsolete and ineffective type of social reproduction. To illustrate this thesis, we can refer to a local systemic crisis of the Soviet (Russian) economy in the late 1980s – 1990s caused by the coincidence of some critical and interrelated circumstances, such as decline in oil prices in 1986 and subsequent deterioration of foreign trade conditions for Soviet export, violation of established economic ties due to dissolution of the CMEA and collapse of the USSR in 1991, sharp change in the country's economic course from the planned paternalism to the ill-conceived liberalism, "shock therapy" of the early 1990s, etc.

The analysis of works conducted in the sphere of long-term economic dynamics demonstrates a significant neglect of researchers, focused on identifying the causes for long wave emergence in stead of studying the environment, creating conditions for periodic

updating of the economic system. However, it is the severity and scale of contradictions exposed in the wave of economic shocks of the long (Kondratiev's) cycle prepares a depressed economy for undertaking radical measures for its renewal, and the transformation of an economic system genome occurring in the depths of the crisis turmoil becomes a driving force of quality development. For this reason, the content side of events at the descending stage of the long-term cycle requires a deeper understanding, a thorough description and a greater attention on the part of the scientific community.

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SOCIAL DEVELOPMENT

The Potential of Modern Russian Generations*
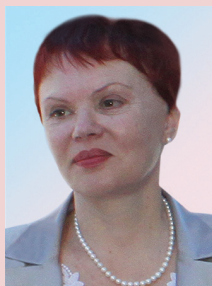
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Abstract. The paper considers the necessity of socio-demographic approach to assessing the potential of modern generations. The demographic potential of generations is determined by their number, their share in total population, and their life expectancy. Their economic potential is determined by the proportion of representatives of different generations in total employment. Their social potential is determined by the system of values of generations. The rapid growth of differences in these characteristics leads to the break up of intergenerational relations and is connected with the aggravation of social contradictions. The potential of modern generations can be considered in different aspects: number of generations, life expectancy at birth, the share of representatives of different generations that share or do not share the basic social values of the society, including values related to reproductive and other types of demographic behavior. In order

to identify existing differences between generations in the framework of the socio-demographic approach, the paper analyzes the dynamics of the number of young people in 1926, 1936, 2014 in the Russian Federation; the authors also carry out a comparative analysis of the secondary and authors' sociological data of values-related and reproductive attitudes of conditionally parental and child generations. Russian researchers studied the life potential of the population and proved that in 1990–2010, the life potential of Russia's population decreased. Reduction in the life potential in the population in general is associated with a decrease in this indicator for the younger generation (children's ages) due to the reduction in the number and proportion of this generation in the population structure. The reduction in the life potential has not stopped because the number of the younger generation continues to decrease. However, life expectancy in this period increased. Nevertheless, in general, mortality in the Russian Federation is considerably greater than in developed countries; in the first quarter of 2015 compared to the previous year, the number of deaths from major causes of death increased compared to the corresponding period of the last year. The systems of life goals of young people up to 30 years old and people aged 45 and older significantly differ in aspects such as education, continuous training, raising children, setting up one's own family business and living on its income, spending free time, communicating a lot with friends. The desire for freedom and independence is more typical of young people aged 20–30. The hypothesis about the growth of individualism among young people has not been confirmed. Young people and the older generation have different opinions concerning the family (registered marriage) and two or three children. Material values occupy a dominant place in the opinions of all the generations. Reproductive plans of young people depend on education, lifestyle of their parental family and new socio economic conditions that are measured through the system of value orientations, life goals that depend on changing social values in the new environment. The value system is a regulator of priority in the satisfaction of demands. When the resources are limited, they can first of all be spent on the highest needs in the hierarchy rather than on the satisfaction of the need to have several children. The potential of generations, including their socio-economic activity and the number of unborn generations are largely determined by social values that are being formed today. The generations, including the generation of the 1990s, are facing a historical choice that will determine not only the present-day but also the future opportunities for Russia.

Key words: generation, potential of generations, employment of generations, life potential of generations, system of values of generations, social generation.

The interest in the issue of similarities and differences of the generations and their interaction is generally intensified in periods of radical social changes. Most famous studies of K. Mannheim [14] and Ortega y Gasset [16] are devoted to this problem. Margaret Mead reveals a generation gap in the life goal system in connection with the critical historical stages of socio-economic development [15].

In Russia the research in this direction, attracting attention of both scientists and the public, analyzes the course and consequences of the radical reforms of the 1990s that have a different impact on both the welfare and the value system of generations. The works of Yu. Levada [12], B. Dubin [5] and T. Shanin [26] are widely known. The worsening of the problem to maintain social system stability

increases the urgency of identifying and studying mechanisms that, on the one hand, determine socio-demographic changes and, on the other, — stability of the society.

The concept "generation: is largely associated with demographics, with reproduction being its subject. This definition considers a generation as a group of people born in the same period of time. In addition, a generation is descendants of a couple or some couples by degree of relationship (parents — children — grandchildren, etc.). Along with this there is a concept "cohort" that has a meaning broader than just an aggregate of people born in the same time period; a cohort can be formed on the basis of other demographic events, and not just births [19]. The main age groups, generations, specifics of their life paths are determined by socio-economic conditions (primarily employment), have a social meaning due to social norms defined by basic stages of life: childhood, maturity, old age. It is possible to select different indicators for the definition of generations (not only purely demographic, but also economic, social, political, etc.). In this context, in Russia the younger generation (employment opportunity indicator — economic and demographic) is population under working age (aged 0—15), the middle — of working age (women aged 16—54 and men aged 16—59), and the older — women aged 55 and over and men aged 60 and over.

New stages of life's journey are formed due to the changing conditions of social environment. For example, there is a new life stage between adolescence and adulthood,

associated with "finding yourself" — "emerging adulthood" [27]. In the modern world old age is divided into two ages: *the Old Old*, or "old elderly" — a period of life when a person needs constant care; the share of such people, for example, over 80 in the total population will increase in the future (in demography, there is special indicator "depth of aging", i.e. a ratio of this age group to the population of over working age ("third age"). There also is *the Young Old* or "young elderly", who has physiological, social, and professional potential even in the "third age".

The involvement in any historical event that determines specifics of its functioning is an important social characteristic of belonging to a "social generation". In the first half of the 20th century the research in continuity of generations becomes important due to the growing dynamism of socio-economic development, living conditions and values of different generations. In this regard most interesting findings belong to the Spanish philosopher J. Ortega y Gasset [16], analyzing the specifics of perception of different forms of art and culture as intergenerational differences, and M. Mead, studying the features of adult's perception of a "childhood world" as a special world in connection with the society's development [15].

The first sociological approaches to the problem refer to the middle of the last century. K. Mannheim [14] links the formation of generations not only with the birth of a certain number of people in a specific period of time, but also with the historical events that affect the way of life of

a generation. In demographics the generation length is defined as the mean age of a mother at child's birth (27−28 years − in both developed and developing countries). "The Problem of Generations" by K. Mannheim is a fundamental work dedicated not only to a demographic, but also to socio-economic approach to the study of generations. It highlights two different approaches to the analysis of the generation problem: positivist and romantic-historical. The first approach is to a greater extent associated with the definition of boundaries and a size of generation on the basis of degree of their importance in public life. The problem essence is to calculate an average period of time required for the younger generation to supersede the older one in public life and mainly to identify a natural starting point of a new generation in history. The generation length amounts to 30 years, as up to 30 years a person usually learns something knew and matures and to 60 years he/she stops participating in public life.

A generation in the socio-demographic sense can be seen as a form of social communication, when norms help people compare themselves with "others" similar to "them" (on the basis of age characteristics or the same year of birth). It is important to consider transition from generation to generation, a stable, transmitted pattern and changes in the social norms. The mechanism of changes, transformation of norms and value systems, including fracture or total collapse of the regulatory system during the replacement of one generation by another,

becomes crucial. The concept "generation" fixes corresponding points of rupture of social and cultural order, directions and mechanisms of mediation and transition between the "old" and "new". In Russia the researchers of generations or generation problems always deal with a "trace" or "symptom" of another, not mentioned problem. More precisely, it a tangle of problems: 1) leadership (innovation); 2) its success, recognition (gratification) and (3) maintenance of the number and transfer of achievements (reproductions, including in a family). In other words, we are talking about systemic generational challenges of sustainable and continuous development of the Soviet and, maybe, Russian society − the era of rapid modernization (the 19th − beginning of the 20th century), which began in the 1990s and is continuing up to date. Outside the family institution (and forms of the traditional society) the concept of generation is viewed as a flow, movement (socio- romantic approach: romantic generation, a generation of 1914, a generation of 1968, etc.) or a chronological (synchronic) slice − of a so-called "conditional generation" and results of the impact of mass institutions: families, social sphere, production and social policy on it. This approach roughly corresponds to *intra-family, historical* and institutional generations and is close to Yu.A. Levada's attempt to divide *demographically* and *historically* important generations [12]. So, the definition proposed by S.N. Zenkin is very interesting: "Generation is time, embodied in people, their dramatic fate, it includes the

measure, associated with a life cycle of the human body, in the continuous duration of the historical process..." [9]

The potential of modern generations can be considered in various aspects: by number of generations, life expectancy at birth, proportion of representatives of different generations, both sharing and not sharing basic social values of the society, including values related to reproductive and other types of demographic behavior.

The ratio of a number of different generations is a fundamental indicator of sustainable development of economy and social life of the country. Relatively large population of working age (middle generation), of course, gives the country the opportunity for economic growth. The concept "demographic window" is based on the advantages of countries with low demographic pressure. A "demographic window" ("demographic bonus") can not exceed the length of a generation and comes after the increase in the demographic load. Traditionally a higher proportion of older people is considered mainly in terms of negative consequences for pension systems and raised demographic

burden on working-age population. The rise in the share of population of under-working age has different economic consequences in the short and long term.

The demographic potential of human capital, which differs among generations, is the population size, its age and gender structure. Since 2008 Russia has witnessed systematic reduction in the proportion of working age population in the total population, while on the eve of the first Soviet industrialization this share was high (*tab. 1*) [23].

In 1926 the dependency ratio was 957 disabled people per thousand working age population. At the same time, the age dependency ratio was 167. Among those of working age it is advisable to single out groups of young people aged 20−24 and 25−29. The rural population of working age, including young (fast learning new working occupations, especially in the group of people aged 20−24), aged 20−29 years, 3-fold exceeded the urban population of the same age. The similar situation was recorded in the age group of 30−39 years (less creative, but more experienced and responsible), where families had more than one child to bring up and support. Still the

Table 1. Number and age structure of the population on the eve of Russia's industrialization, 1926

Age structure	Population, million people	Share, in %
Entire population	*92,681*	*100*
Aged 20-24	8,732	9.4
Aged 25-29	7,324	7.9
Aged 20-29	**16,056**	**17.3**
Under working age	36,854	39.8
Of working age	**47,830**	**51.6**
Over working age	7,945	8.6
Calculated by: [23].		

older generation helped the youth to acquire an occupation, qualification and experience through the institution of "mentoring"; it was the economic basis for generations' interaction.

At that time Russia's industrialization was conducted due to the rural population, primarily of young (under 30) and middle age (under 40). In this regard, there was a severe problem to educate the rural population and, above all, provide them with primary and secondary education. The country's industrialization relied on the relatively young rural population. However, there was a "split" of the value and knowledge system of rural young people who moved to cities and the rural population. At the same time, the rural youth

became familiar with an urban way of life mainly through the productive interaction with the older generation of citizens (aged 30–39).

On the eve of the World War II the population grew, thus indicating the economy's development (increase in the number of producers and consumers). The number and proportion of population, including of working age and its main age groups, before the World War II are shown in *Table 2* [23].

Compared to the 1926 level, there was an increase in the number and share of working age population, including the most promising (or productive) age groups.

Nowadays we observe the trend of aging population, while the country needs new industrial development (*tab. 3*).

Table 2. Number and age structure of Russia's population on the eve of the War, 1939

Age structure	Population, million people	Share, in %
Entire population	*108,377*	*100*
Aged 20–24	8,744	8.1
Aged 25–29	10,454	9.6
Aged 20–29	**19,198**	**17.7**
Under working age	42,072	38.8
Of working age	56,923	52.5
Over working age	9,362	8.6
Calculated by: [23].		

Table 3. Number and age structure of Russia's population, as of January 1, 2014

Age structure	Population, million people	Share, in %
Entire population	*143,667*	*100*
Aged 20-24	9,971	6.9
Aged 25-29	12,522	8.7
Aged 20-29	**22,493**	**15.7**
Under working age	24,717	16.4
Of working age	**85,162**	**60.2**
Over working age	33,788	23.5
Calculated by: [24].		

The population of working age became greater than in 1939, but its share in the total population decreased. The population of working age grew by more than 2.7 times and the proportion of children reduced by 1.7 times — it is the future youth as a demographic basis for economic development. The dependency ratio was 661 per thousand population (it went down significantly, in comparison with the pre-war time), but in terms of persons over working age it was 390, i.e. rose by more than 2 times. This trend manifested itself most significantly in terms of urban population; in conditions of our large country it challenges further economical development.

Not only the number and age structure of the population, but also the indicators of life expectancy are significant. The founders of potential demography [22] introduce a term, such as life potential, defined as a number of life years, an individual or group is to live at a given age provided that the age-specific mortality rate is maintained (life expectancy at a certain age). Accordingly, life potential is largely influenced by the age and gender structure [1, 17, 28]. The Russian researchers, [20] when considering life potential of the population and its key age groups, in a certain sense associated with young, middle and senior generations of our country, show that life potential of the Russian population went down in 1990–2010. The reduction in life potential of the population is associated with a decrease in this indicator for younger generation (children) due to the decline in the number and proportion of this generation in the population structure. This trend is not overcome, as the younger generation is decreasing (while the number of births is still going up). At the same time, life expectancy rose in this period. In general, the death rate in Russia is much higher than in the economically developed countries; in the first quarter of 2015, compared to the previous year, the number of deaths from main causes of death (per 100 thousand population) went up.

Thus, we come to a socio-demographic indicator for the identification of the youth as a special group. The youth is part of the population aged 15–30 (sometimes 35 due to socio-economic reasons – see below), having its own life goals system, conditions and life way, socio-economic and demographic behavior and attitude towards measures of social and demographic policies that distinguish this group from other age groups.

Family is still one of the key social institutions that form basic values, attitudes and behavior styles. It is one of the first social institutions of human civilization. The transmission of social norms largely occurs in family. Over the ten millennia existence of "person reasonable", its structure did not remain frozen. At the same time, living conditions of family, norms of behavior and values transmitted to new generations changed very slowly. The bourgeois revolutions accelerated the social time. The modern period can be called as an era of "rapid social relations" [21]. Today the livelihood of generations in our country is largely associated with "fragility", variability of basic social institutions, especially family, and growing internal and external geopolitical challenges.

In these circumstances family is transformed and in some cases ceases to effectively fulfill its regulatory orienting function. The transfer of cultural heritage from generation to generation loses its linear-progressive orientation. As noted by the research associates of the Institute of Socio-Political Research of RAS Yu.A. Zubok and V.I. Chuprov, "constantly there appear risks associated with the inconsistency between learning and working (or both) and satisfaction of cultural needs. At the individual level this contradiction is resolved by consistent selection of priorities. In public life, especially when social policy is ineffective, the contradictions between material and spiritual production accumulate in the process of transferring cultures. The underestimation of the development of any sides of social production, whether it is material conditions of life or spiritual development, increases social risks not only in these spheres, but also in public reproduction as a whole. The role of social institutions to achieve and preserve the unity of both sides of production can hardly be overestimated" [10].

The viability and importance of a country and civilization are determined by the demographic factor; almost all demographic processes are associated with a basic social institution of society — family. The founda-

tions of matrimonial, reproductive and self-preserving behavior are, as a rule, formed in family. In this regard, the fundamental role in the decision of reproduction problems is played by family structures.

Their dynamics in Russia is characterized by:

• increase in age at the first union;

• growth in the proportion of single-parent families because of divorce, illegitimate births and widowhood;

• rise in the proportion of complex families, spouses or mothers with children living with their parents and/or other relatives because of housing problems;

• transition of some family social functions to extrafamilial institutions.

Studies show that there is a high share of younger people who do not find role models. The survey [3] conducted in May 2009 indicates that the proportion of young people having a role model reduces from 31.5% at the age of 14−17 to 23.1% at the age of 25−30. Relatives and friends are usually these models, particularly: relatives (close) − 35%; teachers − 9.5%; others − 29.9%. First and foremost, mother or father is viewed as an ideal. Heroes are not often considered as such. The ISESP RAS research, conducted in 2013, indicates *(tab. 4)* that more than 70% of schoolchildren,

Table 4. Respondent's assessment of relationship with parents, in %

Options	HVE	SVE	Working youth	Pupils
Good	84.6	73.6	78.6	76.7
Satisfactory	14.2	26.4	18.8	16.7
Bad	1.1	0.0	2.6	6.7
TOTAL	100.0	100.0	100.0	100.0

students and the working youth defines the relationship with their parents as good. School children have most strained relationships: 7% of the pupils have bad relations with their parents.

Scientists say that in the mass consciousness of Russian young people "success in life is a strong family and children, as well as respect of others. The second group of important life goals includes wealth (well-being) and interesting work; only after that − presence of trusted friends. The monograph "Youth of Russia: Sociological Portrait" presents an interesting formulation of the social conflict problem. According to the authors, this is a conflict between those Russians who have already taken their niche in the social structure and young outsiders that will begin to fight not so much for the niches themselves, as for the restructuring of the entire social space. Likely, other scenarios are possible due to the fact that the younger generation, as older age cohorts, is extremely heterogeneous. Today the main division of society is connected not so much with generation gaps, as with the income gap and economic inequality within the generations.

Family, as already mentioned, is the basis of microcosm of Russia, connection of generations and stability of society. Its changes (as well as of other public institutions) occur in the conditions of demographic structure transformation, its progressive aging. Young people, compared with their parents, learn longer, seek and find a stable job later, significantly differing in terms of remuneration, marry and have children later.

Both for the "generation of the third age" and the youth the demographers single out a new life stage (stage of uncertainty) between adolescence and adulthood, associated with "finding oneself", called "emerging adulthood" by J. Arnett [15]. Society and family get a new social challenge, caused by the insufficient integration of young people into adulthood and the increasing economic burden on parents who have adult children. In this regard the age boundary of young people "shifts" from 30 to 35 years.

In the post-Soviet Russia the share of young people aged 15−34 in the total population changed in the following way. Since 1991 the highest proportion of the youth was recorded in 2006. The number and share of young people up to January 1, 2031 are given in accordance with the forecast of the Federal State Statistics Service of the Russian Federation (amended in 2014 to include the Crimean Federal District and Sevastopol) (*tab. 5*).

The important areas of studying the relationship of socio-economic and demographic behaviors of the generations (parents and young people) are the following: comparative analysis of the influence of the number of children born, expected and desired, the system of parents' value orientations on their children's generation. Children tend to learn the behavior pattern, dictated as acceptable by society, and their parents' orientation on birth of children with regard to their life situations.

The study of reproductive orientations involves, as a rule, the use of the following indicators: ideal number of children ("How

Table 5. Number of young people and their share in the total population as of January 1
of the respective year, fact and forecast according to the medium variant

Year	Number of young people, thousand people	Share in the total population, in %
1991	4,388.3	29.5
2000	4,239.5	28.6
2006	4,513.8	31.6
2013	4,110.9	28.6
2014	41,109.3	28.6
2020	3,624.8	25.4
2025	3,225.3	21.4
2031	3,329.5	22.5
Calculated by [24, 18].		

many children is it best to have in the family?"), desired number of children ("How many children (including those you already have) would you like to have in the presence of all necessary conditions?"), expected number of children ("How many children (including those you already have) do you plan to have?"), as well as the assessment of probability of the child's birth in the next few years, usually in the next 3 years ("Are you going to have a baby in the next three years: definitely yes, probably yes, difficult to say, not, not in any case". The question can also include a request to rate this probability on a scale). The main two questions are the ones about an expected number of children and assessment of the probability of birth in a given time period, with the first reflecting reproductive plans with regard to general life conditions of a particular family and the second − reproductive intentions in the near future.

According to the 2010 census, the average number of children born per woman of "generations of daughters", who are over reproductive age (40−44 years), is 1.64,

"generations of mothers" at the age of 65− 69 − 1.88; for urban women the figures are 1.50 and 1.68, respectively, and for rural women − 2.03 and 2.48. As for "generations of daughters" at the age of 45−49, the number of children born per woman is 1.76, "generations of mothers" at the age of 70 and over − 2.08; for urban women − 1.61 and 1.83, respectively, rural women − 2.16 and 2.71. In other words, "the generation of mothers has more children than the generation of daughters"; that is a reflection of living conditions of these generations and their values [11].

According to the research in the Lipetsk Oblast (2006), values and reproductive plans of young people only partially coincide with those of their parents'[1]. The desired number of children among young male generation is 1.6 and the expected one − 1.5. Among male generation of parents it is 2.1 and 1.8

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[1] 1,720 men and women and 720 adolescents (aged 14−1) were surveyed. Similar results were obtained in the study conducted on the territory of the Vologda Oblast under supervision of AA Shabunova. Read more in [25].

Table 6. Assessment of the some values significance by parents and young people
(average score on a 5-point scale)

Values	Parents	Young people
Comfortable housing	4.6	4.5
Work	4.2	4.3
Have a family	4.4	4.3
Have a child	4.3	4.2
Material well-being	4.5	4.5
Education	4.2	4.4
Career	4.3	4.4
Self-realization	3.7	4.2
Have 2 children	3.6	4.0
Have 3 children	2.4	2.3

respectively, i.e., significantly higher. Among the young female generation the desired number of children is 2.0 and the expected – 1.7. For their mothers this indicator equals to 2.3 and 1.7, respectively. Among the younger male generation the expected number of children is less than among their fathers, but among girls – the same as among their mothers (however, the desired number of children among daughters is lower).

Among girls, having no brothers and sisters, the expected number of children is 1.6; among girls, having a brother or sister, – 1.7 (i.e., in two-child families); among raised in three-child families – 1.8. Among boys the figures are 1.4; 1.5; 1.8, respectively. Among their mothers the expected number of children does not depend on the number of children in the family of their parents (i.e., grandparents of the youth), it always equals to 1.7 [4]. A parental family influences reproductive plans of today's young people, but had no effect on reproductive plans of their mothers (here the important role was, probably, played by the

difficult socio-economic situation, mothers lived in (on average, mothers are 37 years old, girls – 16 years old).

The differences in reproductive orientations of the youth and the older generation can be caused by another value system of young people born during the transition period, different from the value system of their parents *(tab. 6)*[2].

The lowest assessments are given to having 3 children, 2 children and self-realization. Women estimate the importance of having a family and a child relatively high, men – housing and material well-being. The difference between the estimates of material well-being and having a family among women amounts to -0.1 points (the difference is not important), among men – 0.3 points (the difference is prominent); material well-being and having 2 children – 0.7 and 1.2, respectively; 3 children – 2.2 for both sexes (here the difference is significant by all

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[2] The closed question included 16 values for respondents to consider. Read more in [25, p. 115].

indicators). The value system of young people is almost identical with the value system of their parents, except for such a goal, as self-realization, which is more important for young people (see tab. 6).

The younger generation gives the lowest estimates to having 3 and 2 children and self-realization. But for girls, unlike their mothers' generation, material well-being and comfortable housing are relatively more important, for young men, compared to fathers, — education and career. The gap between family and extrafamilial values among the younger generation is wider than that of the older generation. So, the gap between evaluations of material well-being and family is 0.2 points for girls and 0.1 points for boys; 2 children — 1.1 for girls and 2.0 points for boys; 3 children — 2.3 for girls and 1.4 points for boys (significant differences). The crucial differences between generations are observed by such life goals, as self-realization and intention to have two children.

The nationwide survey of young people was conducted in September 2006 by a representative sample in 18 regions representing all federal districts (1,500 young people under 35 were polled)[3]. According to the results of the conducted sociological survey, the average desired number of children (number of children the respondents would like to have in their family in the presence of all

necessary conditions) amounts to 2.04. Thus, even the number of children the respondents would have in the presence of all necessary conditions is less than that required to ensure reproduction of the population. The expected number of children is also 1.70.

The survey has an analysis of the value system of young people, including consideration of the importance of family values. The respondents were given a list of 13 values, such as wealth, housing, education, career, leisure, freedom, independence, values of family life in a registered marriage, a child, 2 children, and 3 children. The importance of these values was suggested to rate on a 5-point scale. Most crucial values for young people are the following: housing, material welfare, a child (3d position in the list of 13 values), education (profession, skills improvement). The value of family (registered marriage) ranges 7th[4], a few children (8th); the value of having 2 children is in the middle of the list (9th position in the list of 13 values), 3 children — at the very end (13th position). The calculation of assessments allows us to conclude that for the youth the concept of "several children" is associated mainly with only 2 children. We should mention a low value of a registered marriage and 3 children[5].

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[3] The research was commissioned by the Ministry of Health and Social Development of the Russian Federation. Project supervisor — Doctor of Economics L.L. Rybakovskii, one of the executors — the co-author of the article.

[4] In this study there is another wording of the question: the respondents are asked to evaluate not a family, but life in their family, in a registered marriage; this reduced the estimate, which is insignificantly different from the assessment of one child.

[5] In more detail see: Arkhangel'skii V.N., Zvereva N.V., 2007.

Table 7. Assessment of the significance of some life goals by
"generations of children and parents" (average score on a 5-point scale)*

Life goal	Under 20	20-29	45 and over
Own good housing	4.8	4.9	4.7
Live in a registered marriage with my spouse, family	4.4	4.3	4.2
Raise a child	4.6	4.7	4.6
Work hard, but receive high remuneration for it	4.4	4.5	4.6
Material well-being of my family	4.8	4.9	4.8
Get education, improve skills constantly	4.4	4.1	3.2
Have my own family business, invest money and efforts in it and live on the revenue from it	3.6	3.5	2.9
Raise 2 children	4.1	4.1	3.8
Career growth	4.2	4.0	2.9
Have interesting leisure time	4.2	4.1	3.3
Communicate with friends a lot	3.8	3.7	3.0
Have 3 children	2.5	2.6	2.3
Be free, independent and do only what I want	3.1	2.7	3.3
* Groups of young people and people over 45 account for more than 1,500 people			

In 2010 the study was carried out once again[6]. Among young people the average desired number of children is 2.3 and the expected one − 1.6. After the demographic policy implementation the desired number of children went up, but the number of expected, on the contrary, down. The highest estimates were given the same life goals, such as housing (1st position), material well-being and good health (2nd−3d)[7], desire to live a long life and see grandchildren (4−5th). The value of one child is below the value of 2 children and the value of 3 children remains at the end of the rating.

According to the research in reproductive plans of the population, conducted under supervision of the Federal State Statistics Service of the Russian Federation in 2012[8], the importance of life goals are estimated by young people under 20, people aged 45 and over (conditionally by "generations of children and parents"), and young people aged 20−30 differently (*tab. 7*).

The desired number of children among people under 20 is 2.2, at the age of 20−29 − 2.1, and at the age of 45 and over − 2.3%. The expected number of children accounts for 2.0; 2.0; 1.8, respectively. The low expected number of children among the older generations can be explained by the fact that their active reproductive age fell on the difficult 1990s and they were unable to realize their reproductive plans[9].

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[6] The customer, the supervisor and executors are the same, 1,000 young people aged up to 35 are polled.

[7] Questions are raised about health assessment, a desire to see grandchildren.

[8] 10 thousand people in 30 RF regions are surveyed. The co-author of this article participated in the study.

[9] It is noteworthy that the assessment of family (registered marriage) already in all generations is significantly lower the assessment of one child.

The life goals system of young people under 30 and people aged 45 and over differs significantly by goals, such as getting education and constantly improving skills (the latter can be also important for older people), raising 2 children, having own family business and living on the revenue from it, having interesting leisure time, and communicating with friends a lot. The desire for freedom and independence is more characteristic of young people aged 20—30. Let us note the fact that among young people the desire for freedom and independence and the intention to do only what one wants range the last but one in the system of vital goals, unlike older people (among them this goal ranges 6—7th (i.e., in the middle of life goals, along with interesting leisure activities). Apparently, the hypothesis about the growth in young people's individualism should be revised[10]. The youth's assessment of family (registered marriage) and 2—3 children is significantly different from the respective estimates of the older generation. Material values are very important for all generations.

The value system regulates the priority of needs satisfaction. In conditions of limited resources they can be primarily spent on the needs that take highest positions in the hierarchy, but not on the satisfaction of needs in a few children. Raising people's living standard and providing financial support to families with children without conducting

simultaneous purposeful activities to increase the value of having several children can result in the fact that the received material support is perceived as insufficient for the birth of another child.

The desire to have children, its place in the value system is currently a major direct regulator of reproductive behavior. This presupposes 2 important conclusions for the demographic policy focused on boosting a birth rate: first, the improvement of living conditions, conditions to realize the need in children will lead to some rise in the birth rate within their desired number of children (i.e. among young people this figure will be below 2.03, probably no higher than 1.7 and 1.8). Second, the change in the need in children and the increase in the value of having several children (if this can be achieved) can bear disproportionately large and long-term results than improving the conditions of life (here the value, moral link between generations plays a crucial role). It is necessary to realize both directions. Only the joint solution of both challenges will make the demographic policy effective. It is especially important to consider this issue nowadays, as the economic possibilities for conducting this policy are limited.

The potential of generations, including their socio-economic activity, as well as the number of unborn generations are largely influenced by social values, which are formed today. The generations, including the generation of the 1990s, face a historic choice determining not only current, but also future opportunities of Russia.

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[10] The same conclusion is made in the study conducted among the students of the Economic Department of Lomonosov MSU in 2013 (120 3—4 year students are polled).

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Modern Russian Demographic Policy in the Field of Fertility: Results and Areas for Improvement*

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Abstract. In recent years, Russia has been pursuing the demographic policy focused on the support of the birth of the second and more children. The paper discusses the development of this policy, assesses its effectiveness and suggests areas for improvement. It has been established that the expansion of demographic policy measures by introducing in 2011 the regional maternal capital for the birth of the third child in addition to the federal capital for the second child gave positive results. It helped extend the positive trend in the birth rate as the situation concerning the women of childbearing age began to worsen; it also helped older generations to decide in favor of having children rather than wait for better times; in addition, this policy helped extend the families through additional births, strengthen the family component of fertility, and promote reproductive attitudes of the population. In spite of the fears, the growth in the number of decisions to have children took place not only in older age cohorts. A sociological survey conducted in 2013 gives reason to hope that the small generations of those born in the 1990s and on which the prospects of fertility depend, will achieve slightly expanded reproduction. As the age structure of fertile contingents is deteriorating, it is necessary to carry on and improve demographic policy. It is necessary to preserve all the components of economic measures to support families, including childcare allowances to low-income families, and they should be extended up to the time when the child comes of age. It is necessary to widen the scope of implementation of the maternity capital. When developing the new measures of demographic policy, one should put more emphasis on the psychological measures aimed to form value orientations

of the population in the area of childbearing, to improve the quality structure of fertility and strengthen the institution of family. It is necessary to reorient economic activities on second births. The general line of the demographic policy in the field of fertility is to increase self-sufficiency of families through the promotion of employment and increase in incomes from employment and development of preferential housing programs for families with children.

Key words: demographic policy, level and structure of fertility, calendar of births, reproductive attitudes, real generations.

For the last eight years, Russia has been pursuing an active demographic policy in the field of fertility, and the extent and variety of these activities is increasing. Therefore, great importance is attached to the issues related to the evolution of governmental pro-family policy and assessment of its impact on the level and structure of fertility, changes in the calendar of births, implementation of existing reproductive attitudes of the population, revision of reproductive plans by the members of older cohorts of childbearing age, childbearing attitudes of young people. The paper is devoted to the analysis of development of demographic policy carried out in Russia, and to evaluation of its results and areas of improvement.

The beginning of modern Russian demographic policy can be traced to the year 2006, when Russian President Vladimir Putin delivered his Address to the Federal Assembly and highlighted demographic issues as most acute and crucial for Russia. The legislative and executive authorities were instructed to deploy vigorous state policy in the field of fertility, as a result, in November—December 2006 several related federal laws were adopted and "The concept for demographic policy of the Russian Federation for the period until 2025" was approved in October 2007. It should be noted that, after a long break, the differentiated approach was proclaimed to stimulate births of different order. A second child was proclaimed to be a priority (according to a VTSIOM survey, even in the crisis-stricken 1990s, the average desired number of children per family fell below two only in 1992—1994. [2]), this child is often very desirable but for its birth there are too many restrictions in the family that consciously plans its life.

In general, the Russian system of providing support to families with children includes the following benefits and payments:

1. The allowance for early registration of a pregnant woman with a women's health clinic (543.67 rubles in 2015).

2. Pregnancy and maternity allowance paid according to a sick leave: 60% of the wage if working experience is under 5 years, if working experience is from 5 to 8 years — 80%, over 8 years — 100%. However, in 2002, a maximum for this allowance was set: its amount cannot exceed the limit value of the base for calculating insurance contributions to the Social Insurance Fund. In 2015, for 140 days of maternity leave, the maximum allowance was 228,603.2 rubles (about 49

thousand rubles per month). Women who have worked less than two years with low wages or who did not have wages in that period, receive an allowance in the minimum amount: in 2015 – 27,455.4 rubles over the entire period of maternity leave (i.e. in the amount of the minimum wage per month).

3. Lump sum payment at birth (in 2015, the amount was 14,497.8 rubles).

4. Monthly child care allowance received until the child is 18 months of age. From January 01, 2007 it is for the first time paid to non-working women, and it is differentiated by order of birth. At the time of its introduction, it was established in the amount of 1,500 rubles per month for the first child, 3,000 rubles – for subsequent children. By 2015, as a result of indexation, it has increased, respectively, to 2,718.34 rubles and 5,436.67 rubles per month. For working women the allowance is not less than 40% of their earnings and no less than its minimum amount, but no more 19,855.82 r es (in 2007, the maximum amount was 6,000 rubles). In regions with regional premium rate, the amount of the allowance takes it into account (if it is not already included in the wage).

5. The monthly ch ild allowance. It is granted according to the fact how needy the family is. The amount of payment varies from 50 to 100 rubles per month depending on the age of the child. Single mothers receive an allowance of 50%. Some regions make additional premiums to this allowance. For instance, in the Komi Republic, at the end of 2015, the monthly child benefit paid to low-income families was set as follows: for children

up to the age of 18 months – 1,225.39 rubles; from 18 months to 3 years – 1,188.73 rubles; from 3 to 6 years – 670.76 rubles; from 6 to 16 years – 335.37 rubles; for children aged 16–18 studying in general educational organiza- tions – 335.37 rubles. The amount increases by 156.50 rubles for children of single parents, by 78.24 rubles – for children whose parents evade paying alimony [8].

6. The lump-sum allowance at children's foster placement. It equals the lump-sum payment at birth. Parents receive 100 thousand rubles per each child if they adopt a disabled child, a child older than 7 years, or children who are brothers and/or sisters.

The Russian legislation also provides for the lump sum benefit paid to the pregnant wife of a military man who serves in the military under contract, and a monthly allowance for a child of a military man who serves in the army. All types of child allowances in Russia are subject to annual indexation.

From January 01, 2007 in accordance with Federal Law 256-FZ "On additional measures of state support provided to families with children" [22], Russia introduced a completely new measure of demographic policy – a certificate for maternity (family) capital at the birth of a second (subsequent) child. Its basic amount was 250 thousand rubles. By 2015, as a result of annual indexing, it has reached the amount of 453,026 rubles. The maternity capital can be used to improve the family's housing conditions, to pay for the child's education and to be added to the funded part of the future pension of the mother.

The effectiveness of the federal measures in the field of demographic policy in 2006–2007 was already discussed in a considerable number of works [e.g., 1, 3, 7, 10, 11, 17, 18, 19]; they give different assessments of its effectiveness judging by the dynamics of statistical indicators and by the data of sociological surveys. However, one cannot deny the fact that measures such as the introduction of the parent capital for a second child, the monthly allowance differentiated by order of birth and paid (until the child reaches 18 months of age) to non-working women who are often university or college students or recent graduates of educational institutions, and the increase in the amount of child benefits helped extend the positive trends in the birth rate, which in 2005–2006 experienced stagnation and decline in the conditions of the favorable impact of changes in the age structure of fertile contingents; these measures also helped increase the number of children in families due to the fact that people could implement their reproductive plans; these measures also laid the foundations of a stable trend of reducing the level of out-of-wedlock births. At the same time, they made the calendar of births more dense and contributed to the early exhaustion of total fertility of the generations born in the 1970s-1980s [14], which on the background of the deterioration in the structure of women of childbearing age that started in 2010–2011 added an additional threat to fertility.

Besides, by 2010, the effect of new measures of demographic policy has been almost exhausted. The rates of increase in the total fertility rate in 2010 and 2011 in Russia were,

respectively, 1.6 and 1.0% vs. 8.5% in 2007 [calculated on the basis of 13]. It was necessary to boost Russia's demographic policy. Due to the fact that by this time it became obvious that the main area in which the parent capital was used was the improvement of housing conditions, Federal Law 256-FZ with an amendment dated July 28, 2010 allowed families to use the parent capital for transferring it to the account of the owner of the certificate, so that the family could afford to build or reconstruct a house.

In addition, the 2010 Presidential Address proposed that the Government together with the regions should work out the procedure for the one-time provision of land plots to families free of charge for the purpose of constructing residential houses or dachas at the birth of a third (subsequent) child. In accordance with this, the number of Russian federation subjects have developed regional laws on a free-of-charge provision of land plots to large families, which came into effect from the beginning of 2011. In that year again there emerged several new options for using the maternity capital for a second child. July 01, 2011, amendments were introduced in Law 256-FZ, which abolished the deadline for the parents' right to receive a mortgage loan with the use of the funds on the capital. There appeared an opportunity to involve the family capital in the credit relationships at any stage and use it to repay the mortgage loans received earlier.

An important step was the adoption in 2011 of regional laws on the maternity (family) capital at the birth of a third

(subsequent) child. For example, in the Komi Republic, on July 01, 2011 the law "About additional measures of social support for families with children on the territory of the Komi Republic" [9] entered into force, it approved the parent capital on the third child in the amount of 150 thousand rubles. The funds of the capital can be directed on the improvement of housing conditions, education for children and paid medical services. In addition, the law provides for an annual lump-sum payment in the amount of 25 thousand rubles, which can be used by the family to pay for the housing and utilities services, for the maintenance of children in preschool institutions, to pay taxes, to pay for property, family and children insurance. It should be noted that in other regions, the value of the regional parent capital is much lower than in the Komi Republic − from 25 to 100 thousand rubles. In the Komi Republic there are more opportunities for disposing of the funds of the regional capital, which makes this measure of demographic policy and social support to families more effective. Therefore, the evaluation of the influence of demographic policy measures on the birth rate is largely built on the positive example in this region, especially since it is characterized by the presence of statistics on the order of birth, which makes analysis more complete and accurate.

The analysis of the situation based on Russian data and the in-depth analysis on the example of Komi Republic reveal that the increase in the number of state demographic initiatives gave quite noticeable positive results.

First, it helped extend the positive trend in fertility in the conditions of deteriorating age structure of women of childbearing age that started in 2010−2011. The increase in the birth rate, which declined significantly in 2009−2011 compared to 2007−2008, once again increased in 2012: the overall rate in Russia rose from 12.6 per 1,000 people to 13.3‰. In 2013, there was a decrease in its level − to 13.2‰. But in 2014, the growth was resumed − up to 13.3‰ (including and excluding the Crimean Federal District). The total ratio increased from 1.58 children in 2011 to 1.69 in 2012 and 1.75 in 2014 [13]. In 2012, in rural areas of the country, a psychologically important threshold of simple reproduction of the population was overcome: the total fertility for the conditional generation of 2012 amounted to 2.215 children. In 2014, it was 2.338 children vs. 1.585 children of urban population.

Second, the extension of demographic policy measures has provided an opportunity to fully implement the births that had been previously postponed by the older generations, as evidenced by the dynamics of the growth rates of age-specific fertility rates. In 1999−2014, there was a marked shift in the birth rate in older population groups. In 2008, the age of fertility in Russia moved from the group aged 20−24 to the group aged 25−29. The rate of growth of age coefficients, which was negative in general in 1999−2014 in the groups aged 15−19 and 20−24, grows from age to age, peaking in the group aged 40−44 [calculated on the basis of 13]. Before 2006, the maximum annual increase in age-related fertility rates

was registered in the group aged 35−39. At that period, there was mostly a spontaneous realization of postponed births in families, which found an opportunity to do so due to the improvements in the country's socio-economic situation. Since 2007, the maximum increase shifted to the older age interval − the births stimulated by the federal parent capital began to be implemented; probably, those births would not be implemented if it were not for the maternity capital.

In parallel, there is an increase in the percentage of births of the second, third and higher order. This is clearly evidenced by the statistics in the regions with the full account of births by order of birth, for example, in the Komi Republic. In general, in 2006−2014, the share of first-born children decreased in the Komi Republic by 30.5%, and the percentage of births of all other orders increased. In the first two years after the introduction of the federal maternity capital for the second child, the proportion of second children in Komi Republic increased by 11.3%, third − by 25.0%, fourth and more children − by 19.0%. In the context of the regional capital for the third child, the proportion of second births increased by 9.5% in 2014 compared to 2010 (reaching 41.6%), third births − by 54.0% (to 13.4%), fourth and further births − by 72.7% (to 3.8%) [calculated on the basis of 5, p. 48]. In 2014, the proportion of second children (41.6%) exceeded the proportion of first children (41.2%). Thus, expanding the measures of demographic policy aimed at promoting the second, third (and subsequent) births increases the intensity of the birth rate as

a result of the changes in the calendar of births, and a more full realization of reproductive plans of the population.

Fourth, expanding demographic policy measures strengthened the family component of fertility, making more sustainable the trend of decline in the share of non-marital births that began in 2006. After two decades of growth during which the percentage of out-of-wedlock births has increased in Russia in almost three times, the number of illegitimate births decreased from 30.0% in 2005 to 22.6% in 2014 [4]. It is still more than two times higher than in the early 1980s, but it is already a sustainable trend.

But the most important thing is that the expansion of demographic policy measures contributed to the growth of determination to have children. Under the guidance of the author of this paper, two sociological surveys were conducted every five years, some of their questions concerned reproductive behavior of the population. The first survey was conducted after the introduction of the federal maternity capital in late 2008 − early 2009 (the bulk of respondents was surveyed in the 2008, the sample and the results are described in detail in [14]). The second survey was carried out in 2013 when the regional family capital was implemented (the sample is described in [15], the main results on reproductive behavior − in [16]). First of all, it should be noted that by 2013 there was a growth in all major types of reproductive attitudes. The mean ideal number of children increased over the period of five years from 2.35 to 2.50, the desired number of children in the presence of all the

necessary conditions – from 2.48 to 2.67, the average expected number of children almost reached the level of simple reproduction of generations (increased from 1.98 children to 2.13 children) [16].

Contrary to expectations, the growth has occurred not only in the older cohorts of the population who previously were able to use the maternity capital for the second child, and who after the introduction of the regional capital for the third child got the opportunity to review and enhance their reproductive expectations. The survey conducted in 2008–2009 showed that the federal demographic measures focused on the second child were addressed mainly to the numerous generations born in the 1980s, and the small generations born in the early 1990s did not feel the stimulating effect of the federal measures [14]. Logic suggests that the regional maternity capital for the third child introduced in 2011 also concerned the older generations, including the cohorts born in the 1980s, who have previously responded to the activities that promoted second births. However, the effect of regional measures of demographic policy turned out to be more universal. The maternity capital for the third child influenced the reproductive plans of all the real cohorts of the population without any exceptions. The increase in the level of reproductive expectations, as expected, is mostly typical of the generations born in the mid-1970s – early 1980s. By 2013, there was a considerable increase in the expected number of children in the generations born in 1989–1993 that, according to the results of previous surveys, did not receive the

stimulating influence of the federal measures of demographic policy. At the same time, the reproductive plans of this cohort in 2013 were lower than in other generations. It will definitely have its negative impact on the birth rate in the next years. But the most interesting and at first sight unexpected result is that the youngest generation that participated in the survey is characterized by the most significant level of reproductive plans in terms of implementation of the regional parent capital. It is a numerically small generation born in the middle and second half of the 1990s [16]. Apparently this cohort, the demographic standards of behavior of which were formed in favorable conditions of the sustainable intensification of the government's attention to the problems in the field of fertility, received a very strong positive impetus for the realization of their reproductive plans. There is reason to hope that this generation, which largely determines the prospects of fertility, will achieve the slightly extended reproduction. In other words, a step-by-step build-up of the pro-family demographic policy can influence not only the current situation in the field of fertility, but also its prospects.

There is another event, which, in fact, cannot be considered a demographic policy measure, as it applies only to low-income families, but which, in the opinion of some researchers, has played a very significant role in the growth of the percentage of births of the third and subsequent child in 2013-2014. Here we speak about the monthly cash payment in the amount of the regional subsistence minimum for children in case of the birth of

the third (subsequent) child until they reach three years of age. This measure was introduced in accordance with the decree of the President of the Russian Federation "About the measures on the implementation of demographic policy in the Russian Federation" dated May 7, 2012 No. 606 [21]. The provision of this type of social support depends on per capita family income and is paid only to families that have the status of the poor. The payment was introduced in regions where fertility rates are below the national average and this payment is co-financed from the regional and federal budgets.

Although the total fertility rate in the Republic of Komi at the level of the second decimal place since 2002 consistently exceeds the average for Russia, the region was able to qualify for federal funding and to implement the mentioned social allowance. According to the Decree of the Head of the Komi Republic No. 73 of June 15, 2012 "On the realization of the Decree of the President of the Russian Federation of May 07, 2012 No. 606" [20], beginning from January 1, 2013, if the third (subsequent) child is born into needy families after December 31, 2012, these families receive monthly payments in the amount of the subsistence minimum set in the Republic for the children, these payments are appointed until the child reaches the age of three.

The amount of the monthly payment is very significant, especially for rural residents. For example, in the second quarter of 2015, the subsistence minimum per child in the southern regions of the Komi Republic amounted to 10,524 rubles in northern regions

— to 11,488 rubles. As a result, after the introduction of the monthly social benefit for the third child among the large families of the Republic there was a marked increase in the share of the needy. For two and a half years (since the beginning of 2013 until the end of the first half of 2015) in some rural districts of the Komi Republic, the proportion of children receiving these payments has exceeded 80% of the total number of the third and subsequent children (in Ust-Kulomsky and Izhemsky districts — 83—84%, in Kortkerossky District — 86.5%) and in the whole country is 43.5% [6]. On the one hand, it is certainly the result of the fact that more and more people are applying for the allowance that is quite a significant sum of money. On the other hand, it is a consequence of a low level of per capita family income at birth of the next child. But this is largely the result of increased fertility in low-income population groups that are stimulated by the possibility of obtaining a new source of income. And in this case, the question arises: how these families and these children will live, when they are three years old or after December 31, 2015, if the timing of payment of the allowance will not be extended: according to the current legislation, these payments are provided to low-income families only until the end of 2015.

It is necessary to mention that the period of validity of the federal and regional maternity capitals is also limited by December 31, 2016. At the same time, to low reproductive expectations of the small generations of the late 1980s—early 1990s can be satisfied to the maximum extent, so that the reproductive

plans of still smaller generations of the middle and the second half of the 1990s, formed at quite a high level, could be fulfilled completely and so that the small generations born in the 2000s, who are just entering their reproductive years, could plan to have not fewer children, it is necessary not only to continue the current demographic policy in the field of fertility but also to intensify its activities.

This means that, at least, it is necessary to prolong the existence of the federal and regional maternity capitals. The effectiveness of both influences not only the change in the calendar of births. They really contributed to the increase in the number of children in families and promoted the reproductive attitudes of young generations, which will play its role in the future. The abolition of maternity capitals will lead to the disappointment of the population in the demographic policy pursued by the government. In the conditions of the upcoming long-lasting structural reduction in the level of fertility, it can trigger a new round of demographic crisis, more profound than in the 1990s. Even more dangerous is the transition after 2016 to the selective appointment of the maternity capital according to the principle of neediness. In our view, the demographic policy must not be targeted on the principle of poverty. When the socio-demographic policy gives priority to the social component, one should not expect it to produce a sustainable demographic effect. If after 2016 there is a transition to the principle of targeted provision of the maternity capital only to low-income families, then there will be fewer births, as will be the case when these demographic measures

are abolished, and there will also be fewer births in those segments of the population that have the highest socialization potential. In addition, the principle of providing target support to low-income families, the focus on "economic inexpediency" of having children in the families can have a negative impact on the level of reproductive attitudes of the generations born in the 2000s, which in turn will negatively affect the future prospects of fertility. The level of fertility defined by numerically small generations can be increased only by the adjustment of reproductive behavior in the direction of increase in the number of children in families [12, p. 152].

At the same time, the monthly cash payment in the amount of the regional subsistence minimum for the child in case of birth of the third (subsequent) child, initially approved in the regions only for low-income families, in our view, should be continued not as a measure of demographic policy, but as a measure of social support to families with low incomes. In such circumstances, first, there will be a real opportunity to extend the period of validity of this allowance after December 31, 2015: as of today, the Ministry of Labor and Social Protection of the Komi Republic initiates its extension for 2016–2018. [6]. And second, if this allowance is paid only for one third or half of the children from low-income families, it is perfectly legitimate to raise the question about the possibility of its spreading to older ages — until the child reaches the age of 16 (students in secondary schools — up to 18 years). It is possible to use it along with correction factors for different age

categories similarly to the monthly allowance for children. From the point of view of the economy, the main result of the birth rate is not the birth of children, but their reaching the age of economic activity with the highest quality characteristics. The government must help poor families that decided on the birth of third or more children socialize them until they reach active working age, since this is its most important economic interest.

Thus, as the structure of fertile contingents is deteriorating, it is extremely important to continue to pursue the chosen course of demographic policy, to make it long and successive. It is necessary to continue to implement it both at the federal and regional level, as well as consolidate the efforts of various social institutions in addressing the demographic issues related to improving fertility and its qualitative aspects. First of all, it is necessary to preserve all the components of economic measures to support families with children. This means that the federal and regional maternity capitals must be prolonged after December 31, 2016, with their annual indexation like all other types of allowances for children. In this regard, it is encouraging to note that on December 3, 2015, during the annual Presidential Address to the Federal Assembly, it was stated that it was necessary to renew the maternity capital for the second child for at least another two years, and on December 18, 2015, this bill was passed by the State Duma in three readings. We believe that the next step will be the extension of the regional maternity capital. But the two-year extension is at most a make-shift. It is

necessary to make these demographic policy measures indefinite, in order to avoid the phenomenon of early exhaustion of total fertility of real cohorts in the desire to take advantage of some economic preferences.

In this case, it is necessary to expand the areas of implementation of the maternity capital. It is economically inexpensive, and the psychological effect can be quite significant. In 2015, the government considered the issue concerning the removal of restrictions on disposal of funds of the federal family capital to pay the initial payment on the mortgage until the child reaches three years. Besides, the possibility of purchasing a new car produced in Russia at the expense of the certificate was discussed. The availability of the vehicle significantly increases economic opportunities of the family. At the same time, it will be a real support for the domestic automotive industry, the slogan of which may be "A car for a young family". Researchers propose to grant the certificate holders the right to treat children and educate parents at the expense of the maternity capital.

When developing new measures of demographic policy, a greater focus should be made not on quantitative indicators, but on improving the quality structure of fertility, strengthening the family institution, revival and strengthening of spiritual and moral traditions of family relations. The most effective pro-family demographic policy measure can be considered a priority given to second births, as they are the most family-oriented ones. In our opinion, today we need a reorientation of economic demographic

policy toward second births. With the obligatory preservation of the federal and regional maternity capitals, is necessary to strengthen measures to encourage second births. For example, in addition to the federal maternity capital it is advisable to introduce the regional maternity capital for the second child. New initiatives of the government should cover not only large families, but first of all families with two children, so that the most common type of family in Russia was a family with not one child but with two children. It is especially important due to the fact that these measures will be focused on the small cohorts of those born in the 1990s, and the activation of their reproductive behavior should correspond to the long-term goals of the demographic development of the country. In addition, it will positively influence the formation of childbearing attitudes in generations born in the 2000s that are also small in number.

The main emphasis in the economic measures of the demographic policy should be made to increase the independence of families with children, which may be achieved both by growth of employment, growth of income from employment, opportunity of members of young families to engage in business, and extension of preferential housing programs for families with children. For Russia that experienced rapid urbanization in the 1930–1970s and that is characterized by a high cost of housing construction due to severe climatic conditions, the unresolved housing problems of the population have a long history. According to the results of almost

all sociological surveys, dissatisfaction with housing conditions is the most important facto after financial problems that does not allow families to have so many children as they want. It is no coincidence that the main direction of the use the maternity capital is improvement of living conditions. Therefore, it is necessary to expand the range of activities that help young families in dealing with this issue. They include preferential mortgage lending with a lower interest rate at the birth of the second and third child, and the exemption from the initial payment and the state co-financing of construction of social housing for families with two or more children with the price per square meter below the average in the settlement, and so on. But in any case, the increase in economic independence and improvement of the housing situation of families with children is primarily the prerogative of the state. That is, along with allowances for children, these directions are part of the economic measures of the state demographic policy.

At the same time, one should not underestimate the psychological effectiveness of demographic policy measures in the formation of value-based orientations of the population in the area of childbearing. There is reason to believe that the increase in fertility in 2006–2014, and the increase the level of reproductive attitudes of the population when expanding demographic policy measures are consequences of the favorable psychological atmosphere that prevails in the Russian society as the government increases its attention to the issues of fertility, which should not be declarative, but should be backed by large-

scale economic measures. Therefore, it is necessary to promote guidance work among young people so that they would want to have two or more children. The foundations of the demographic policy aimed directly at the formation of the desire to have children should be laid in adolescence, when an individual forms his/her value orientations, that is why the critical agents of such a policy should be family and school. But the government still remains the central subject of development and implementation of social-psychological and demographic policy to increase the desire to have children.

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Strategies and Practices of Collective Self-Preservation of Population in Northern Villages: Historical Experience and Modern Realities*

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Abstract. The paper is a result of the scientific theoretical and empirical research conducted by the author on the issue of collective self-preservation of local societies on the territory of the Arkhangelsk Oblast. The rise of general welfare is achieved at the expense of weakening family ties, deformation of the demographic structure of the population and, as a result, aggravating demographic risks, various social deviations, destruction of traditional bonds that helped people survive for centuries thanks to social solidarity and mutual aid. Social risks entail, directly or indirectly, all other risks, making them particularly dangerous for the society. However, the society in historical perspective has formed the mechanisms of protection against the negative impact of social and other shocks. These mechanisms are especially pronounced in local resident populations and they currently remain in the form of social control, social solidarity, and other forms of collective protection. There also remain intra-social mechanisms, which in the conditions of remoteness from social services and law enforcement agencies make people stay active and offer mutual aid. This side of social life is not only of scientific interest (as the tradition that is being left behind), but also of practical importance – because the social and cultural potential that is preserved in this way can be developed and used for organizing the life of remote settlements. Based on the study of the history of the region, the author identifies socio-cultural risks that may arise among the population in remote and

sparsely populated territories under the influence of various external and internal challenges. This concept served as the basis for the development and implementation of the program for field study of the policies and practices aimed to overcome these risks by local resident communities in 2015.

Key words: remote and sparsely populated areas, rural population, Arkhangelsk Oblast, socio-cultural risks, collective self-preservation, social history, field study.

The Russian village, peasantry, and rural population have always been a very popular research subject for economists, sociologists, historians, and culturologists. Now, when they reflect upon the consequences of the crisis phenomena in the social, economic, political and cultural life, this attention remains and continues to increase. It is due to the fact that any discussion about the current state of the Russian society and about the reasons for the failure of the reforms raises the question of "national mentality". And if marginalized social group sooner or later change their mentality while adapting to the needs of modernized society, the traditionalist layers such as the peasants showed remarkable tenacity in maintaining their ideas and way of life during all the reforms and revolutions.

It seems that the peasantry, having its own special type of mentality and subordinate position in relation to the authorities and other social groups [14], was never an actor in political life. But it formed the majority of Russia's population until the mid-twentieth century, and as American sovietologist M. Lewin, a native of the Soviet Union, points out, the peasantry in itself was the most important factor in the development of events in the Russian history [16]. Any changes occurred under the influence of the response of a relatively coherent multi-million peasant society to coercive measures undertaken by the state for the purposes of modernization (no matter who the initiator ow those measures was: Peter the Great, Pyotr Stolypin or Joseph Stalin). In 1917–1920, this reaction resulted in the archaization of the village, and it led to inversion and return of communalism in social life and agricultural production in economic life [2, 13, 15, 16].

However, M. Lewin proposed to take into account the fact that as a result of accelerated social mobility, the new elite throughout most of the 20th century was represented mainly by the descendants of the peasant environment, the carriers of the corresponding mentality, perceptions and social expectations. They brought to the implementation of the modernization project "their psychology, their ideas, their mentality, their archaic spontaneity" [see: 3], which, in turn, indicated the necessity of modernization [2].

Since all of the tumultuous events in Russia's history throughout the 20th century happened during the periods of powerful urbanization processes, and their main participants descended from the peasant community in the first, or, seldom, the second or third generation, this explains the interest of foreign researchers in the village of the post-perestroika period. In the 1990s and early 2000s, several large collaborative studies were

conducted in Russia, one of them was the Russian-British sociological project "Study of the social structure of the Soviet and post-Soviet village" and the project "Industrialized village: on the transformation of rural life style in post-socialist societies".

In the framework of these projects financial support was granted primarily to the documentation of "oral history" rather than to archival research; that was why a unique material was assembled, which allows scientists of different fields (sociologists, ecologists, political scientists, culturologists, lawyers, historians, economists) to understand the transitional period not only from the point of view of intellectuals, but also "through the eyes of commoners".

Such a holographic study of the modern village, which makes attempts to understand the issues that have historical background (the inclusion of local communities and individuals in the "advanced society", the consequences of the "major demographic transition", a powerful socio-cultural and economic modernization, and so on), shows some shortcomings "inherited" from the times of Radishchev and the revolutionary democrats, which tended to idealize and, at the same time, to sympathize with the peasants, and which saw the "root of all evil" in government policy.

Describing the village, modern scholars point out the "lack of independence, lack of initiative, and hope for a strong leader", seeing it as the "legacy of the Soviet regime, which the village, in turn, received from tsarist Russia, its predecessor". "The paternalistic policy of the state, which was conducted through the peasant commune up to 1917,

and through the collective-state farm system after the revolution, taught people to hope that every problem would be solved for them" – this is how the authors describe their experiences from the study of the Siberian village [11, p. 64]. Since such explanation does not correspond to the accepted ideas about the special nature of Russian Siberians, another explanation was found. It turns out that in addition to the negative impact of the "kolkhoz-sovkhoz system", the mentality of the villagers was affected by a large number of immigrants living here, who had come from "Smolensk and Belarusian villages, where only 50 years before the founding of [the village] there had been serfdom" [11, p. 64].

The head of the administration in one of the regions in the Republic of Bashkortostan thinks that the obstacle to a smooth work of local governments caused by the destruction of relations in the village can be found in migration processes, and, in his opinion, the repressions of the Stalin era (dekulakization, etc.) were their main facilitator [6]. In the early 20th century, migration was not so high, however, there were few people who wanted to be elected for administration posts – perhaps, due to an increasing confidence in the law that reduced the importance of self-government. When after the revolution there was the weakening and delegitimization of state power, then self-preservation institutions contributed to the reconstruction of a powerful system of self-government in the village, which, adapting to new state requirements, had to be destroyed in hard ways.

Thus, there remains a tradition to think that everything is bad because it is the result

of serfdom or a heritage of the Soviet regime. And for those groups of peasants that were traditionally considered as a positive result of free development (Pomors, Sibiryaks), one more reason was added that there was another external influence in the form of immigrants who brought with them a negative opportunistic mentality. This whole range of reasons, as believed, influenced the rejection of those freedoms that were granted by the era of reforms; the rejection was explained by the fact that "the village has no other way to defend its interests then through resistance and distrust of any actions of the authorities" [10, p. 36].

It is difficult to blame serfdom (which was applied only on 40% of the rural population of Russia, was abolished a century and a half ago and brought many positive aspects – in the form of economic, social and cultural innovation imposed on the population). And nowadays the time of collective farms is not perceived negatively, which is associated with community tradition that continues to be idealized. In search of the reasons for the failure of reforms, one could consider the knowledge about the negative perception of any innovation by the peasantry (for example, introduction of potatoes by Peter the Great and up to the use of harvesting machines). V.O. Klyuchevsky said that the Great Russians had higher resistance of traditional forms due to the peculiarities of natural-climatic conditions; L.V. Milov explained this by the presence of minimized surplus product typical of Russia [18], which formed the fear of any innovation, any departure from time-tested standards.

Here it is necessary to consider regional features of separate peasant groups that cannot be ignored despite all the outward similarities of the peasantry existing due to its quality as a social framework. It is difficult, for example, to compare the peasants of the north-eastern districts of the Arkhangelsk Oblast not only with farmers in South Asia or in the Voronezh Oblast, but even with those in the Vologda Oblast. Thus, less adaptability to economic, social and cultural change is typical of peasants who did not know the "yoke of serfdom" (which, among other things, included the civilizational influence of the landlords, noble culture) and who were used to expect assistance from the government in certain circumstances.

Many interpretations of modern processes in the village can be subjected to critical analysis from socio-historical positions. But generalization is not the task of the historian. Therefore, the present paper provides its author's understanding of the processes of "survival" in the conditions of one more variant of modernization of the Russian people living in remote and sparsely populated territories of the North of European Russia, who showed and show amazing examples of collective self-preservation in the conditions of any and most severe crises.

Peasants are commonly understood as representatives of the social groups involved in subsistence or subsistence-commodity agricultural production based on family farms (households) existing in a specific cultural and natural context [14]. The term is viewed as outdated. Sociologists and economists increasingly use the term "rural population",

because for various reasons the majority of those employed at present in the agricultural sector are wage workers, and among other inhabitants of the rural areas there are a lot of misfits who were thrown out of city life under the impact of the crisis of the 1990s. The village is still the place of refuge for those who could not find their place in urban life, which throughout the 20th century was becoming more and more attractive for rural youth.

It is necessary to mention the fact that not only journalistic but often scientific literature based on statistical data and on the results of sociological surveys about "social wellbeing" of the population is permeated by decadent mood and assess the situation in the contemporary Russian countryside (primarily in the Non-Black Earth regions) as degrading.

Sociological polls show a puzzling "trend of social pathology and disorganization (alcoholism, crime, etc.), which today is much more pronounced in rural areas than in the city" [10, p. 24]. It is noted that rural population in assessments of its current state and in social expectations "is dominated by dark and dim shades" [5, 7, 22, 26]. Doctor of Economics L.V. Bondarenko wrote in 2005: "The village is, perhaps, going through the most dramatic period in its history. It was pushed back in its development by decades. Negative effects of the pre-perestroika period were exacerbated, new ones have emerged and are now developing — unemployment, mass poverty, lack of access to education, health care, culture, trade, personal services, and socio-psychological stress generated by the retreat from previously conquered positions and by insecurity, "the lack of light at the end

of the tunnel", moral degradation [5, p. 69]. Based on specific figures, the conclusions are made that point out rural residents' incomes lagging behind the incomes of urban residents, the reduction of rural settlements in Russia, high natural population decline due to many factors including the poor provision of rural settlements with the main objects of the social sphere, their inaccessibility due to the remoteness and underdevelopment of the transport infrastructure.

Thus, formal methods for the study of social and socio-economic conditions in the Northern village (and not only at the present stage, since we can refer to the publications of a similar nature made in the early 20th century) give a negative picture of what is happening.

Positive assessments of the village can be found, perhaps, only in the works of ethnographers, who, due to the specifics of the subject, study the remaining traditionalist forms, perceiving them most often as archaic and obsolete. However, based on her own field studies conducted in the 1970s—1990s, the author has seen in such traditional forms of material and spiritual life restored in extreme economic conditions of the 1920s the manifestation of self-preservation technologies that focused on the social, cultural and material survival [23]. J. Scott considered such resistance to innovation, the preservation of alternative ways of existence in collective memory, the willingness, if necessary, to revive them — as a way of passive resistance imposed by innovation [21]. However, according to the Israeli sociologist Sh. Eisenstadt, demonstrative rejection of imposed innovation can have

another meaning: to reflect "the process of reconstructing a number of existing [social and cultural] models" and their preparation for functioning in the new reality, that is, the creation of new forms of social life [29].

The study conducted by Yu.M. Plyusnin presents a contrast to grim assessments of the current state of the village (these assessments can be explained by a desire of rural residents to lower their financial situation when participating in a formal sociological survey, to describe their current situation negatively as compared to the past, this desire is generally characteristic of the rural population). Yu.M. Plyusnin studied for several years the system of local government in local communities "from within", through participant observation [20], and he proposes "the hypothesis that the level of development of local self-government is determined by the influence of the mechanisms of isolation", noting that "a more developed self-government" is evident in remote, local villages, that is, "in the presence of isolation conditions" [19]. Of course, the negative signs of modern rural life cannot be hidden; however, in the opinion of Yu.M. Plyusnin, they are exaggerated by less careful and thoughtful observers, and they are most commonly associated with an "alien" element, which (as after 1918) swept the Russian village in the 1990s.

The difference in the conclusions when studying one and the same object (the modern village in the Non-Black Earth area) is explained by the difference in research approaches. The formal sociological survey or interpretation of statistical information creates a different view than the participant

observation, in-depth interviews and processing of the obtained results with the use of thick description procedures, i.e. the methods commonly used in ethnography. Researchers V.G. Vinogradskii [8], and N.N. Kozlova [13] substantiate these techniques as applied to the study of the contemporary village.

Speaking about J. Scott, T. Shanin highlighted his ethnographic field work [27]. Scott's conclusions on the "passive resistance" of peasants to any actions of the authorities as the only available weapon they have in the struggle [21] are widely used to interpret social history and modern reality of the Russian village. However, with all similar forms of resistance, it is hardly fair to compare the peasants of South-East Asia with the Russian peasants, especially the peasants of Northern Russia, which had virtually nothing to give, and the government in relation to them often used paternalistic policy, one of the forms of which was the consensus between the government and population in order to prevent a pronounced civil disobedience.

Researchers into the Russian village find J. Scott's analysis important as it is a methodological tool to interpret various forms of social strategies of the peasant population that are observed by applying ethnographic methods with the help of historical knowledge, involving a large volume of comparative approaches in both synchronous and diachronic dimension. For example, when using "family" and other "oral histories" it is necessary to consider "the concealment of information" in front of "strangers", as Scott noted, and when interpreting the results of participant

observation and written stories, it is necessary to use the available historical material.

In general, the fact that historical and ethnographic research focuses on the explanation of the fate of the Northern Russian village was evident at the peak of "perestroika", at a conference held in Vologda in 1989 [1]. New approaches to the 20th century village in Vologda continue to evolve [12, 4]. However, these studies of the Non-Black-Earth village still primarily relate to the population of large villages. The author of the present paper has focused her attention on the territories which retained their population (in more ancient times as well) largely through the efforts of the state; she also focuses on those villages that have almost disappeared from the list of settlements, in order to find out what makes people hold on to this land.

The research that forms the basis for this article is not consistent with the general mainstream of peasant studies due to the specifics of the peasant population of the Northern territories: the peasants of these territories are not engaged in production activities and they are often engaged in completely non-agricultural activities. There is reason to believe that by the early 20th century in the Northern regions of European Russia there was no peasantry in its genuine form (not as a class, but as a socio-economic group) because due to the climatic conditions, the activities of the rural population did not have exclusively agricultural orientation. Any peasant family directed part of its workforce to non-agricultural work and factory work. If non-agricultural orientations of the peasantry in Central Russia began to develop in the post-

reform period, then in the European North commercial orientation of economic activity of the peasants had a long history. For peasants living in the Northern counties of the region, agriculture was only an additional occupation, which they used only in case of reduction of other kinds of earnings. This happened, for example, in the third quarter of the 19th century in connection with the reduction and elimination of state industry in the region. The peasant of Central Russia had to engage in non-agricultural activities to earn money to pay taxes. The Northern peasant needed earnings to purchase bread and other food commodities, this fact contributed to his desire to engage in wage labor. V.V. Bervi-Flerovskii, the economist-populist, wrote about the early proletarianization of the peasants in the North in the middle of the 19th century [25, p. 246].

We can say that agricultural aspirations here were formed during the Soviet time under the influence of collective farms that, as we know, were very difficult to leave. However, the remoteness of most of the Northern villages, poor transport links resulted in the fact that farming here was not only difficult because of natural-climatic features, but also useless, because sometimes it was impossible to take the manufactured products out in order to sell them. It was especially difficult in the market conditions when products produced in this way became uncompetitive compared to products imported even from "far abroad".

In his research, the author proceeds from the fact that in the 1990s, the Russian village faced events similar to other "troubled" times (including after the revolution of 1917). The government has relaxed its control over

the economic, social and cultural life of the population. Transport links, health and education, and other forms of livelihood (trade, disaster relief, control of deviations) established in the Soviet times were damaged. This particularly affected the Northern territories, which since the 1970s were "sentenced" to a reduction in the number of rural settlements; in the 1990s, the program for "resettlement from the North" was not implemented to the fullest only due to the lack of funding.

The situation after "perestroika" was fraught with the fact that the village became "a refuge" for a large part of people who in the period of intensive socialist urbanization left their homes, but in the conditions of deindustrialization and deconversion in the 1990s lost their jobs and experienced other difficulties in life. It should be recognized that it was not the most successful city dwellers who came back, this fact created additional tension in the villages.

Specific **self-preservation strategies of local societies** (by which the author means the population of remote and sparsely populated Northern territories) were formed under the influence of colonization of those territories and those risks and dangers, which the population had to face due to adverse climatic factors.

A certain part of indigenous population of the Russian North settled down here in the conditions of the so-called "climatic optimum" that allowed settlers to engage in the usual activities. As the climate was cooling, the population adapted to the new conditions economically and culturally.

Migration processes that occurred in later time (from the late 17th century), were associated with political environment: due to the repressive policy of the state. It was old believers that came to live here. They tended to settle in remote areas. They were engaged in farming in the regions that were not suitable for that, and they dispersed in large Northern territories. Sparsely populated settlements of old believers were separated by vast roadless areas, and they consciously maintained such remoteness and inaccessibility. However, it was the old believers that began to engage in commodity-money relations, because they were interested in obtaining revenues to pay taxes to the government, which gave them the right to live relatively freely and to practice their faith. Agriculture in this zone of risky farming did not give the desired earnings. Therefore, the Russian population of the North sought to engage in new activities, penetrating deeper into the territories occupied, for example, by the Nenets, and creating competition in herding and in marine and forest hunting, and fishing. Another way of earning the money needed for the payment of taxes and other purposes was found in urban occupations: factory work, construction, service sector and so on.

Due to the specifics of population settlement, there emerged several groups of risks:

1. On the part of the authorities (officials) the danger was in the fact that a great part of the population belonged to the split.

2. We can assume that in the pre-Imperial and early Imperial periods, the population of such sparsely populated and remote villages

was attacked by robbers and bands of deserters, many of whom emerged during the grand constructions of the times of Peter the Great. The danger of an armed attack came from the neighboring population, who wanted to expel economic competitors from their territories.

3. Many risks resulted from the violation of an intra-society balance by the members of farming communities who lived outside them for a long time (while serving in the army, leaving home to find employment) and exposed to the influence of other cultures. Under the influence of these processes, the existing system of social control (and self control) was gradually undermined.

Historically, local societies developed a system for protection from these dangers.

In relation to the authorities

• As a result of moving towards each other's interests, there emerged *a system of consensus*, involving mutual concessions on the part of the state and the population. Local communities received the right of autonomy in addressing certain issues (for example, organization of internal life in accordance with "customary law"; the right to decide who was subject to the conscript obligation and other services to the tsar) in exchange for the payment of taxes and execution of state obligations: construction of roads and crossings, their maintenance, etc. On the part of the state that consensus was due to the inability to control the life of sparsely populated settlements scattered over vast territories. With the consolidation of the bureaucracy and strengthening of the rule of law, all population groups were included in the national legal space.

• A system of collective responsibility was formed, it was acceptable to both the authorities and population. The government interact with local communities via elected representatives, which in the case of violation of the established consensus answered to the authorities. For its part, the population guaranteed that its representative had protection if there was a possibility to be punished by the authorities. The authorities (both tsarist and early Soviet ones) understood that; "worldly crimes" (e.g., collective felling of state forests, distribution of grain and other resources harvested according to state order) were punished economically: the headman was fined or part of his property confiscated, and the population compensated the losses to their representative. If the government's demands were too hard to execute or economic punishment was too severe for the population, such collective responsibility was violated and the representative of local self-government was "given" to the authorities for execution of punishment ("to suffer for his people").

Protection from "foreigners" was originally expressed in a possible system of defense against possible attacks. Judging by later reports, it looked like this: if the village was attacked (for example, a punitive detachment came, as happened during the suppressions of riots) a signal usually the alarm bell, was given, and all men, armed, ran to the rescue. Later this method of self-defense was transformed into collective aid, for example, in a fire emergency. During the civil war there were precedents of creating self-defense units to protect their villages from requisitions, robbery by soldiers and squads of deserters. It was

also a relapse of collective memory, when the peasants took up arms together – first against gangs of robbers, and then against wolves. Such a system of self-defense was used by the state as well, it attracted the population to assist in catching fugitives.

History shows that in the pre-state times, local societies could **protect** themselves from **their own** deviant members with the help of exile and even murder. Later, in fear of responsibility for vigilante justice, the "unwanted" individuals were surrendered to the authorities or given passports to depart. It should be noted that some "deviations" were positive in the eyes of the state. For example, the desire to be engaged in other activities, to obtain education, to go to another bar, etc. Soon there emerged a kind of balance: the people that were unwanted and for various reasons unnecessary in a peasant environment were pushed out of it and found their place in an "extended" society. Some of these misfits, usually forced ones, returned to the village (after military service, apprenticeship and seasonal work in town); they were forced to conformal behavior with the use of social control, as demanded by tradition. Others, breaking away from their roots, came back to the village due to the circumstances. The return was especially widespread from cities that suffered from starvation during the revolution and civil war. Members of the same community who came back often carried with them new ideas that were alien to the traditions of the local society. Group pressure (negative stereotyping, neglect, defamatory penalties and other sanctions did not always have the desired effect on such people. Their fellow villagers tried to get rid of them in other ways; sometimes, they, by agreement, accused such unwanted people in front of the authorities. There existed more severe punishments against fellow countrymen whose behavior threatened the well-being and peace of others (such cases were described by the author using the materials of the post-revolutionary Northern village [24]).

The above results of the study of social and cultural history of the region served as the basis for determining those socio-cultural risks that may emerge among the population of remote and sparsely populated territories under the influence of the different nature of external and internal challenges. Based on the findings and on her own experience of field work carried out in the 1980s – 1990s, the author executed the program for studying the strategies and practices to overcome these risks by locally residing communities, the program was implemented in 2015 in remote settlements of the Arkhangelsk Oblast.

This present paper describes the results for the villages of three districts – Leshukonsky, Mezensky and Pinezhsky. The area of these districts is 92.3 km^2 and the population is slightly more than 40 thousand people (that is 0.4 inhabitants per km^2), and it is continuously decreasing. The population lives in 225 villages, rural settlements and hamlets; there are two urban settlements (Mezen and Kamenka), former town of Pinega (now it is a rural settlement) and two more regional centers – Leshukonskoye and Karpogory. The total population of these "towns" is 11.5 thousand people, i.e. more than a quarter of the population of the districts. In the remaining

220 settlements there are approximately 140 people in each. But this is an average value. For example, in the villages of the "most urbanized" Leshukonsky District there are 4–5 times fewer residents than this figure.

Back in the 19th century, these territories were populous (by northern standards) and wealthy. The Pomor crafts gave way to profitable industrial timber production. In the Soviet times there were many forest settlements, and corrective labor camps, the inhabitants of which were engaged in the felling and floating of timber to the mills. Transport connection was established: in summer — on the Pinega and Mezen rivers, in winter — by the "winter road". Due to unorganized felling, rivers became unnavigable and were only used for rafting timber. Air transport in the 1970s became the most accessible and convenient, it connected the district centers with Archangelsk and with large villages. In the 1990s, local aviation almost completely collapsed, and the roads were in a very bad condition. Only the settlements along the middle course of the Pinega River were in a better condition, because there was a railroad there.

In other places and only in winter, owner drivers at their own risk began to carry passengers in the little "Paz" buses on the roads fit only for tractors and trucks. In the 2000s the situation began to improve: first, winter roads were used for passenger traffic, then automobile roads began to be built and they were interrupted by numerous crossings of the river. Currently, the number of these crossings has been steadily declining due to

the construction of pontoon bridges, and across small rivers — permanent bridges. This significantly improved the life of local population; however, it actually means economic surrender: bridges dam up the river and timber rafting becomes impossible. Timber delivery by motor transport significantly increases the cost of these raw materials, making timber processing unprofitable. Once populous settlements engaged in timber industry become desolate. However, the village continues to live. Collectivization, the program for the elimination of "unpromising" villages conducted in the 1970s, the "transition to a market economy" in the 1990s — these events were unable to destroy the village completely.

In order to clarify forms and methods of collective self-preservation of the populations, we chose the villages with the old-time Russian population located along the roads under construction. Here the changes are characterized by the greatest dynamics: traditional forms of social life coexist with the "fruits of civilization" that suddenly became available due to the presence of roads and fiber optic lines that are laid along them and that provide the village with the Internet and mobile communications.

The study of **the level of demand for historical collective experience in the modern conditions** was conducted by interviewing the population using a specially compiled questionnaire. Respondents answered questions regarding their historical memory about the past forms of intercommunity solidarity, about the way of its maintenance in the 1990s and at present.

Of course, it was difficult to expect full analogies – social experience gets differentiated depending on the "challenges" of reality. And yet, the destruction of social and economic stability existing in the 1970s – 1980s was obviously similar to the events of the post-revolutionary years of the early 20th century.

It seems doubtful to regain the lost stability due to the economic decline of the Northern village, its depopulation in the natural-demographic aspect and in connection with the rising trend of geographical and social mobility, which takes the form of forced "abandonment" because of unemployment; and also – in connection with the futility of the village in the eyes of economists and politicians. However, the village continues to live, and, in the opinion of its residents and migrant city dwellers in the first generation, it could partially save its human potential, if there was employment there.

We can say that pensions that are quite high in Northern areas, child allowances and unemployment benefits are a good help for the villagers, given the fact that their needs are rather modest. The activity of small business contributes to the opportunities to earn money in summer and autumn through organized procurement of mushrooms, berries, and other "gifts of nature". The livestock products (milk, meat) remain in demand, though to a lesser extent. The need to help children who live in town and certain "fashion" to improve rural life are important driving forces for the production of products not only for their own consumption but also for sale. Laminated floors, plastic windows are now common in many traditional rural houses. Washing machines, water pumps and plumbing are now common things; there is frequently a local sewer. We should make reference to the historically established tradition of the Northern village, when samples of "urban" life (before the revolution – samovar, crockery, clothing, etc.; in the late Soviet time – urban furniture and the layout of the house, bed linen, wallpaper, painted floors) won over the tastes of the population faster than economic and social innovation.

The modern dissemination of cultural and social innovation is linked to the influence of external "fashion". This is the influences not so much of the "city" as of the standards of living that are brought by new "seasonal workers". Most often it is men who do not want to leave the village and work in shifts. As a rule, they earn much money and aim to equip their rural life according to the urban fashion. Local entrepreneurs (usually from the district center) respond quickly to such requests and provide the necessary goods and services. Unfortunately, the requests are different. In some villages, where "seasonal work" (in modern language – "shift work") is not common and the fashion for beautifying the house interior has not become widespread, there retained to a greater degree the need for alcohol, which is brought "on commission" by "businessmen" from the nearest large settlement.

Shift work, which is becoming widespread, leads to significant property stratification of the population. If the household has an initiative and industrious man as a breadwinner, then the family prefers to stay in the village (even if it has a city apartment, which is usually occupied

by adult children), it is well-off and its life is prosperous. Nowadays, some men can find work even in the village. But in addition to specific professional skills that are usually acquired through the experience of urban life (knowledge of electricity, mechanics, construction), in this case, it is necessary to have some "start-up capital" like a tractor, car, boat or snowmobile. With these vehicles, rural residents can be employed by the administration to remove snow from the roads, for example. Due to the fact that districts have almost no internal municipal transport, people who have their own boats and cars can take their fellow villagers to the district center or regional center, to the railway station, hospital or shop.

It is well-known that there is a significant gender and age imbalance in the northern village. Compared to the 1970s, when this imbalance has become particularly evident in the conditions of rapid urbanization, the modern village has fewer people of senile age (they are taken to town by their relatives, and those who do not have any relatives are often placed in old people's homes) and fewer children. Although in recent years, with the introduction of the "maternity capital", many women whose children grew up and left the village to study in the city decided to give birth to another child, because life without children "is boring in the village". And this has become a trend: according to the informants, they are motivated by the "maternity capital", which can be used, for example, in helping their older children to purchase housing; they are also motivated by privileges granted by the government and local authorities to large families.

Many rural residents would like to take the children in foster care or adopt them, but due to the lack of schools in their villages, the departments of custody and guardianship do not satisfy their requests.

There remains a higher rate of male population in the village observed in the 1970s. In the 1990s, it even increased due to the fact that the men who were less able to adapt to new socio-economic conditions returned from cities to their home villages. In addition, men find living in the countryside more attractive than women who find the weight of domestic work burdensome and resent unsettled domestic routine.

The circumstances create a problem caused by the narrowing of traditional social contacts. If young people, when going to the city to study or work and using online dating sites can find themselves a "date", then for middle-aged people it is not so easy. However, in rural areas, a lonely person or single-parent family find it difficult to live. It is usual practice when middle-aged women (single, divorced or widows) "take home" a man who does all the necessary men's work. When the man "falls off the wagon" (starts drinking), the housewife "throws" him out and "takes home" another one. It is difficult to say that in this case "loose morals" are to be blamed or that there is a "consumer" attitude toward the man-worker. It is possible to refer to the explanation of similar processes in the environment of the Nenets-nomads made by ethnologist A.V. Golovnev: in his opinion, the ease of family transformations is a way of social maneuvering of the residents in relatively closed societies aimed at saving precious

family resources and the need to get rid of interference in this regard by terminating the failed marriage partnership [9, p. 43].

At the same time, in the villages there are quite a lot of "decent" single men who are not able to bring a wife from another place and do not wish to enter into marriage or cohabitation with their female neighbors, who are often their distant relatives. The old marriage tradition was broken, and currently it is new men rather than women who come to live in the village after their marriage. It happens that the potential rural "bridegroom" meets a woman by correspondence (on their own initiative or with the help of friends and relatives); in this case, women prefer to bring him back with her rather than move to a village that is unknown to her. The reason is not only difficult living conditions that primarily affect women, but also the absence of employment for women, and they cannot risk it, especially if they do not rely on their husbands in this matter. Even 15—20 years ago, when the kolkhoz-sovkhoz system was collapsing, in the villages there mostly remained paid employment for women that was related to services (salesperson, nurse, teacher, postal worker, librarian, club worker). Now these institutions are closed in small settlements. Education workers supply cadres for the local administration (the head and employees of the village administration and village chiefs are mostly former teachers). Centralization of schools, medical institutions and social security institutions deprives the village of jobs.

Thanks to the fruits of civilization, primarily television and the Internet, people can on their own resolve many questions and also those that concern additional education for children and basic medical care. Almost every home has a blood pressure monitor; the injections are also made by common people (possibly, it is former health care workers who make them, but they do not have a license and do not have the right to exercise these procedures, that is why the villagers "cover" them). According to inhabitants, television programs on medical topics help them in making a diagnosis and in the initial treatment of those who fall ill.

Women do each other's hair, men use hair clippers. Postal services are now in low demand. People prefer to use the landline, or mobile phones and Skype. The letters are conveyed to the addressee by hand, without any formalities.

The usual village care for older people in remote areas in the framework of "employment policy" is becoming an occupation. The person who takes care of four seniors (three — in the areas equated to the Far North) receives wages as a full-time "social worker"; thus, if he/she takes care of one person, then he/she receives wages on a third or a quarter of the rate. Consequently, rural residents of working age do not lose their working experience; besides, the problem of elderly people who do not want to move to relatives or to a retirement home is resolved.

Trade in remote villages is carried out by mobile shops, and not in every area (if there are not many residents in a remote and isolated little settlement, then it is unprofitable for the entrepreneur to send the transport there). In such circumstances, many purchase a bread machine and ask their fellow villagers to buy food and manufactured goods when they

go shopping in the city. In the 1990s, when trade companies began to close, the situation reminded that of the late 19th century, when merchants began to be distinguished among the uniform peasant masses. First, they sold the products produced by their fellow villagers and brought them necessary products from town; then they began delivering to the village small wholesale goods that, in their opinion, could be easily sold, and they did it in their houses. Then there emerged "shops" and "stores". In the Soviet times, after a short period of stagnation in this issue, public and "consumer" trade was re-established. After trade was terminated, shops were empty because of the high cost of the rent. Again, like a century ago, the trade was carried out on orders and there was small wholesale trade, as well as trade "at home".

Currently, rural trade is carried out by district consumer cooperatives (where it has been preserved) or private owners. The attitude of villagers toward the latter is negative ("the kulaks, they are profiting at our expense"); in remote villages, the attitude is positive, because entrepreneurs help people sell their products and deliver necessary goods. In private shops, the goods are often given "on the record" and it is allowed to bring the money later. If there is no trade outlet, then an entrepreneur carries out trade, including exchange (special request for berries, mushrooms, fish) through the person he/she can trust; such person is usually a relative who lives in this village.

The liquor traffic is under the conditional ban: almost every village has a group of active members consisting mainly of women and seniors (forms may be different: "women's committee", "veterans' council", "territorial public self-government"), which hampers the uncontrolled sales of vodka.

In almost every village there are persons who sell low-quality alcohol "on tap", their fellow villagers deal with them in other ways. For example, persistent rumors are being spread that all those involved in the underground wine trade, "end up in a bad way": they die from cancer, or in accidents. Few believe in such "horror stories", because the profit from this business is too great. And it is difficult to cope with these sellers officially. According to an employee of the village administration, they managed to catch one such seller red-handed; however, during the trial, none of the villagers dared give testimony against his neighbor.

Nowadays, the elements of "collective responsibility" are still present in the village. It is very difficult to identify specific cases, as the population, guided by the very "collective responsibility", does not give away the information. They traditionally "cover" their fellow villagers from the traffic police and state agencies for hunting and fishing. They try not to bring small and household crimes to the attention of the police. If children do something wrong, people "talk with their parents". If there are fights in the family (the husband beats his wife), their fellow villagers can "talk" to the perpetrator; sometimes they express collective "contempt" and "do not greet" this person.

Socially dangerous acts, especially thefts, committed by adults, as a rule, are not subject to social control, and in this case, police

intervention is sought. In the Soviet times, minor crimes were considered by "comrades' courts"; in the event of more serious offenses, mobile court sessions were held, that satisfied the needs of the population in the openness of these procedures. Now, however, such appeals to the public are not applied; on the other hand, embezzlement becomes a criminal offense if the value of what was stolen is above a certain amount. This creates problems in those settlements where there are such thieves: it is not always possible to deal with them with the use of traditional or administrative measures.

In some villages, including small villages, there are hostile relations between neighbors, sometimes they become open. But they do not go beyond threats. As a rule, group psychological pressure is experienced by local entrepreneurs, sometimes by individuals "in power" – in cases when, in the opinion of the villagers, they do not act in the common interest.

If material wealth became higher thanks to the help of children or due to the shift work, the village community perceives it as normal. Moreover, there is a growing trend of reproaching those who failed and who are "poor". In some cases, individual and collective help (to fire victims, large families with low incomes, the elderly) is provided in response to a request for such assistance and on the basis of traditional solidarity. Regarding the latter, there is a flexible transformation of the help that until recently was compulsory and irrevocable. Currently, the elderly have money (retirement benefit, assistance from urban relatives), the government funds the assistance given them, and the relationships become money-based.

In the absence of proper control, there develop "informal" economic systems, often built on the principles of moral economy [28]. They include obtaining income that is not taxable or that is not approved by the local community (for example, trade in alcohol); provision of mutual services; distribution of job orders according to cronyism (usually, a husband or other relative of the headman gets the best job order to clean the streets or a transport service job). Often there are dummy unemployed who receive benefits and at the same time have profitable informal jobs or a profitable household. It should be noted that all these are types of activities that are based on the collective, and sometimes personal experience (including that obtained in town).

Summing up the observations made, the following should be said.

Russian people are characterized by rather intensive integration into national space. This is corroborated by the fact that the population, the number of which is rather big for the vast territories, has lost its pronounced dialect features and regional-cultural identity (that are present due to cultivation in much more densely populated countries such as Germany, France, UK) thanks to school education and particularly the influence of the media. However, group communities remain at the local level due to the need for collective existence in remote areas. Thus, as government support increases, so does people's confidence in power structures, and people quite easily abandon local forms of life support.

Initiative groups become a kind of moderators between the government and

population. These groups consist mainly of the most authoritative seniors and local intellectuals, who become involved in active community work, because the schools, clubs and other institutions in which they work are closed, and also due to the fact that educated people of retirement age remain in the villages. The government provides assistance to such groups through various structures, and these groups not so much affect the change in the economic life of the village, as maintain social control and necessary order there.

At present, external penetration is rather limited. As a rule, those who come from outside are enterprising people involved in buying local products, sometimes for business (it is trade or, more seldom, farming), which corresponds to the interests of the population. In those villages that are close to federal highways and to relatively large settlements, their dwellers are suspicious about strangers ("visitors used to be treated well, but now we are cautious about them"); in remote and inaccessible places, the attitude towards them is generally positive.

However, the increasing property stratification in traditionally tight-knit societies cannot but arouse concern. The most enterprising people leave the village for the city or are engaged in seasonal work. Along with the process of individualization, all this leads to alienation of people from community interests. Active people "of the old school" pass away, and their functions may shift into the hands of subpassionarians who remain in the village.

Apparently, it is useless to count on local societies, as "communities" that exist in some European countries (socio-territorial communities historically established and maintained at the cultural and economic level) in terms of functions, aimed at the development of life scenario for the community in general. Community-based activities noted by the author of the paper are purely social in nature, they are based on traditional solidarity based on neighbor and family feelings. Economic "basis" of cohesion is absent; in order to save the Northern village, it is necessary to offer a specific form of collective economic activities to the population.

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Public-Private Partnership in the System of Regional Healthcare Financing

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Abstract. Healthcare financing reform in the Russian Federation, besides its positive consequences, has led to the emergence of several major organizational and economic problems that hinder the expansion of financing sources for this sphere, which also involves public-private partnership (PPP). The paper highlights the regional specifics of such healthcare projects compared to similar projects of other spheres of the national economy. The author describes the problems of PPP projects implementation in healthcare; they include the insufficiency of substantiation of public-private partnership application in healthcare, and the absence of typical models for establishment of relations between PPP participants. The paper presents the healthcare priorities put forward by the author; these priorities are based on the theory of the life cycle of a service. The author presents her own model for organizing a regional concession, which is the most common form of public-private partnership in healthcare so far. The cluster brings together on a voluntary basis the legally independent organizations that are interested in improving the quality and increasing the accessibility of health services. These can include medical institutions of various forms of ownership located in the region, clinics, facilities, institutions that train healthcare workers, authorities, etc. The author shows that a favorable environment for the formation and implementation of PPP projects can be created under the cluster approach to the organization of healthcare. When establishing the medical cluster, the main task is to organize interaction between all its subjects in the interest of the overall development of healthcare in the region and the implementation of one's own interests.

Key words: healthcare, funding sources, public-private partnership, concession, cluster approach.

1. Statement of the problem

Public-private partnership (hereinafter — PPP) is becoming more common in various spheres of national economy. This is road infrastructure and services; airports and their maintenance; subways and other modes of transport; public services and amenities; healthcare; culture; education; leisure and tourism; social services; production, transmission and distribution of electric and thermal energy; heat, gas and electricity; recycling and disposal of household waste, etc.

The PPP development in Russia faces various constraints, for example, a lack of methodological basis to study directions, which make it possible to develop PPP. There are also specific problems regarding the formation and implementation of PPP projects in individual sectors.

The scientific literature about PPP theoretical and methodological principles is numerous and diverse (see [2, 5, 12] and many others). PPP in healthcare are also raised in the articles [9, 20]. These publications reflect most common topics — significance, directions and effects of PPP projects in healthcare and do not consider their specifics and methodological basis and do not help form a system of practical recommendations on the organization of PPP projects in healthcare and their implementation.

In this regard, the purpose of this article is to identify problems and features of the healthcare financing system in Russian regions and determine a role of PPP projects in it. For PPP to become one of the sources of healthcare financing it is crucial to overcome institutional barriers to its implementation. They are the following: a lack of justification of specific areas of PPP application in healthcare, a lack of standard models to form relations among all PPP participants. This article answers these questions.

The development and maintenance of the national healthcare system at a certain quality level are only possible in case of presence of the efficient model to manage the system and financial sources. In case of limited budgetary resources public-private partnership can be one of the options to attract additional funding.

Each country has a specific system to finance healthcare. This is associated with the national mentality and specific conditions for formation and evolution of the society. Historically there appeared 3 major national systems of healthcare funding [13; 21, p. 270]: budget, insurance and private pay.

No country has budget, insurance or private financing system in pure form.

In the Russian Federation the law sets forth the following *funding sources in the healthcare system in terms of providing population with medical care* on a free and paid basis [23]:

• funds of budgets of all levels;

• means of federal and territorial funds of obligatory medical insurance;

• facilities of trust funds intended for health protection of population;

• means of state extra-budgetary funds (the Social Insurance Fund of the Russian Federation, the Pension Fund of the Russian Federation);

• means of voluntary medical insurance;

• revenues from business activity of healthcare organizations, in particular from the provision of paid medical services;

• voluntary contributions and donations of citizens and legal persons;

• other sources not contradicting the RF legislation.

In accordance with the statistical data [10], the first two prevail among the above sources – funds of budgets of all levels and means of federal and territorial funds of obligatory medical insurance. So, in 2014 they together accounted for 2532 billion 700 million rubles, or 16.7% of all expenditures of the RF consolidated budget (including state extra-budgetary funds) on social and cultural activities. The volume of paid services rendered to population in 2014 amounted to 474 billion 432 million rubles or 6.4% of the total volume of paid services provided

to population. So, the budget and insurance systems to finance healthcare are popular in the Russian Federation. At the same time, there is an almost exponential growth in paid medical services to population (*fig. 1*). The accelerated growth, in our view, reflects not only the development of the paid medical services system and growth in its revenues, but also the low quality and availability of medical services rendered by budget institutions of health care.

In addition, the structure of investment in fixed capital in healthcare is an important indicator (*tab. 1*). Most investment accounts for budgetary funds (73.2%). However, the volume of attracted extra-budgetary funds is 14.9%.

The healthcare financing reform initiated in 2006 identified a number of key organizational and economic problems inherent in the current state of Russian healthcare.

Figure 1. Dynamics of paid medical services rendered to population in the Russian Federation (constructed according to [10]), billion rubles
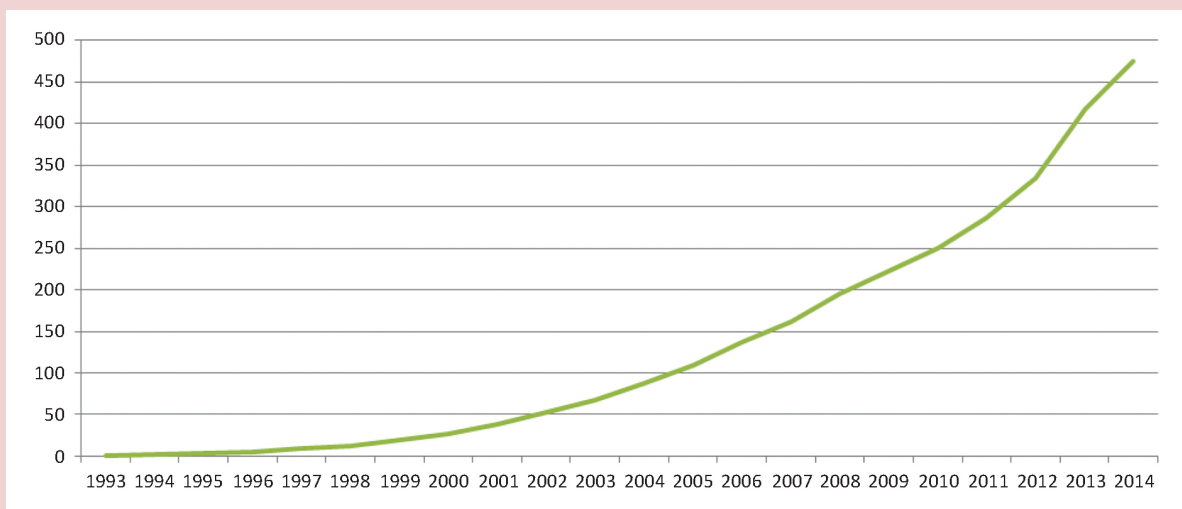
Table 1. Structure of investment in fixed capital by healthcare financing sources
(excluding small businesses and volume of investment not observed by direct statistical methods) [10],
% to the total

Indicator	2005	2010	2011	2012	2013	2014
Investment in fixed capital, total	**100**	**100**	**100**	**100**	**100**	**100**
Including:						
own funds	15.7	7.8	6.8	7.4	7.6	11.9
funds raised	84.3	92.2	93.2	92.6	92.4	88.1
of them budgetary funds	68.7	80.1	82.9	81.9	79.3	73.2
including:						
at the expense of the federal budget	16.4	32.5	29.1	39.3	32.6	31.1
budgets of RF subjetcs	45.4	40.0	44.5	38.3	40.4	38.1
local budgets	6.9	7.6	9.3	4.2	6.3	4.0

This is a discrepancy between state guarantees of free medical care and their financial provision; a poor coordination among the entities involved in the funding of healthcare organizations; maintenance of cost-effective type of sector management, etc. [22]

Reforming the system of healthcare financing, including separation of functions and responsibilities of medical services buyers and producers, introducing contractual relations and boosting competition in the sphere, etc., had an ultimate goal to improve the performance of the healthcare sector. However, it resulted in the division of the public healthcare financing system into 2 subsystems: budget and insurance with common recipients of funds and, thus, subordinate to different and poorly coordinated rules. The compulsory health insurance model was developed to replace the budget financing system and its practical implementation occurred as a supplement and only as a partial replacement of the existing system.

Relying on the realistic approach to the adoption of a medical insurance law and the development of a CHI system, such a system should have been initially designed as additional to the budget financing system and, hence, the necessary regulatory framework — worked out.

It is no coincidence that in 2014 the RF Accounts Chamber revealed a negative trend in the healthcare system optimization (*fig. 2–4*) [4]:

• 33.8 thousand beds are eliminated;

• shortage of doctors accounts to 55.2 thousand people;

• in-hospital mortality increased in 61 regions;

• number of deaths at home rose in 14 regions;

• number of unsuccessful emergency calls grew from 2.1 million in 2013 to 2.25 million in 2014;

• more than 17.5 thousand settlements have no medical aid.

• expenses for the purchase of medical equipment decreased from 37.7 billion rubles in 2013 to 18.62 billion rubles in 2014;

• due to restructuring the payroll increased only by 0.5%.

Figure 2. Dynamics of the number of outpatient and hospital facilities
in the Russian Federation (constructed according to [10])

Number of outpatient medical facilities

Number of hospitals
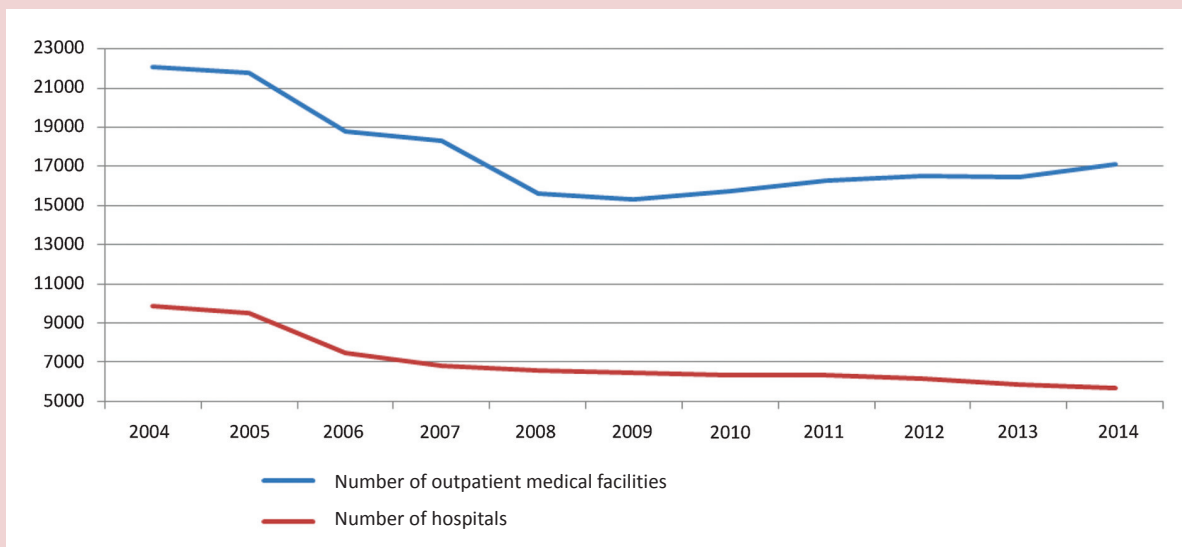
Figure 3. Dynamics of the number of beds in hospitals in the Russian
Federation (constructed according to [10]), thousand
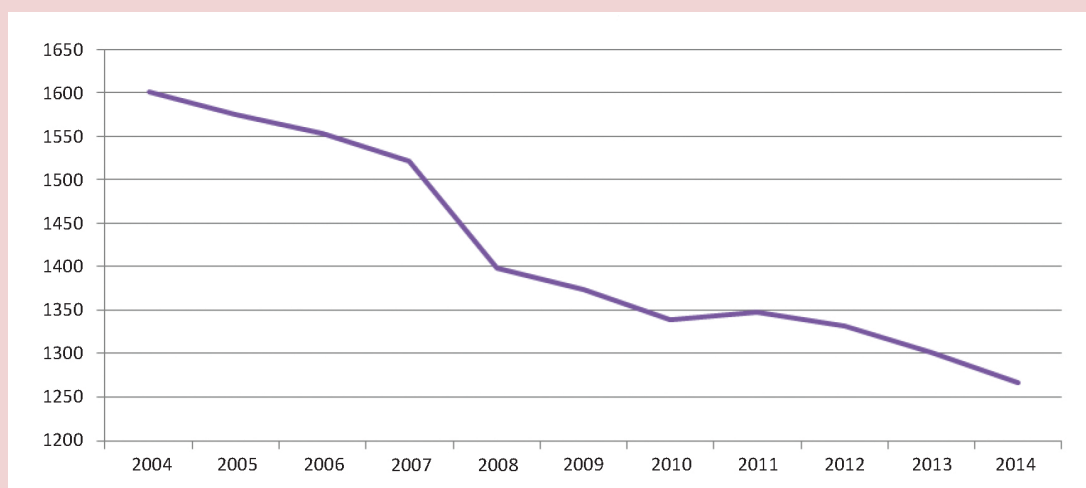
Figure 4. Dynamics of the number of doctors in the Russian Federation
(constructed according to [10]), thousand people
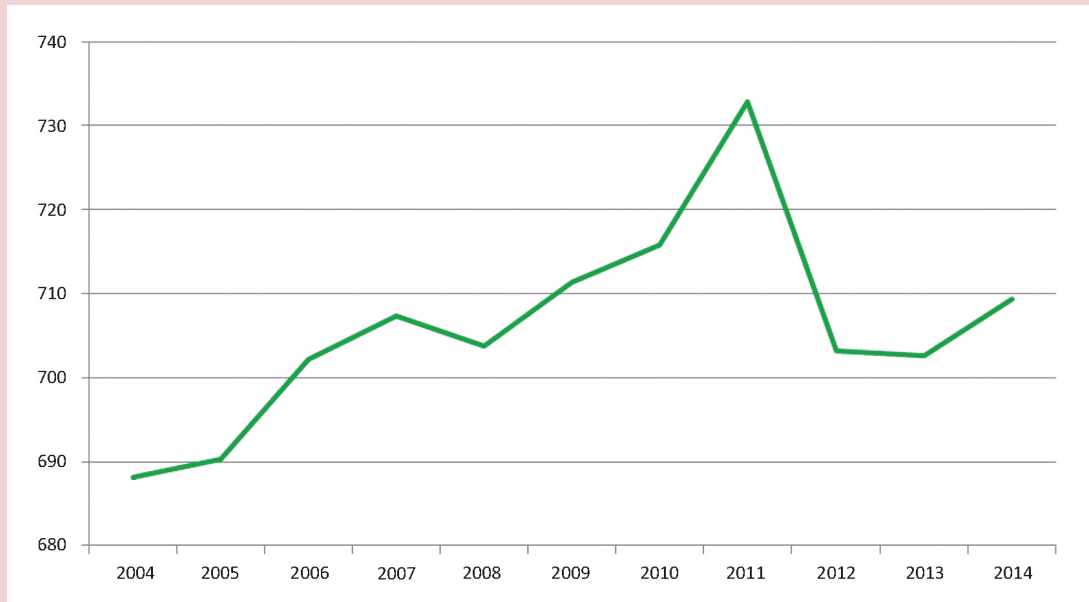
It was assumed that during the transition of healthcare to a market economy, the competition among medical organizations, insurers and other subjects of the medical services market would contribute to improving the quality of care and efficient use of resources. However, the expectations were not met, as the compromise budget and insurance healthcare model established in the period of collapsed economic, political and ethical foundations of the Soviet society and preserved the viability of the system could not become a basis for further development for objective reasons [1]:

1. Unlike a number of Western European countries, where the choice of the insurance system was based on a specific theoretical model, in our country it was a result of lobbying the insurance business without a serious scientific basis.

2. Insurance premiums (either inherent in the structure of unified social tax or charged separately in different periods of inter-budgetary relations) are taxes accumulating in the state extra-budgetary fund, which assets are spent on financing activities of medical organizations. The expenditure of these funds on the reimbursement of expenses for individual articles, fundamentally not different from budget funding, does not meet basic insurance principles.

3. Due to the scarcity of territorial programs for state guarantees in most RF subjects the tariffs for medical services are approved below cost, thus violating normal financial and economic activity of medical organizations.

The stated above shows the need to expand a range of mechanisms to finance the healthcare system. The section "Improvement of the Efficiency of Organization and Management of the Healthcare System in the Russian Federation" of the "Concept for Development of Healthcare in the Russian Federation until 2020" defines the following tasks in the field of **financial policy of Russian healthcare**:

— determine and legislate stable sources to finance the public healthcare system;

— concentrate funds for medical assistance payment under the program of state guarantees mainly in one channel (CHI) and establish a uniform tariff policy;

— increase the efficiency of public expenditure through the introduction of market mechanisms to manage and expand public-private partnership at the level of capital investment in the healthcare system and the provision of medical services under the program of state guarantees (i.e., at the level of providers);

— eliminate illegitimate payments in hospitals.

The solution of these problems will help raise the efficiency of used financial resources in healthcare and the integrated medico-economic and medico-social performance of the sector.

2. Features of PPP projects in healthcare

In most developed countries the interaction between the state and private business is based on public-private partnership [7]. So, in the countries of "Big seven", only 184 of 615 PPP projects in the healthcare sector are being realized, in the UK — 123 of 353. At the same time, the World Bank Report on the results of the reforms in the healthcare sector in Europe [19] makes the following conclusions:

• application of public-private partnership mechanisms in healthcare increases the efficiency of resource use and management;

• private co-financing of medical services, publicly funded, contributes to the creation of financial incentives for raising quality efficiency;

• involvement of the private sector in the social sphere requires tax incentives and statutory safeguards for investors.

Some Russian regions have successful PPP projects, such as the project to provide the emergency medical service with transport services in Perm Krai, the Sverdlovsk Oblast, the Republic of Bashkortostan, and the Kirov Oblast. Private companies render transport services, including delivery of vehicles and their maintenance. For example, Perm Krai has saved about 120 million rubles for the first 5 years of this experiment.

In many RF subjects the dialysis centers are based on PPP principles; there patients with chronic kidney disease can undergo a life-saving procedure of blood purification. In the Rostov Oblast the private medical organization built 5 dialysis centers; their services are paid for through compulsory health insurance, i.e., anyone with insurance can get free treatment. This work results in closed waiting lists for this type of assistance.

The PPP forms can be very different:
• government contracts;
• lease relations;
• financial lease (leasing);
• state-owned enterprises (joint ventures);
• agreement on production sharing (APS);

• concession agreement;

• any mutually beneficial forms of state-business cooperation (for example, use of temporarily available capacities of budgetary institutions, training for healthcare, etc.).

Concession is the most common and legally elaborated form of PPP in healthcare (*tab. 2*). A concession agreement gives an opportunity to extend the life of the project to 49 years, which sets the duration and contributes to the stability of relations between investors and authorities. In addition, it follows from the table data that the PPP projects in healthcare are mainly regional and municipal. On the one hand, this largely facilitates the possibility of concluding agreements on public-private partnership between the investor and the authorities in comparison with federal projects that require coordination of the project with the heads of federal ministries and departments and substantiation of national significance of the project. On the other hand, PPP projects in healthcare often require less funding. For example, the most expensive projects are PPP projects on establishing a dialysis center in the Pskov Oblast (1.2 billion rubles) and the Oblast Medical Rehabilitation Center in the Leningrad Oblast (2.0 billion rubles).

Law 115–FZ "On concession agreements" [17] contains an article devoted to public healthcare facilities. Under such collaboration, the company selected by competition invests funds in the reconstruction and equipment of the facility, becomes its manager for the term stipulated in the agreement and provides medical aid under the compulsory medical insurance system, at the same time receiving

profit off commercial services. But the concession bears certain risk — in the case of a classic concession, the state can lose control of the medical facility. Indeed, according to the Center for PPP Development, since the adoption of the law in 2005, eighteen concession agreements were concluded in Russia [18]. In particular, a hospital in Novosibirsk, the Family Planning Center in Kazan, Clinical Hospital No. 63 in Moscow (which is not functioning due to repair works) — these facilities are now operated as a concession. Twenty-three PPP projects in healthcare are now being implemented in the regions together with concession projects.

The adoption of Federal Law 224-FZ of July 13 "On state-private partnership, municipal-private partnership in the Russian Federation and introducing amendments to certain legislative acts of the Russian Federation" [16] gave a new impetus to the process of attracting private investment into the sector The public partner can be the highest executive body (Russian Federation, Russian Federation subject or municipality) or an authorized body that, as a rule, initiates proposals on PPP and provides the development of all the provisions under the project and concludes an agreement with the private partner. The latter may engage third parties to perform the services (by agreement with the public partner and under the agreements), attract own or borrowed funds to implement direct PPP agreements taking into account the results of the tender procedures, which can involve two or more public partner under the civil contract (agreement) for a period of not less than three years.

Table 2. Characteristics of PPP projects in healthcare in the Russian Federation regions *

No.	PPP project	Region	Project level	PPP form	Implementation stage	Implementation period	Project cost, thousand rubles
1.	Reproductive technology clinic	Vladimir Oblast	Regional	Agreement on public-private partnership	Initiation	5 years	Not settled
2.	Construction of a integrated research center of modern high medical technologies for 150 visits per shift	Republic of Dagestan	Regional	Agreement on public-private partnership	Initiation	3 years	Not settled
3.	Hemodialysis	Pskov Oblast	Regional	Lease contract with investment obligations	Operation	8 years	1,200,000
4.	Modernization and operation of a healthcare facility (sterilization department)	Samara Oblast	Regional	Concession agreement	Pre-investment	9 years	35,000
5.	Oncologic radiology center	Moscow Oblast	Regional	Concession agreement	Investment	-	-
6.	Doctor nearby	Moscow	Regional	Lease contract with investment obligations	Investment	8 years	193,000
7.	Creation of a regional center of medical rehabilitation	Leningrad Oblast	Regional	Concession agreement	Pre-investment	25 years	2,000,000
8.	Development of industrial infrastructure in the sphere of traumatology, orthopedics, neurosurgery and other fields of medicine	Novosibirsk Oblast	Federal	Concession agreement	Pre-investment	15 years	857,000
9.	Reconstruction of a building for the needs of the perinatal center	Republic of Tatarstan	Municipal	Concession agreement	Operation	-	Not settled
10.	Reconstruction and operation of a healthcare facility	Samara Oblast	Regional	Concession agreement	Pre-investment	49 years	352,245
11.	Reconstruction of premises in the dental clinics building	Novosibirsk Oblast	Municipal	Concession agreement	Operation	20 years	7,000
12.	Creation and modernization of real estate objects, intended for the operation of a clinical nutrition organization and the provision of catering services to employees of the state budgetary institution "Samara regional clinical hospital named after M.I. Kalinin"	Samara Oblast	Regional	Concession agreement	Pre-investment	15 years	50,000
13.	Creation of a modern maternity hospital	Novosibirsk Oblast	Municipal	Concession agreement	Operation	25 years	90,000

* Compiled by the author on the basis of data from the Unified information system of state-private partnership in the Russian Federation [8].

An important positive aspect of the new law consists in the fact that all the procedures of selecting a private partner must be conducted in accordance with tender procedures, subject to the requirements of transparency and publicity of pre-tender joint negotiations (meetings) and preparation of minutes of meetings that record the harmonization of substantial proposals of the parties and evaluate their effectiveness.

At the same time, it was expected that under the new Federal Law "About Public-Private Partnership, Municipal-Private Partnership in the Russian Federation" there will be an opportunity for the development of various forms of partnership besides concession [16]. But, unfortunately, the law aims more to regulate the procedures for the conclusion and implementation of a partnership agreement and it does not directly determine the types and forms of partnerships. It is assumed that only the by-law will contain a classifier of PPP forms.

In general, we believe that the fundamental principles of public-private and municipal-private partnership in the health sector, and priority areas for these types of projects should be determined at the federal level. At the regional level, it is possible to adopt regional methodological recommendations on PPP in healthcare that allow the healthcare facility to take concrete steps and implement competent and practical measures for the realization of PPP projects.

Thus, PPP projects in healthcare have the following specific feature that distinguishes them from the projects on the construction of roads and other types of infrastructure: their initiators, along with private investors, are mostly regional and municipal authorities rather than federal authorities. Therefore, unlike other sectors, when shaping a common policy in the sphere of PPP in healthcare, federal authorities base their decisions primarily on the positive experience and proposals developed in the regions already mentioned and also in the Bryansk, Chelyabinsk oblasts, Chuvash Republic and others.

In the framework of PPP, the government must determine the volume and quality of medical services, while reserving the right of ownership of the facility. The private partner, for its part, will receive income in the form of fees for the provision of services under certain risks of project management. It will be possible to implement such a scheme at which the investor will be able to rent and manage ready-made objects provided that he assumes an obligation to equip and use them. Other promising areas include the establishment of mobile health centers for remote settlements, health examinations under the contracts with state clinics, mass screening for cancer, etc.

In addition, the state wants the business to participate mainly in primary healthcare and certain types of high-tech medical aid.

Primary healthcare does not cost much, and it is expected that in the near future up to 15% of the institutions providing medical care under the obligatory medical insurance program will be private. Regions experience a shortage of certain types of high-tech medical aid such as the centers for hemodialysis, radiation therapy, and centralized laboratories for costly research; so, PPP can be focused on the development of these areas.

The state will determine priorities for PPP development, based on the needs of population in medical care and the state's ability to provide it. I.e. the state makes an order for the quantity, quality and frequency of provision of services, sets the tariffs, and concludes a long-term contract; as for private business, it does everything in order to fulfill these requirements. Currently, according to estimates of the Ministry of Healthcare, the need for private investment can range from 300 billion to one trillion rubles. In this case, there is no clear understanding of the directions and number of contracts that the state may conclude with private organizations.

In addition, in the framework of the public-private partnership project, there exist the following significant risks for the potential investor:

— long process of project implementation, low level of trust in private business in the field of healthcare;

— unexpected increase in investments that do not correlate with the term of the agreement;

— absence or incomplete provision of the services planned.

3. Methodological basis of PPP in health care

The above issues demonstrate the importance of methodological substantiation of possible directions and mechanisms of PPP in the health sector. When studying the issues of funding in health services, it is important to consider the latter not only from the standpoint of the result but the entire process of their creation and implementation. In this case, **the concept of the life cycle of the service** is most suitable. In the literature, the lifecycle of services is considered mainly from the marketing point. So, according to P. Kotler, the life cycle of the service is the period since the release of the service into the market until its withdrawal from the market [24]. At the same time, the national standard GOST R 52113-2003 "Services provided to the public. Nomenclature of quality indicators" provides for the following stages of the life cycle **for comprehensive material services** – according to GOST R ISO 9001 [6]:

• marketing, search for markets, analyzing the state of the markets;

• development of technical requirements, product designing;

• logistics of production;

• technological preparation of production, development of technological processes;

• manufacturing processes;

• implementation of control, acceptance and other tests;

• packaging, labelling and storage of final products;

• distribution, transportation and sales of products;

• installation and operation;

• technical assistance services;

• disposal after the expiry of the maintenance and usage period.

For all other types of services it is proposed to use the following life cycle stages:

• provision of information on the services provided by the consumer;

• acceptance of the order;

• quality control of order execution;

• issuance of the order to the consumer.

As applied to medical services, the life cycle stages are presented in *Table 3*.

Table 3. Specification of the life cycle stages of medical services in accordance
with GOST R ISO 9001 and GOST R 52113-2003 [3, 6]

GOST R ISO 9001	GOST R 52113-2003	Medical services
Marketing, search for markets, analyzing the state of the markets	-	Analysis of the services market
Development of technical requirements, product designing	-	Development of sanitary-hygienic and technical requirements
Logistics of production	-	Provision of the service with material and technological support
Technological preparation of production, development of technological processes	-	Engineering of the technological process of the service (treatment algorithm)
-	Provision of information on the services	Provision of information on the services
-	Acceptance of the order	Receiving the patient upon the appointment with the doctor
Manufacturing processes	-	Treatment process, the process of carrying out therapeutic or wellness treatments
implementation of control, acceptance and other tests	Quality control of order execution	Control examination
Packageng, labelling and storage of final products	-	-
Distribution, transportation and sales of products	Issuance of the order to the consumer	Dismissal of the patient
Installation and operation	-	-
Technical assistance services	-	-
Disposal after the expiry of the maintenance and usage period	-	-

In our opinion, to assess the possibility of using PPP in healthcare it is important to highlight the stages of the life cycle of creating and implementing a high-tech medical service from the standpoint of different objects of financing. In this case, it is possible to allocate the following stages:

— funding the creation of material and technical infrastructure for the provision of the medical services(creation of fixed assets in the form of building, reconstruction of existing facilities);

— funding the purchase and installation of equipment for the provision of the medical service and information support of its work and of the process of providing the medical service;

— financing the work of the infrastructure (hotels, meals, etc.) necessary for the effective provision of the medical service.

In this case, PPP options in healthcare, in our opinion, are extensive enough, even on the basis of one form — a concession agreement *(tab. 4)*.

Table 4. Options for PPP in the health sector (the feasibility of application is highlighted in blue)*

Types of private business activities	Areas of cooperation between the state and private business		
	construction	equipment/IT	infrastructure management
Outsourcing of certain functions	▓ (partial)	▓	▓ (partial)
Equipment, real estate management		▓	▓
Construction, equipment	▓	▓	
Designing, construction, equipping, management	▓	▓	▓
Designing, construction, equipping, management	▓		▓
* Compiled by the author.			

4. The concession agreement model

As it was mentioned above, in our opinion, the role of regional authorities is to develop and adopt regional methodological recommendations on PPP in healthcare, allowing the healthcare facility to take concrete steps and implement competent and practical measures for the implementation of PPP projects. Possible models of PPP projects can be the elements of methodological recommendations. Based on our own experience, we propose a possible model of concession agreement in healthcare *(fig. 5)*. This model largely eliminates the risks to existing concession agreements. In particular, the right of ownership of the healthcare facility where the PPP project is implemented remains with the region. The concessionaire has the right to provide the population with paid medical services in addition to free services based on the agreement for the provision and payment of medical aid under the obligatory medical insurance concluded with the Territorial Fund of Obligatory Medical Insurance. Thus, under this model, budget and private investment in health facilities in the region and the possibility of providing medical services to all segments of the population are stimulated at the same time.

Due to the fact that many parties with different interests participate in this model, it is very important that the contractual relations between all participants of the PPP should be based on a unified ideology and strategy of healthcare development in the territory. We have shown in several papers [14, 15] that in a market environment the coordinated development of independent organizations of different ownership forms is possible on the basis of cluster development. Therefore, an effective application of PPP is possible in the cluster approach to the organization of healthcare, where the role of all stakeholders (public, private, business and government) is very important in organizing effective work of healthcare in a particular area.

Currently, this approach is actively implemented in the practice of healthcare in developed countries (USA, UK, Finland, Denmark [25, 26]), and it increases the efficiency of the industry as a whole. In the

Figure 5. Model of a concession agreement in healthcare in the region

- financing
- designing
- reconstruction and equipping
- usage and maintenance

- land plot
- real estate objects
- capital grant and the fee
of the concession grantor

Concession
agreement (CA) +
Rent agreement

Creation of the object of
CA, use of the facility
during the term of CA

The right of ownership
of the object

Concession holder

Healthcare facility

Concession grantor (reigon)

Payment under the OMI
(Contract for the
provision of medical aid
and payment for medical
care under OMI)

Payment
for
chargeabl
e services

Consumers

Insurance companies

Territorial fund for OMI

Obligatory
medical
insurance
(OMI)
certificates

OMI funds (Agreement on
financial support of OMI)

Russian healthcare, the cluster approach is not applied due to lack of knowledge and awareness by representatives of medical organizations and public authorities.

The author's model of healthcare management based on the cluster approach involves:

1. Territorial proximity of all the participants in the provision of medical services: patients, medical facilities (from clinics to hospitals), infrastructure companies, suppliers, insurance and financial companies, territorial funds of obligatory medical insurance, bodies of regional and municipal authorities, etc. A more close localization of all of the participants helps identify more efficiently the needs of the population of a specific territory in the nature and volume of medical care and a more economical use of resources.

2. Maintaining self-financing of the cluster through the management of financial flows of different origin, including on the basis of the decrease in the total costs due to the formation of collective use centers.

3. Self-organization through the establishment of the coordinating council of the cluster responsible for the establishment of unified goals, objectives and allocation of responsibilities between all the members of the cluster.

The health cluster in the region (or the medical cluster) brings together on a voluntary basis legally independent organizations that are interested in improving the quality and increasing the availability of medical services for the population. These organizations can be medical institutions of various forms of ownership located in the region, hospitals, infrastructure, medical training institutions, territorial obligatory medical insurance fund, insurers, and non-governmental organizations. The main task in the formation of the medical cluster is **to organize interaction and communication** between all its actors in the interests of overall healthcare development in the region and implementation of their own interests. The result of this interaction can be PPP projects, creation of common competence centers, formation of a unified database and more. Organization of interaction of all participants within the cluster can be carried out by the coordinating council that unites the heads of participant organizations in the cluster. Thus, the cluster as an organizational form creates a "shell", an environment, the possibility of "contact" for the emergence of PPP projects. In the framework of cluster relations, there can be not one but several PPP projects.

5. Conclusion

The study considered in the paper has shown the following.

1. The imperfection of the system of healthcare financing in the Russian Federation resulted in many negative trends in this sector: shortage of doctors, hospital mortality increase, sharp reduction in the number of settlements in which medical care is provided, reduction of investment attractiveness of the sector.

2. Public-private partnership at the level of capital investment in healthcare facilities and the provision of medical services is declared as one of the priority directions of the state financial policy in the healthcare of the Russian Federation aimed to increase the efficiency of using public funds through the introduction of market mechanisms of management.

3. A feature of the PPP projects in healthcare that distinguishes them from the projects for the construction of roads and other infrastructure consists in the fact that their initiators along with private investors are mostly not the federal hut regional and municipal authorities. Therefore, unlike other sectors, when forming a common policy in the sphere of PPP in healthcare, federal authorities should focus primarily on the positive experience and proposals developed in the regions.

4. The life cycle concept of services can be the methodological basis of the state policy in the selection of priority objects for PPP in the healthcare sector, because on the basis of this concept it is possible to substantiate the types of objects of financing that correspond to the stages of the life cycle of creating and implementing high-tech medical services.

5. Simultaneously with the task of efficient implementation of PPP in the health sector of the Russian Federation, it is necessary to develop the management approach based on clusters, which is relatively new in the health sector.

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PUBLIC FINANCE

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Regional Budget–2016: Priorities do not Change

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Abstract. The budgets of all levels of the Russian Federation for 2016 were drawn up in conditions of the systemic social and economic crisis in the country, the worsened foreign situation, connected with the instability of commodity markets and the strengthening of anti-Russian sanctions. These factors prompted the Russian Government to abandon the practice of three-year budget planning and return to a one-year budget. The results of the budget process show that the pressure on sub-federal budgets continues to grow. According to the ISEDT RAS calculations, 76 of the 85 regions had a deficit budget in 2015, in 60 regions the real income tax payments decreased and the debt burden exceeded 50% of their own revenues. Unfortunately, the Russian Government did not propose any measures to address the budget crisis of regions observed since 2012. On the contrary, the primacy of inter-budgetary cooperation was to shift social obligations from the state to the RF subjects and replace grant financial support of these commitments by budgetary loans. The article presents the results of analysis of the law on the Vologda Oblast regional budget for 2016 [5]. The main objective of the analysis was to identify how the main financial law is aimed at solving the tasks of socio-economic development of the region. The main conclusion of the study is that the budget for 2016 saves the construction of latter budgets and is focused not on creating the conditions for economic growth, but on achieving the balance set by the Ministry of Finance of the Russian Federation by reducing all expenditures. The social result of such policy in 2016 will be the following: a sharp decline in consumer demand and living standards of the population. Despite the Vologda Oblast Government's efforts to replace commercial loans by credits from the federal budget, the debt structure is still dominated by credits in commercial banks, indicating the ostensible effectiveness of the RF Ministry of Finance's policy of debt financing of RF subjects in stead of allocation of adequate financial aid in the form of transfers. In

our opinion, to change the situation with the regional finance crisis is only possible by radical amendment of fiscal legislation. The article proposes the primary measures in this direction.

Key words: budget planning, regional budget, deficit, loans, debt load, amendment of tax and budget legislation.

In 2015 on the background of a nearly two-fold reduction in oil prices the Russian economy demonstrated a 3.7% fall in spite of a 1.2% forecast growth. The deterioration of the macroeconomic situation led to the repeated consideration of forecasts for socio-economic development and, accordingly, parameters of the federal budget. As a result, the forecast for a GDP growth in 2016 was decreased from 2.3 to 0.7%, while the federal

budget revenues – from 19 to 17.5% in GDP (*fig. 1*). In 2016 the Ministry of Economic Development of the Russian Federation [9] predicts a further fall in oil prices, a key source of receipts to the federal budget and, therefore, a rise in risks of destabilization of budgets of other levels, especially regional ones. In these conditions the Russian Government refused to work out 3-year budget plans and returned to 1-year plans.

Figure 1. Index of physical volume of GDP, federal budget revenues and oil prices in 2008–2016
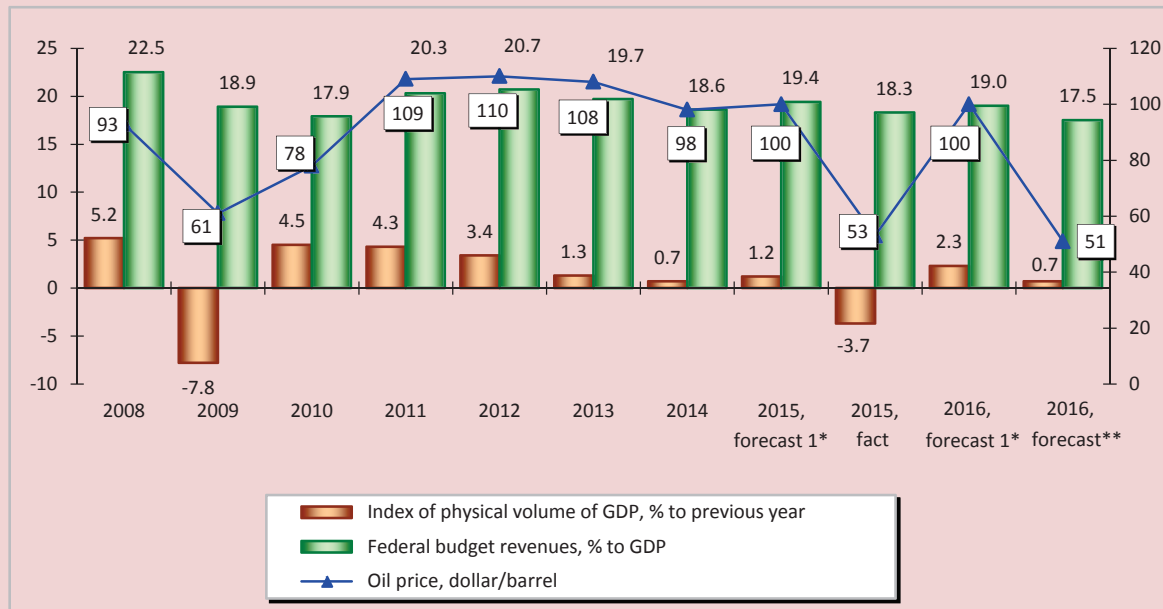
* Federal law "On the federal budget for 2015 and the planning period for 2016 and 2017" of December 1, 2014 No. 384-FZ.

** Federal law "On the federal budget for 2016" of December 14, 2015, No. 359-FZ.

The socio-economic development of the Vologda Oblast in 2015 reflects national trends and is characterized by the rate of decline in almost all macroeconomic indicators with priority inflation rates (*tab. 1*).

The forecast of the Vologda Oblast Government [14] shows that the regional economy growth rate in 2016 will lag behind the national average; this, of course, will be reflected in the key fiscal parameters, although at first glance they appear to be optimistic: revenues will increase by 3.7 billion rubles, the surplus will amount to 4 billion rubles (*fig. 2*).

The parameters of the regional budget, approved for a 3-year period a year ago (*fig. 3*), also seemed rather optimistic.

Table 1. Main macroeconomic indicators of the Russian Federation
and the Vologda Oblast in 2014–2016, in comparable prices, % to the previous year

Indicators	2014, fact		2015, fact		2016, forecast	
	RF	Oblast	RF	Oblast	RF	Oblast
GRP	100.6	103.0	96.2	98.5	100.7	100.3
Industrial production index	101.7	103.7	96.6	101.8	100.6	100.0
Investment in fixed capital	97.3	99.0	90.1	90.4	98.4	106.4
Retail trade turnover	102.5	102.0	91.5	92.5	100.4	95.7
Real monetary incomes of the population	99.2	102.4	96.0	98.4	99.3	100.2
Real wages	101.3	98.3	90.5	89.1	99.8	90.7
Consumer price index	111.4	112.0	112.9	112.0	106.4	111.7

Figure 2. Main parameters of the regional budget of the Vologda Oblast
in 2014–2016, million rubles
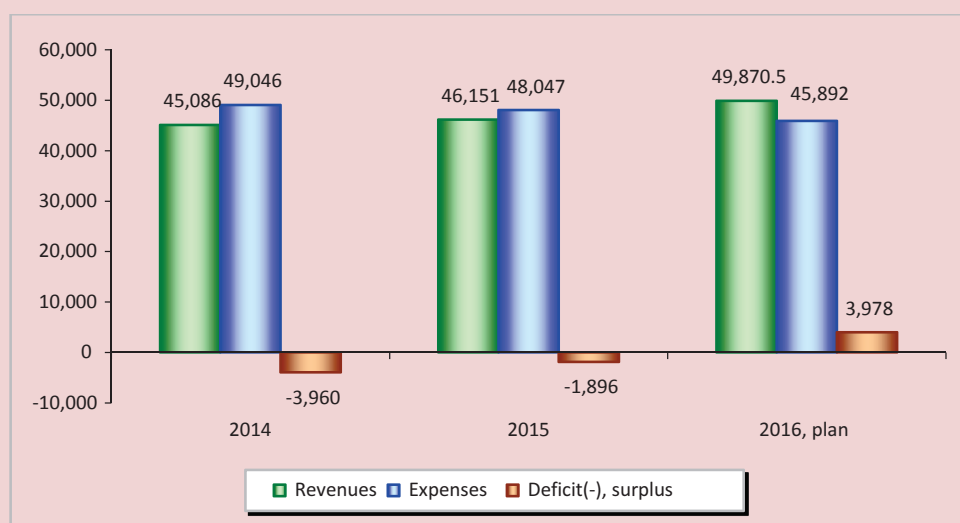
Figure 3. Main parameters of the regional budget of the Vologda Oblast in 2015–2016, million rubles
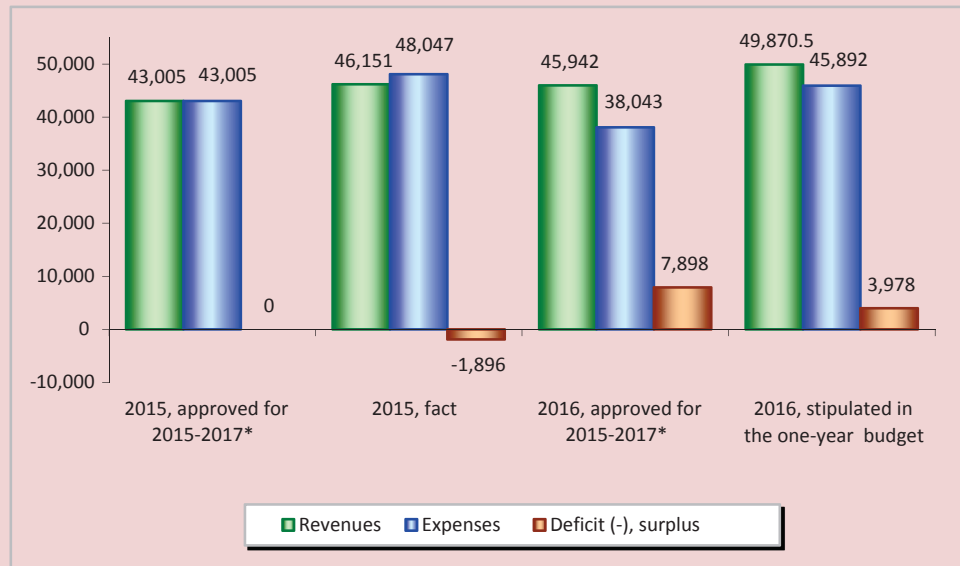
* The first version of the law of the Vologda Oblast "On the regional budget for 2015 and the planning period for 2016 and 2017" of December 22, 2014, No. 3532-OZ.

According to the regional authorities' initial plans, the 2015 budget was to be balanced and at the end of the following year the substantial surplus in the amount of 7.9 billion rubles was expected. However, in 2015 there was a different scenario for the budget execution – instead of balance there was deficit in the amount of 1.9 billion rubles. Thus, when setting the budget for 2016 the government adjusted revenues and expenditures upward and reduced the surplus by half.

By analogy with the Federation an annual budget was adopted in most regions[1], including the Vologda Oblast that has used a 3-year

plan since 2011. The actual budget execution showed the inconsistency of such practices. This is evidenced by the comparison of planned parameters for the same years in the related 3-year periods and actual figures (*tab. 2*).

Although, according to the first 3-year budget, in 2011 a 4 billion ruble deficit was expected, it actually was by 3.2 billion rubles higher. The budget for the same year of 2012 in the related 3-year periods had both surplus and deficit. The expected surplus in 2013 and 2014 in the three-year budgets differed by one and a half times, while in the latter case the budgets for these years were approved with a deficit, with a value significantly lower than the actually received amount. The 2015 budget

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[1] In the Northwestern Federal District the three-year budget for 2016–2018 was adopted in the Komi Republic, the Leningrad Oblast and Saint Petersburg.

Table 2. Dynamics in the results of execution of the Vologda Oblast regional budget*
in the three-year budgets

Three-year budget	2011	2012	2013	2014	2015	2016
Adopted						
2011–2013	-3,991	2,339	3,256			
2012–2014		-4,430	4,838	4,930		
2013–2015			-1,168	3,215	5,659	
2014–2016				-3,212	-2,015	-1,486
2015–2017					0	7,898
2016						3,978
Actual outcome	-7,177	-2,815	-3,953	-3,960	-1,896	x
* deficit (-), surplus.						

Table 3. Macroeconomic indicators of the Vologda Oblast in 2014–2016,
in comparable prices, % to the previous year

Indicators	2014			2015			2016, forecast
	Forecast	Fact	+, - p.p.	Forecast	Fact	+, - p.p.	
GRP	102.5	100.5	-2.0	102.7	98.5	-4.2	100.3
Investment in fixed capital	104.6	99.0	-5.6	118.0	90.4	-36.2	106.4
Retail trade turnover	104.8	102.0	-2.8	100.4	92.5	-7.9	95.7
Real monetary incomes of the population	102.4	102.4	0	102.1	98.4	-0.6	100.2
Real wages	103.0	98.3	-4.7	98.5	89.1	-9.4	90.7
Own revenues of the budget*	111.6	115.5	+3.9	103.5	101.3	-2.2	120.9
* In current prices. Sources: data of the forecasts for social and economic development of the Vologda Oblast for 2014–2016, 2015–2017, 2016–2018; data of the Vologda Oblast laws on the regional budget for 2013–2015, 2014–2016, 2015–2017, 2016; the author's calculations.							

was drawn up in various scenarios: in the calculations for 2013–2015 it was surplus, in the following adjacent period for 2014–2016 — deficit and in the last 3-year period (2015–2017) — totally balanced.

The regional budget for 2016, declared as surplus, has the same shortcomings of budget planning as in previous years. The budget execution experience in 2012–2015 showed a simulation of the planned surplus. There could be no other scenario, as the budget plans were not tied to macroeconomic forecasts and, therefore, the economic provision of the budget revenue side was not considered (*tab. 3*).

As evidenced by these tables, the planned growth of the revenue base for 2014 and 2015 exceeded the growth rate of the forecasted macroeconomic indicators. The actual results of the region's socio-economic development differed much from the forecasted. The outrunning growth in own revenues in 2014 was caused not by reproductive factors, but by favorable pricing environment on the markets of ferrous metals and chemical fertilizers, change in normative standards of PIT deductions to the regional budget, and the phased abolition of privileges on property tax of natural monopolies.

The assessment of target parameters of the revenue part of the 2016 regional budget reveals that the government has not considered the flaws of socio-economic forecasting and budget planning. Otherwise, how else we can justify the 21% growth in own revenue sources provided for in the budget on the background of forecasted minimum growth rates of macroeconomic indicators.

According to our calculations adjusted for projected inflation, neither cumulative nor own revenues of the regional budget will reach the pre-crisis trajectory, comprising 73% in relation to the 2008 level (*fig. 4*).

According to the forecasts, in the regions of the Northwestern Federal District, except the Vologda Oblast, own revenues will be lower than in 2008 only in the Republic of Karelia and Saint Petersburg (*fig. 5*).

In current prices, as already mentioned, the substantial increase in own revenues of the Vologda Oblast regional budget is planned − 7.4 billion rubles. At the same time, more than 60% of the growth is to be provided at the expense of increased profit tax (*tab. 4*).

The rise in profit tax should be based on high growth rates of a key source of the tax base − profit of economic entities. However, according to the regional government's forecast, profit of organizations without regard to chemical and metallurgical production in 2016 will increase by only 3.3% and will amount to 12.4 billion rubles. By most rough calculations 2.2 billion rubles of profit tax can be received from this amount.

In our view, the budget projections regarding profit tax are very controversial and raise some doubts.

Figure 4. Dynamics of real revenues of the Vologda Oblast regional budget in 2009–2016, billion rubles (2008 prices)
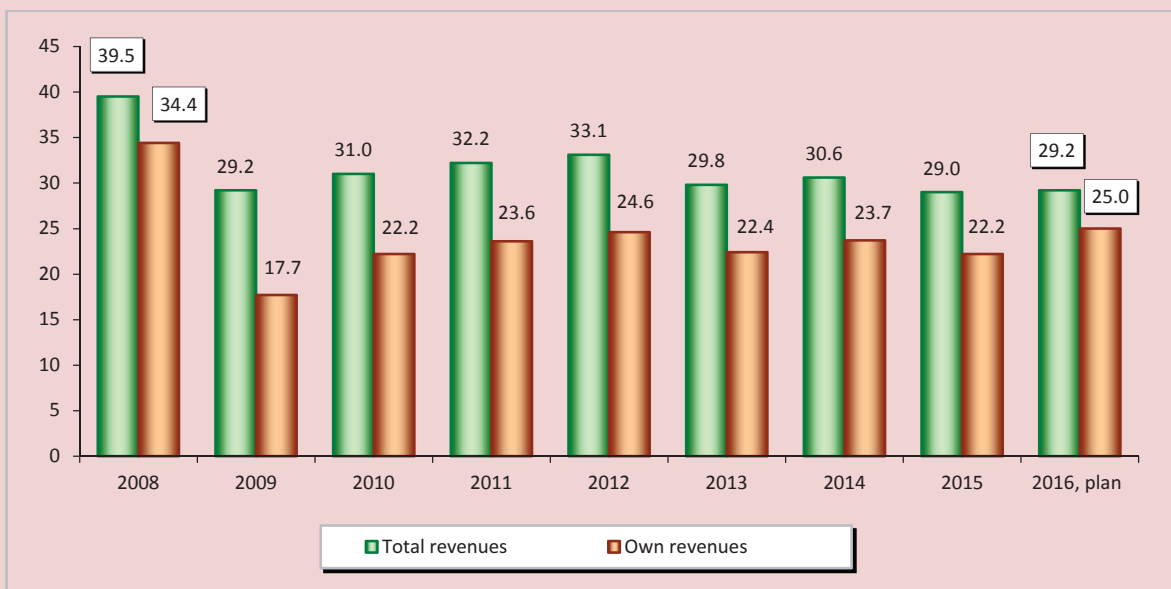
Figure 5. Forecasted growth rate of regional budgets' real own revenues
in the Northwestern Federal District in 2016, % to 2008
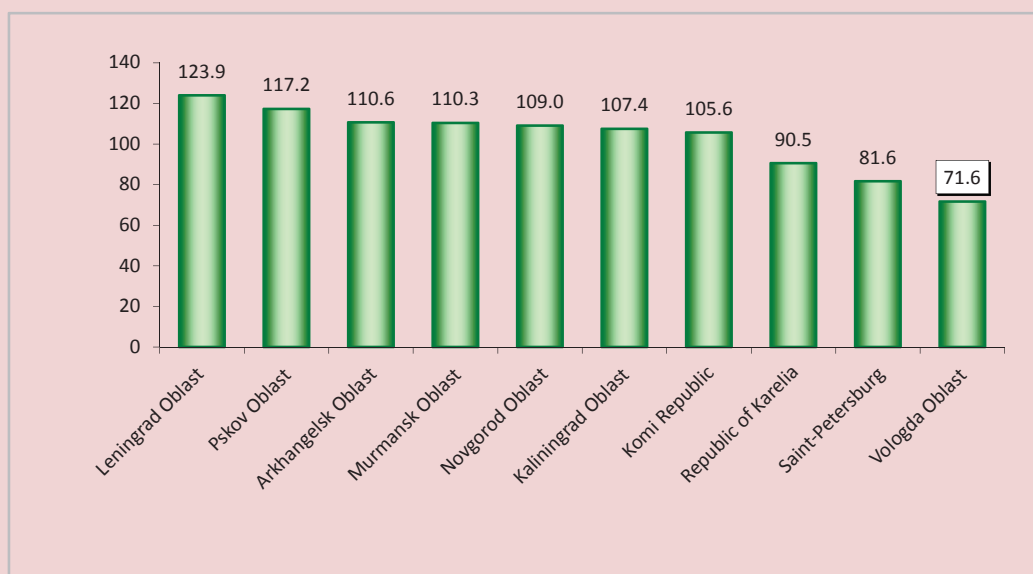
Sources: laws of the NWFD subjects on the regional budget for 2016, the author's calculations.

Table 4. Receipt of own revenues to the Vologda Oblast regional budget in 2014–2016

Revenues	2014, fact		2015, fact		2016, plan		
	Billion rubles	To 2013, %	Billion rubles	To 2014, %	Billion rubles	To 2015	
						billion rubles	%
Own revenues, total	34.96	115.5	35.4	101.3	42.8	+7.4	120.8
Tax revenues	33.6	118.7	34.1	101.3	41.4	+7.3	121.5
- personal income tax	12.1	114.9	11.2	93.1	12.7	+1.5	113.2
- *profit tax*	*7.6*	*127.3*	*6.5*	*86.4*	*11.1*	*+4.6*	*169.5*
- property taxes	8.2	112.4	9.7	117.9	10.3	+0.6	106.7
- excise taxes	4.1	107.1	4.8	117.1	5.6	+0.8	117.6
- lumpsum tax	1.65	229.4	1.7	104.5	1.4	-0.3	79.3
Non-tax revenues	1.3	68.4	1.33	100.4	1.4	+0.03	105.2

First, when planning a significant increase in tax charges, the regional authorities expect increased payments from the largest holdings of metallurgical and chemical industry – PAO Severstal and OJSC "FosAgro-Cherepovets". It is expected that profit tax revenues from these taxpayers will be 5.6 billion rubles; however, this figure has received no substantiation in the documents submitted by the government to the Legislative Assembly together with the budget bill for 2016.

Second, the dynamics of profit tax receipts from the metallurgical and chemical industry in 2015 indicates the possibility of not

Figure 6. Dynamics of profit tax receipts to the Vologda Oblast regional budget
from chemical and metallurgical production in 2015, million rubles
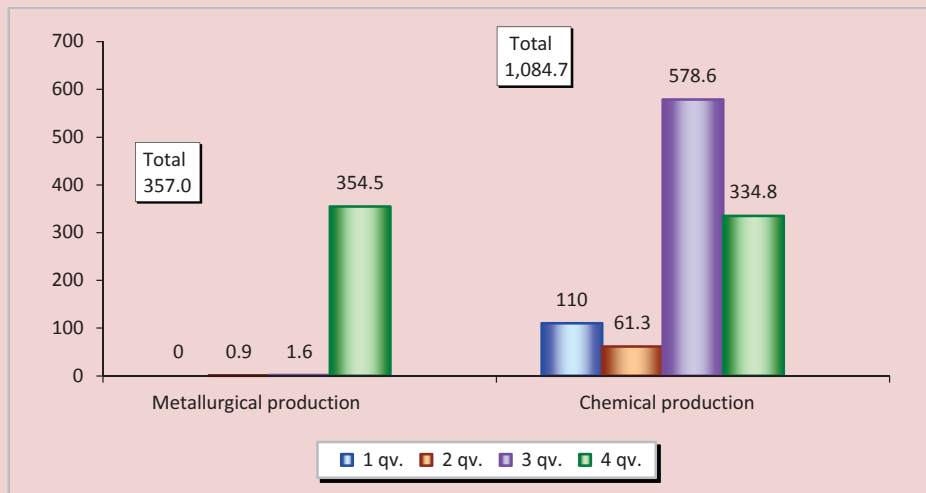
achieving the planned values. According to the Federal Tax Service in the Vologda Oblast [10], the actual payments from enterprises of the chemical industry totaled 1.1 billion rubles and of the steel – 0.4 billion rubles (*fig. 6*).

Third, relying on the significant increase in the role of chemical and metallurgical enterprises in the mobilization of profit tax charges, the regional government has not considered these industries as a factor to influence receipts since 2014, as the revenue forecast does not include indicators of PAO Severstal and OJSC "FosAgro-Cherepovets".

However, it would be unfair to blame only regional authorities for bad planning. In accordance with the current legislation the tax inspections are not required to provide the RF subjects authorities with the information on the activities of certain taxpayers[2], especially the largest ones, administered by the interregional inspectorates located in Moscow; it hampers

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[2] Article 102 of the Tax Code of the Russian Federation.

full-fledged planning of budget indicators and, hence, revenues of the regional budget.

Let us add that the 7.4% increase in PIT envisaged in the regional budget is not consistent with the expected levels of population's income (*fig. 7*).

So, already in 2014 increasing inflation prompted a 1.7% fall in the growth rate of real wages, accelerated to 11% in the following year. According to the forecasts, in 2016 the deceleration of inflation process will be unobtrusive, real incomes will not grow practically, and real wages will decrease by 9.3%. Such a deep reduction in the main source of monetary income has not been recorded since 1999.

The dynamics of the indicator of average monthly nominal wages does not look promising as well. In 2016 it will grow only by 3.4%, which is almost by 4 times lower than the planned rise in personal income tax levies (*tab. 5*). Against the backdrop of growing

Figure 7. Dynamics of growth rates of real wages, real monetary income and the consumer price index in the Vologda Oblast in 2009–2016, %
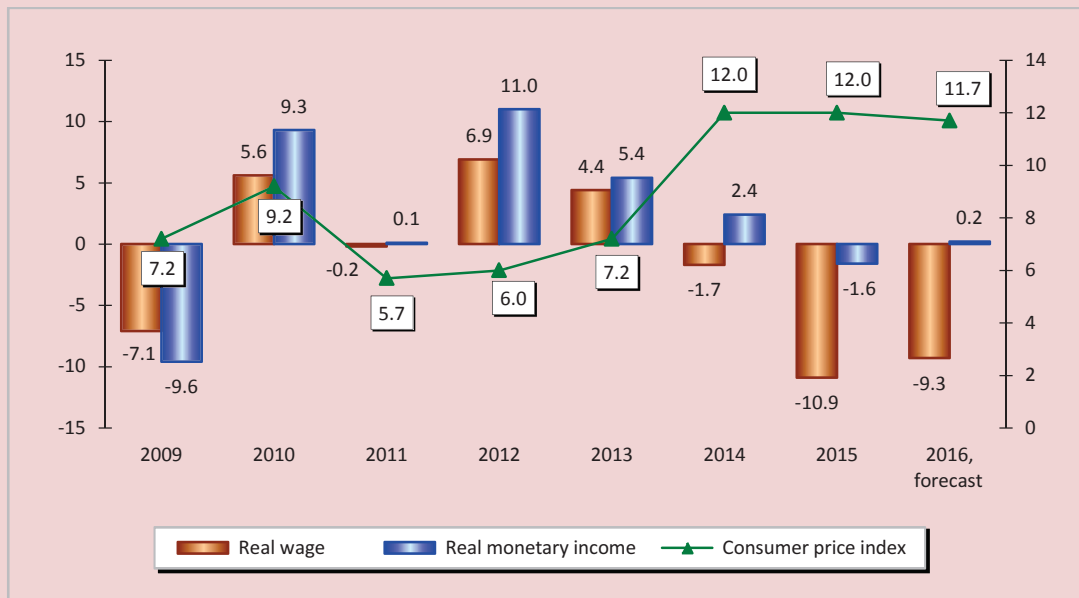
Table 5. Dynamics of gross nominal average wage, rubles per employee

Indicators	2011	2012	2013	2014	2015	2016, plan
Russian Federation	23,369	26,629	29,792	32,495	33,981	36,838
Vologda Oblast	20,250	22,649	25,127	26,749	27,287	28,224
Growth rate, %	*109.2*	*111.8*	*110.9*	*106.5*	*102.0*	*103.4*
Gap in average wages between the Vologda Oblast and the Russian Federation						
Rubles	-3,119	-3,980	-4,665	-5,746	-6,694	-8,614
%	13.3	14.9	15.7	17.7	19.7	23.4
Subsidies from the federal budget, million rubles	738	1,333	821	1,542	2,144	2,525
Sources: data of the Federal State Statistics Service of the Russian Federation [12]; the Federal Treasury [11]; the forecasts for socio-economic development of the Russian Federation and the Vologda Oblast for 2016–2018; author's calculations.						

subsidization of the regional budget we can observe steady widening of the gap between a wage level in the region and in the country; it highlights weakening of the regional economy, accompanied by the increased dependence on the federal center.

Thus, the planned growth of revenue from two key revenue sources of the regional budget without proper analysis of the factors contributing to this rise is hypothetical and carries a risk of revenue leakage.

The budgetary policy in terms of expenditure is focused on optimization, which has already become a norm. In 2016 the expenditure side of the budget will be lower than in 2011. Relative to the 2015 level, the expenditures will go down by 2.2 billion rubles, or 4.5% (*fig. 8*).

Figure 8. Expenses of the Vologda Oblast regional budget in 2011–2016, million rubles
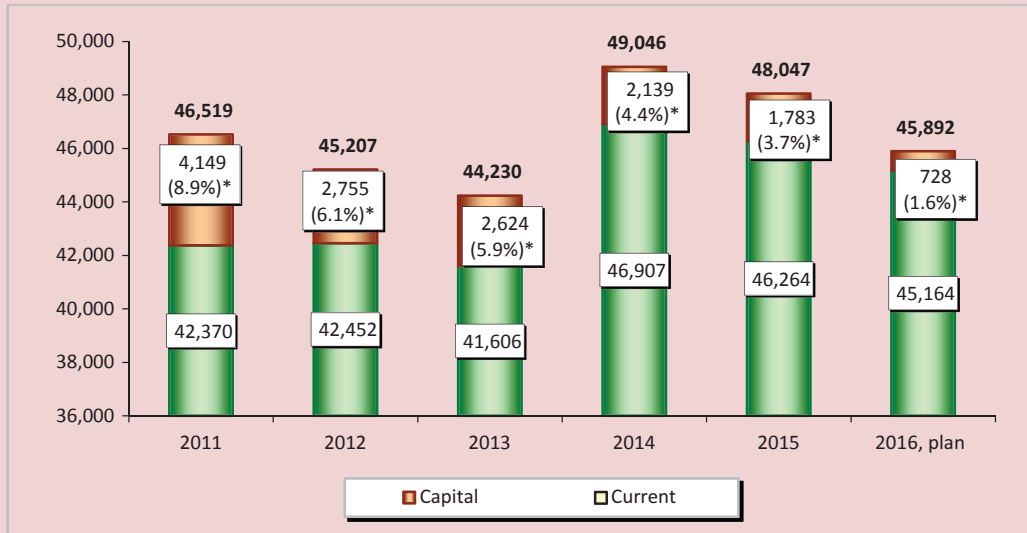
* In brackets the share of capital expenditure in the total budget expenditure.

The need to implement the tasks set in the so-called May Decrees of the President of the Russian Federation[3], complicated by the region's high debt load, forces the local government to minimize spending, primarily at the expense of capital investment. In 2016 budget investment in the construction of state and municipal property objects will amount to 0.7 billion rubles as compared to 4.1 billion rubles in 2011, i.e. it is almost a six-fold decline. In other words, less than 2% of the expenditures is directed for development and almost the entire budget will be used for current needs and loan servicing.

The data presented in *Table 6* shows that in 2014 the sequester did not affect the budgeting of the social sector, with the

exception of sport events, in 2015 the financial support of education and culture was reduced significantly, in 2016 all social spending will be decreased.

Optimization will involve key budget expenditures, except for national issues, which funding will go up by 10.2% due to the forthcoming elections of deputies of the Legislative Assembly of the region.

The decline in the state support for sectors of the national economy will be most remarkable – 10.4% to the 2015 level. It is no coincidence, since the budgetary policy [6] is aimed not at financial provision of economic development, but at ensuring a balanced regional budget. Of 10.8 billion rubles included into budget for the May Decrees implementation in 2016, only 65.4 million rubles, or 0.6%, will be directed for the

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[3] Presidential decrees of May 7, 2012. No. 594-606.

Table 6. Dynamics of the key budget expenditures in the Vologda Oblast in 2014–2016, million rubles

Expenditures	2014, fact		2015, fact		2016, plan	
	Billion rubles	To 2013, %	Billion rubles	To 2014, %	Billion rubles	To 2015, %
Total	49,046	110.9	48,047	98.0	45,892	95.5
National issues	2,330	121.9	2,193	94.1	2,416	110.2
National economy	**9,020**	**98.3**	**8,293**	**91.9**	**7,432**	**89.6**
Housing and public utilities	947	112.8	1,647	173.9	1,583	96.1
Social services	**32,789**	**113.8**	**32,055**	**97.8**	**30,547**	**95.3**
education	13,381	130.8	11,095	82.9	10,707	96.5
culture	767	147.0	573	74.7	537	93.7
- healthcare	7,717	102.7	8,150	105.6	7,947	97.5
- social policy	10,661	107.0	11,821	110.9	11,217	94.9
- physical culture and sports	263	60.3	416.0	157.7	139	33.3

realization of the Decree No. 596 "On long-term state economic policy" and over 80% of the funds will be used to increase public sector wages. Meanwhile, despite the fulfilment of obligations to raise salaries of budgetary institution employees, the growth rates of real monetary incomes of the population fall; thus, it is not possible to reduce poverty in the region: the proportion of population with incomes below subsistence minimum increased to 15.2% in 2015 against 12.9% in 2014, and in 2016 it will reach 15.6%.

So, with the deterioration of current and projected dynamics of all economic indicators the regional budget for 2016 is considered as surplus. The task to achieve a surplus will be solved in two ways. The first hard way is to raise own revenues, which is possible only under condition of significant replenishment of the regional treasury by profit tax received from the metallurgical and chemical corporations in the event of favorable market conditions. The second easy way is to cut spending.

Such an approach to the regional budget formation is not connected with the regional authorities' will, but is dictated by the Ministry of Finance. The fact is that in 2014 the Vologda Oblast Government signed an agreement with the Ministry of Finance of the Russian Federation on granting financial support to the regional budget in the form of a budgetary loan to repay loan debt of credit institutions. The substitution mechanism proposed by the Ministry is extremely tough: the regional authorities should ensure gradual reduction in government debt under marketable obligation up to 50% of own revenues till January 1, 2017, thus resulting in setting a surplus budget.

Unfortunately, despite optimization of costs the authorities failed to weaken the debt load of the budget significantly. At the end of 2015 the public debt of the Vologda Oblast decreased by 533 million rubles, or 1.5%. The amount of debt is only by 3% less than the volume of own revenues of the budget (*fig. 9*).

Figure 9. Public debt of the Vologda Oblast in 2009–2016
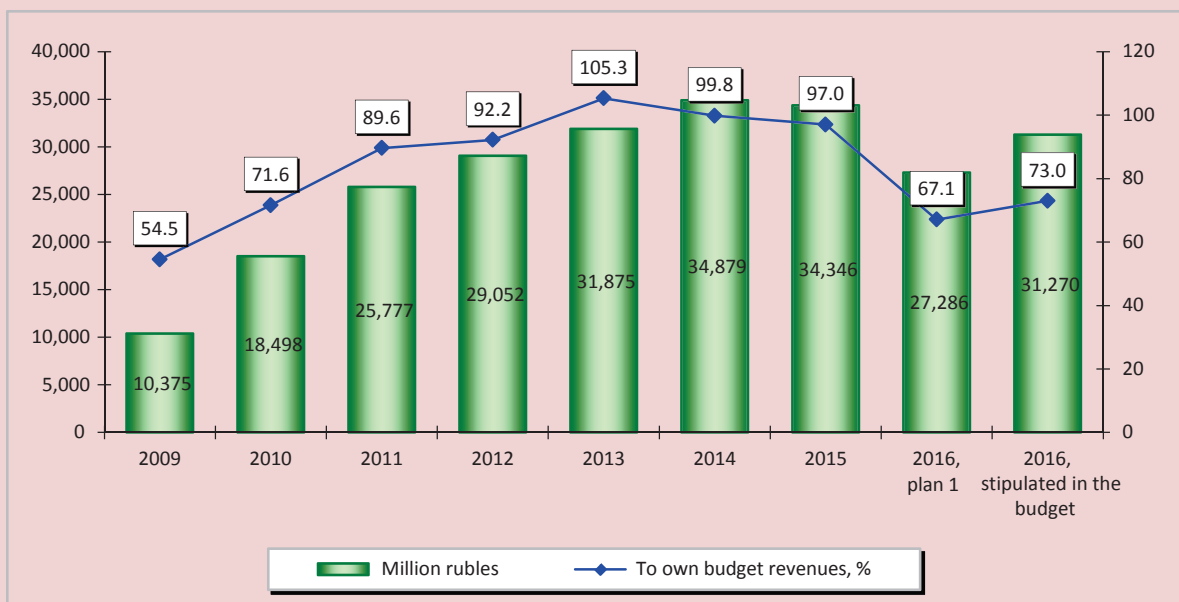
Figure 10. Public debt of the NWFD subjects in 2014–2015,
% to own revenues of the regional budget
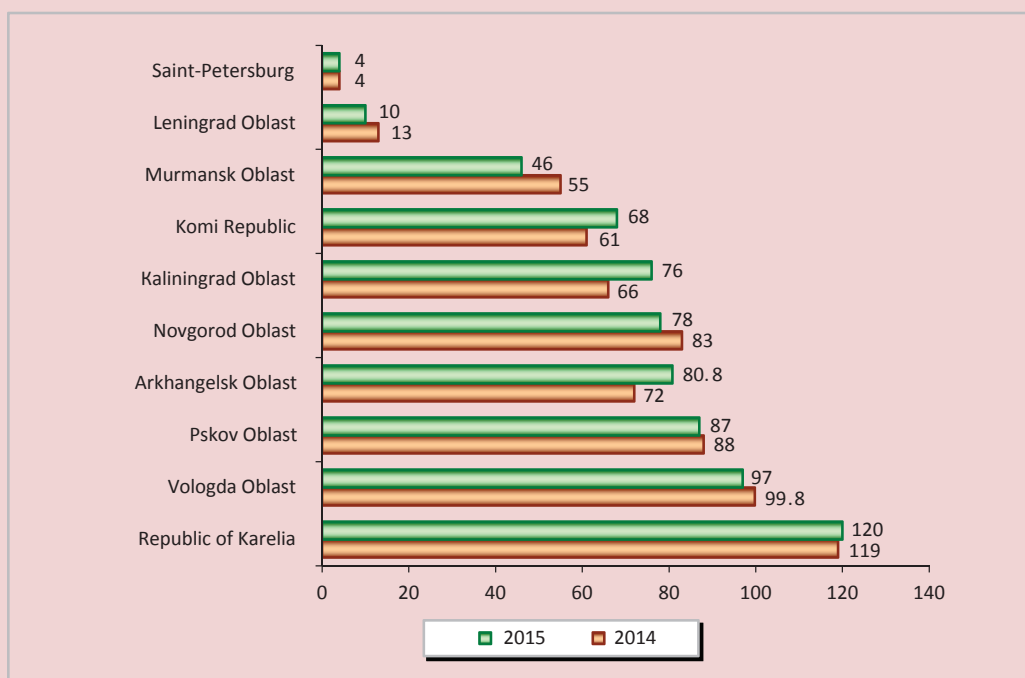
Sources: data of the Ministry of Finance of the Russian Federation [8]; the Federal Treasury; the author's calculations.

When setting the budget for 2015–2017 the authorities projected a fairly significant reduction in the tax burden in 2016 — up to 67%; however, the course of the budget process in 2015 showed the unreality of this forecast. Therefore, the 2016 budget stipulates the state debt in the amount of 31.3 billion rubles, i.e. by 4 billion rubles more than the amount approved a year before.

By debt burden the Vologda Oblast ranges 2nd in the Northwestern Federal District following the Republic of Karelia. It should be emphasized that at the beginning of 2016 only in 3 regions of the district the debt was less than half of the volume of own revenues of the budget,

which indicates continuation of the debt crisis of Russian regions (*fig. 10*).

In our opinion, the Vologda Oblast will find it difficult to achieve the reduction in public debt by 3 billion rubles in 2016. Considering the program of state internal borrowings, approved by the law on the regional budget, we can see that the year of 2016 will witness the renewal of the trend interrupted in 2015 to increase borrowing planned in the amount of 18 billion rubles, which is by three times more than in the previous year. Hence, expenses on debt repayment will go up. In 2016 the region will allocate 23.4 billion rubles, or more than half of own revenues of the budget, for these purposes (*fig. 11*).

Figure 11. Dynamics of obtained and repaid loans of the Vologda Oblast regional budget in 2009–2016
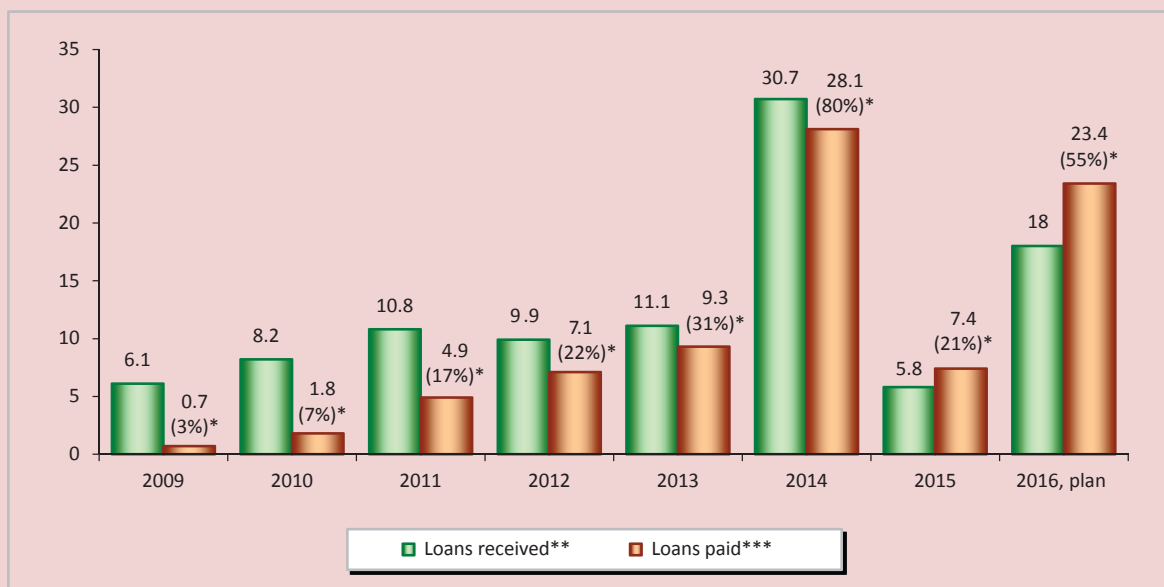
* Brackets indicate the share of expenditures on loan repayment in own revenues of the budget.

** Received commercial and budgetary loans, placed state securities of the region.

*** Expenses on repayment of government securities of the region, bank and budgetary loans, expenses on servicing public debt (interest payments).

Table 7. Actual results of execution of the Vologda Oblast regional budget in 2014–2016, million rubles

Indicators	2014	2015	2016, plan
Deficit (-) surplus without expenses on loan repayment	-3,960.1	-1,896.3	3,978.3
To own budget revenues, %	-11.3	-5.4	9.3
Expenditure on loan repayment*	26,144.3	5,581.0	21,805.8
Real deficit (-) surplus	-30,104.4	-7,477.3	-17,827.5
To own budget revenues, %	-86.1	-21.1	-41.6
* Without interest payments, which are included in the expenditure.			

Certainly, spending local revenue sources on the return and service of credits will cause the budget deficit and the threat to execution of priority expenditure obligations. In this regard, the problem of the method to review costs on borrowings repayment requires the immediate solution. According to the Budgetary Code of the Russian Federation, these expenses are financed by own revenues of RF subject budgets, included not in the budget expenditure, but in the composition of deficit repayment sources that devalues its real size[4]. According to our calculations, instead of the approved surplus the regional budget in 2016 will be executed with a deficit, which amount will exceed the maximum limit[5] and amount to 17.8 billion rubles, or 41.6% of the own revenues (tab. 7).

All the above gives ground to speak about the inefficiency of the policy of debt financing in relation to RF subjects chosen by the Ministry of Finance of the Russian Federation.

Granting of loans to regions from the federal budget, of course, reduces the debt burden in terms of the decrease in interest expenses[6], but does not fundamentally solve the problem of over-indebtedness of regional budgets. This conclusion is confirmed by the structure of the Vologda Oblast's public debt (fig. 12).

As you can see, since 2014 the proportion of commercial banks' loans in the debt structure has not decreased, but, on the contrary, increased. Together with the securities the share of market borrowings will reach more than 50% at the beginning of 2017 and will create risks for attracting new loans to repay the previously received ones.

There is another proof of the failure of budgetary loans in halting the growth of commercial debt and stabilizing regional finances, such as monthly dynamics of credit attraction and results of the execution of the Vologda Oblast regional budget in 2015 (fig. 13).

In May 2015, the region attracted over a billion loans from the federal budget, but already in June it had the budget deficit in the amount of 1.8 billion rubles. Additional federal

[4] Repeated requests of RF subjects heads (including the Vologda Oblast Governor Oleg Kuvshinnikov) to the Ministry of Finance of the Russian Federation to change the accounting of expenditure on loan repayment are left uncosidered.

[5] In accordance with Paragraph 2 Article 92.1 of the RF Budget Code the budget deficit of a RF subject should not exceed 15% of the approved annual budget without regard to the approved amount of gratuitous receipts.

[6] According to the Department of Finance of the Vologda Oblast [7], in 2015 the average rate of loans in commercial banks amounted to 9.7% per annum, the rate of budgetary loans from the federal budget − 0.1%.

Figure 12. Structure of the Vologda Oblast's public debt in 2012–2016, %

	2012	2013	2014	2015	2016, plan
State guarantees	19.2	15.3	9.6	7.5	10.5
Budget loans	25.4	20.5	36.1	40.2	38.4
Government securities	24.5	20.7	14.1	8.2	2.9
Commercial loans	30.9	43.5	40.1	44.1	48.2

Legend: Commercial loans, Government securities, Budget loans, State guarantees

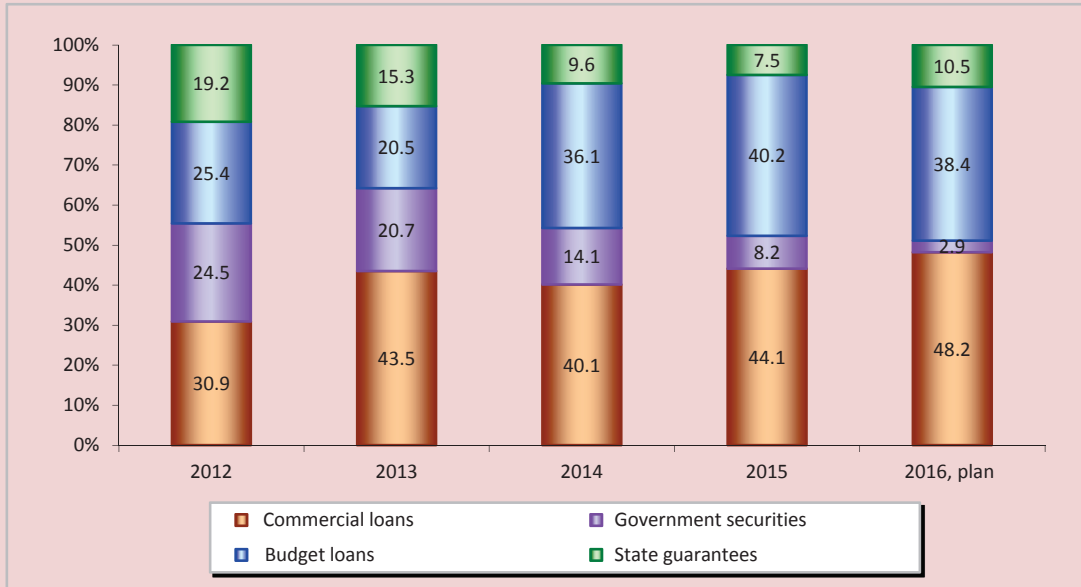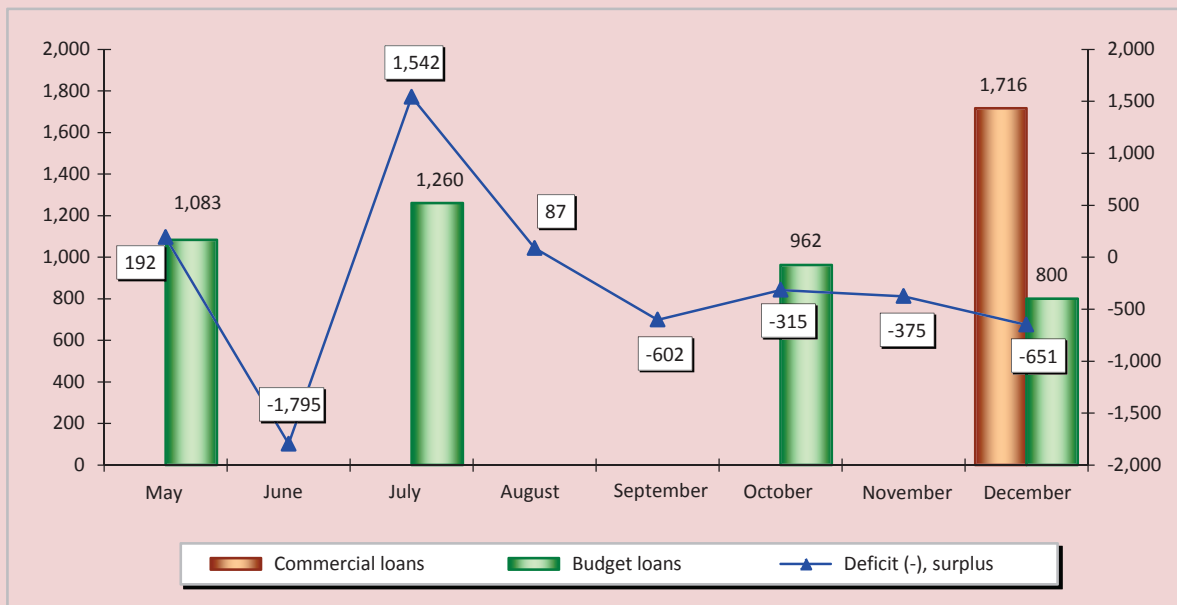Figure 13. Dynamics of attracted credits and results of the execution
of the Vologda Oblast regional budget in 2015, billion rubles

Budget loans: May 1,083; July 1,260; October 962; December 800
Commercial loans: December 1,716
Deficit (-), surplus: May 192; June -1,795; July 1,542; August 87; September -602; October -315; November -375; December -651

Legend: Commercial loans, Budget loans, Deficit (-), surplus

loans acquired in July helped to pay it off. It would seem that in 2015 the authorities could avoid market loans, but in September—December the budget again had a sustained negative balance. The budget loan taken in October in the amount of 1 billion rubles was not enough to balance the budget; therefore, the regional authorities had to resort to borrowing in the commercial banks, which led to a new spiral of indebtedness.

Thus, the case study of the Vologda Oblast reveals that federal loans can be considered as a tool to provide partial budgetary balance. The increase in their volume neither solves debt problems nor reduces risks of further escalation of market borrowings.

It is also clear that the overwhelming majority of regions will not be able to provide the necessary stabilization level of their budgets on their own. The federal budget for 2016 stipulates an unprecedented deficit in the amount of 2.4 trillion rubles, which by one and a half times exceeds the planned volume of financial aid to the RF subjects. The law on the federal budget does not contemplate the restructuring of the debt by budget loans provided to the regions. It seems that in the current budget cycle the central government does not plan to propose measures to overcome the regional finance crisis. At the same time, the reference to the federal budget deficit can not justify postponing the solution of this problem, since, according to the results of ISEDT RAS research [3, 4, 13], there are reserves for replenishment of local budgets, particularly the following:

1. Assignment of the total revenue tax collected in the area to the regional budgets

as partial compensation for revenue losses due to the contributions of VAT and charges for the natural resources use to the federal budget. Additional tax payments are estimated at 0.4 billion rubles per year[7].

2. Abolition of VAT exemptions for high-yield subjects of financial activity, and VAT reimbursement for exporters of raw materials would increase tax revenues of the federal budget up to 8 trillion rubles[8]. These funds would be enough not only to cover the debts of regions, but also to execute the Presidential decrees and upgrade the national economy.

3. Involvement of the federal budget's sur-plus balance in the co-financing of territorial budgets' expenses. According to the Federal Treasury, average balances in 2012—2014 amounted to more than 0.7 trillion rubles.

4. Introduction of progressive taxation of incomes of physical persons[9], the liberal Government of the Russian Federation does

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[7] Evaluation was made on the basis of the index dynamics for 2013—2015

[8] According to FNS, in 2011—2015 the reimbursement of export VAT increased from 1.1 to 1.8 trillion rubles, the exemption of banks, insurance companies, financial intermediaries, etc. from VAT — from 3.3% to 8.5 trillion rubles.

[9] According to the Head of Ministry of Economic Development A. Ulyukaev, the introduction of progressive taxation should not even be discussed [16]. Meanwhile, the progressive scale of personal income tax, not to mention the developed countries, is adopted in all states of the BRICS group. The PIT rates in the BRICS countries vary: in China — 5-45%; India — 10-30%; Brazil 15—28%; South Africa — 24—43%. The adoption of a single rate of personal income tax in Russia in 2001 was motivated by the necessity to legalize incomes and increase tax revenues to the state budget. However, for the past 14 years the share of this tax in GDP has not risen above 4% (at the end of 2015 — 3.5%). This is far below international benchmarks: in the U.S. the share of income tax in GDP is about 10%, in the developed countries of Western Europe — about 8—10%. Thus, the Russian Federation's success in the field of income legalization is very limited.

not dare to adopt. According to experts, the effect for regional budgets is estimated at more than 2 trillion rubles [7], and is equivalent to the amount of accumulated public debt.

5. Establishment of the legislation for compulsory registration of immovable property. According to FNS, about 40% of the owners of real estate are not registered at the State Real Estate Cadastre; it leads to about 45 billion rubles of loses in the regional budget annually.

6. Restoring order in the organization of payments transferred from regional budgets to the system of complete medical insurance (CMI) for the unemployed. According to the Accounts Chamber, due to a lack of proper coordination between territorial CMI funds and executive authorities of the RF subjects, the registers of the unemployed include the employed, thus resulting in the overpayment of budgetary funds in the amount of more than 40 billion rubles in 2016 [1].

7. Adoption of measures to recover accounts receivable of the budgets of all levels. According to the Federal Treasury, at the beginning of 2015 accounts receivable of the consolidated budget of the Russian Federation amounted to 6.1 trillion rubles, including 0.6 trillion rubles by sub-federal budgets (in the Vologda Oblast – 1.9 billion rubles.). According to the Head of the Accounts Chamber of the Russian Federation T.A. Golikova, "account receivable grows annually by 30% and exceeds reasonable limits" [2].

8. Immediate inventory of RF subjects' expenditure authorities for the purpose of

determining the sources to finance the Presidential decrees and reducing the debt burden of regional budgets. According to the Institute of Economics, Ural Branch of Russian Academy of Sciences, since 2000 the Federation has not transferred powers to the regions and municipalities with the 100% financial provision with resources [15].

9. Amendment of the Budget Code of the Russian Federation in terms of the recognition of expenses on loan repayment in the composition of territorial budgets' expenditure, which would help identify real deficit and generate repayment sources.

10. Legislative consolidation of the distribution of inter-budgetary transfers from the federal budget to RF subjects by the beginning of drawing up of regional budgets for the next financial cycle. The failure to comply with the proposed regulations leads to disorganization of the budgetary process in the regions each year, involving the return of untimely distributed and received transfers to the federal budget in line with the budget legislation. So, for example, at the end of 2015 the regions returned 22 billion rubles of unused subsidies and subventions.

11. Assessment of effectiveness of provided tax benefits, primarily for territorial taxes[10]. In 2014 the regional budgets' revenues that do not fall within the effects of tax preferences amounted to 280 billion rubles, including 1.6 billion rubles in the Vologda Oblast.

12. Enhancement of the recovery of arrears to the budget. According to FNS, as of January

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[10] Property taxes on natural and legal persons: property tax; land tax; transport tax.

1, 2016 the possible debt on taxes and duties to the consolidated budget of the Russian Federation amounted to 1.2 trillion rubles, in the Vologda Oblast − 3.8 billion rubles.

It seems, for the initial stabilization of the regional finance the Russian Government should restructure the debt on loans from the federal budget or impose a moratorium on payment of budgetary loans up to 2020, transform the debt financing of sub-federal budgets into transfers and radically change the administration of large taxpayers' profit.

Without changing the budget policy essence and by emptying the regions' budgets, the Government demonstrates its inability to guarantee Russian citizens a decent standard of life and provokes the deepening of socio-economic problems that can lead to political destabilization in the upcoming electoral cycle.

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Drivers of Concentration of Economic Activity
in Russia's Regions*

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Abstract. The uneven distribution of economic activity in Russia promotes the differentiation of its constituent entities by level of development. Regions are independent participants of economic relations, and they often act as competitors rather than partners. Agglomeration effects arise in more successful regions and contribute to the concentration of resources, manufacturing enterprises, service providers, skilled workers, and scientific and technological knowledge. The aim of the study, the results of which are reflected in the paper, is to identify the factors and assess their impact on the concentration (dispersion) of economic activity on the basis of Russia's regions. The paper describes the benefits of agglomeration processes from the standpoint of economic geography, allocation theory and international trade theory. The concentration of economic activity in Russia's regions is estimated by the Herfindahl–Hirschman index of industrial production taking into consideration the volume of investments in fixed capital and the number

of people employed in the economy in Russia's regions in 1990–2013. It is determined that fixed capital investments have the propensity to concentrate, but react strongly to economic crises. Labor resources, by contrast, are distributed relatively evenly, and their concentration in certain regions is increasing steadily. The article considers key factors such as wage growth, distance to large cities, direct foreign investment, road network density, the degree of development of the services sector in the region. The factor model is constructed using the least squares method. The authors conclude that the growth of wages in the region (relative to national average) has a negative effect on the concentration of economic activity. There is a positive correlation between the growth of direct foreign investment and the density of hard surface roads. The development of services has the greatest positive impact on agglomeration processes in Russia's regions. The paper confirms the point of the new economic geography concerning the negative impact that the region's remoteness from major markets exerts on the development of agglomeration process. The authors agree with foreign researchers on the fact that the emergence and development of agglomeration process is influenced by increasing returns to scale, transport costs and labor migration. But the very indirect factors included in the model are influenced by economic actors in the regional socio-economic policy.

Key words: concentration of economic activity in the region, regional specialization, new economic geography, distribution of productive forces.

Introduction. Recent years witness an increasing interest in the study of productive forces location and the modern scientific area – new economic geography. Primarily, this is connected with the rapid development of integration processes in the countries and regions of the world. The ongoing liberalization of trade facilitates the convergence of economies and, hence, the revision of the system to locate production in regions. The important task here is to form an institutional environment that would enable regions to gain maximum benefits from integration and reduce possible risks.

The second reason for the growth in a number of the studies mentioned above is that the processes of economic activity concentration (agglomeration processes[1]) are

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[1] Agglomeration process is a "process of concentration (or contraction), accompanied by territorial expansion of the concentration core (with possible complication of the latter), leading to the emergence of agglomeration... a reversible process..." [1, p. 90].

traditionally accompanied by strengthened differentiation of regions by level of social and economic development. Regions are independent subjects of economic relations and in most cases are not partners of each other, but competitors. Regions compete for limited resources, such as labor, investment, budgetary financing, obtaining public contracts and attracting technologies. In more successful regions we observe processes of economic activity concentration; organizations can get agglomeration effects from production location. Some regions are leaders in the competition, others – outsiders.

The inequality of Russian regions in terms of socio-economic development has recently intensified. Thus, the Gini index by volume of industrial production, which in 1991 (the minimum value) amounted to 0.45 and in 2000 – 0.57, peaked in 2006 – 0.627 and in 2013 was equal to 0.625 (the authors' calculations). If we analyze the index by

number of people employed in the economy, we can see that in 1990 it was equal to 0.41, in 2000 − 0.431, in 2005 − 0.445 and reached its maximum in 2013 − 0.457 (the authors' calculations). The Gini index by volume of capital investment in 1990 amounted to 0.41, in 2000 − 0.61 (the maximum value for the period), and in 2013 − 0.55 (*fig. 1*).

The growth in differentiation of Russian regions is largely caused by the stiff competition for limited resources. Five regions concentrate 24.52% of the labor force (in 2002, according to the authors, the share of these regions in total employment amounted to 22.73%). Five regions, leaders by volume of capital investment, had 64.53% of such investment in 2013 (to compare: in 2002, as estimated by the authors, 5 regions, leaders by this indicator, concentrated 66.1% of the investment). Thus, we can assume the presence of high concentration of resources and economic activity in certain regions of the country.

Possible oversaturation of the region, which leads to the dispersion of economic activity, is the third reason for careful study of agglomeration processes.

Figure 1. Dynamics of the Gini index in Russian regions in 1990–2013

a) by volume of industrial production

b) by number of people employed in the economy

c) by volume of capital investment

These processes are influenced by different factors. Some attract firms and labor resources in the region – they are called centripetal forces. Other factors, on the contrary, stimulate processes of dispersion and withdrawal of production from the region – centrifugal forces. It is important to understand under what conditions and at what point the effect of these forces will be balanced in the economy of a particular region and the reverse process can begin.

The application of new theoretical and methodological approaches to the research in the factors of spatial concentration is of great scientific and practical interest. The provisions of new economic geography are widely used in foreign practice, but have little application in domestic theoretical and empirical studies.

The aim of the study, which results are reflected in the article, is to identify the factors and assess their impact on the processes of concentration (dispersion) of economic activity on the basis of Russian regions.

Extent of the problem elaboration. New economic geography is considered a relatively young scientific field. The preconditions for its emergence and development appeared long time ago. So, A. Lesh identifies 3 key benefits of the agglomeration process:

1) possibility of joint use of infrastructure objects for business: "single railway station, streets, sewers, cheaper water and electricity" [21, pp. 75-76];

2) common labor market of larger size, which allows companies to quickly and efficiently find the necessary specialists and workers to be employed;

3) accumulation of tacit knowledge: in terms of the economic activity concentration the most skilled employees have the opportunity to work together, increasing joint achievements.

In addition, he stresses concentration advantages for enterprises, whose activity is seasonal; notes that the association of sellers of goods allows consumers not only to make purchases in one place, but also choose from a wider selection; determines that the region where the agglomeration process is observed find it easier to cope with structural shifts in the economy.

A. Lesh singles out the following key factors in the agglomeration process: relation to a capital city, to main roads, a relative distance between cities of equal size [21, p. 77].

Spatial organization of economic activity has traditionally been a subject of research of two scientific directions: location and international trade theories. The location theory defines border regions as rather "fragile and endangered" [13, p. 11]. When we talk about the location of economic activity in closed systems, we do not find competitive advantages for border regions as they become peripheral. There are some disadvantages of the presence of a boundary: 1) existence of tariffs divides economically complementary market areas; 2) language difficulties and differences in mentality create the effect similar to customs duties; 3) transactions under government contracts cannot cross the border; 4) existence of the threat of a military invasion [21, p. 200]. The boundary effect for example, from selling industrial goods accounts for 44% of the total price premiums for FOB [5, p. 692].

The situation is different in the process of integration (or liberalization of foreign economic relations). Border regions can have advantages from economic activity focused on the border: storage of goods, customs control and other related services. In this case, border regions gain new perspectives for economic growth [4].

In the days B. Olin believed that the theory of international trade is part of a more general theory of location; however, it has been recently studied in such a way in the framework of a new trade theory [20] and new economic geography [10; 30]. The models of these 2 trends present increasing benefit from a scale, differentiated products and trade costs as derived from the location of economic activity. Let us consider some approaches to the identification of factors in the concentration of economic activity in the region (*tab. 1*).

There are Russian studies of the economic activity concentration, focused not on foreign economic aspects. The work of E. Kutsenko defines the dependence on foregoing development: specialized productive forces; growth in foreign savings together with increasing concentration of productive forces; quasi-inconsistency of primary territorial distribution; uneven growth in foreign economy [37]. E. Kolomak proves that the

Table 1. Some approaches to the identification of factors
in the concentration of economic activity in the region*

Factors	Authors
Trade liberalization leads to increased industrial concentration in the region	P. Krugman, 1991 [18]
Reduction in trade costs only at the initial stage rises the concentration and then diffuses the production**	R. Forslid, I.Wootton, 2003 [9]
Prior location of industrial production is close to sales markets	C. Harris, 1954, [15, pp. 217-319]
Possibility of free trade allows producers to more fully take advantage of economies of scale, leading to the concentration of economic activity only in a number of regions, located close to international markets.	L. Resmini, 2003 [27]
Impact of foreign direct investment typically occurs through technical factors (technology transfer, skills, and knowledge and management schemes), creates direct and indirect relations between local and foreign forms, stimulates proliferation of positive effects in the domestic economy.	L. Resmini, 2003 [27]
Stimulating export policy and improvement of transport infrastructure lead to weakening of the agglomeration process	A. Gelan, 2008 [11]
An export center has a positive impact on the concentration of economic activity in the region. This observation is especially true for enterprises in the sphere of high technologies.	Trade integration..., 2010 [28]
Factors in the dependence (interdependence) of specialized productive forces on previous development; growth in foreign savings with the increase in the concentration of productive forces; quasi- inconsistency of primary territorial location; uneven growth in external savings)	E. Kutsenko, 2012 [37]
For Russian regions population density, a size and accessibility of markets, a degree of economy diversification (only for the western part of the country)	E. Kolomak, 2013 [2]
* In more detail the factors influencing the emergence and development of agglomeration processes in the region are considered in [3]. ** In more detail the impact of changes in the degree of foreign trade liberalization on the economic indicators of regional development are presented in [22].	

significant factors in the economic activity concentration in the region are as follows: population density, size and accessibility of markets, degree of economy diversification (for the western part of the country) [2].

Study method. The concentration of economic activity[2] is assessed by means of indicators, such as dynamics of population density of the region, Herfindahl−Hirschman index, Gini index, index of geographical agglomeration of manufacturing industries with modifications, Kibble peripherization index and others[3]. When building econometric models the authors use some other measures of the economic activity concentration.

To assess the economic activity concentration degree, the economic literature, in addition to the Gini index, quite often use the Herfindahl−Hirschman index *(HHI)*. The higher the index, the higher the concentration level. The Herfindahl−Hirschman index of economic activity concentration is calculated by the formula:

$$HHI = \sum\nolimits_{i=1}^{n} x_i^2 , \qquad (1)$$

where x_i is a share of the indicator of an region i in the federal district (by specific indicator).

To estimate the Herfindahl−Hirschman index (1990−2013) we using 3 basic indicators: industrial production (according to the Federal State Statistics Service of the Russian Federation − "Volume of shipped goods of own production, rendered works and services

by economic activities − manufacturing", for 1990−2004 "Volume of industrial production"); volume of capital investment and an average annual number of the employed in the economy.

Geographical concentration of economic activity in Russian regions. Let us consider the dynamics of the Herfindahl−Hirschman index, calculated by volume of industrial production, volume of capital investment and average annual number of the employed in the economy in Russian regions in 1990−2013 (*fig. 2*).

We can see that the greatest degree of concentration is characteristic of investment in fixed capital, as the Herfindahl−Hirschman index has high values. At the same time, by the indicator of investment the concentration dynamics is unstable: in 2000 this index reached a maximum value (604.08), declining by 2011 to 369.68 and by 2013 to 402.95. This means that investment in fixed assets in 2000 was concentrated in a small number of regions, and by 2011 − evenly in a large number of regions.

The significant rise in the concentration is observed for the indicator, such as volume of industrial production. The Herfindahl−Hirschman index for this indicator peaked in 2013 − 439.91. Earlier we conducted a deeper analysis by types of industrial production and determined that the low degree of concentration is characteristic of food production and manufacture of other non-metallic mineral products. The high degree of concentration is recorded in the production of leather, goods from leather and footwear, wood processing and manufacture

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[2] Concentration is determined in relation to a type of economic activity, a sector, a subsector, an industry group, etc., and indicates a degree of centrality or sparseness of industrial production within a specific territory.

[3] In more detail see in [3].

Figure 2. Dynamics of the Herfindahl–Hirschman index, calculated by volume of industrial production, volume of capital investment and average annual number of the employed in the economy in Russian regions in 1990–2013*

Legend:
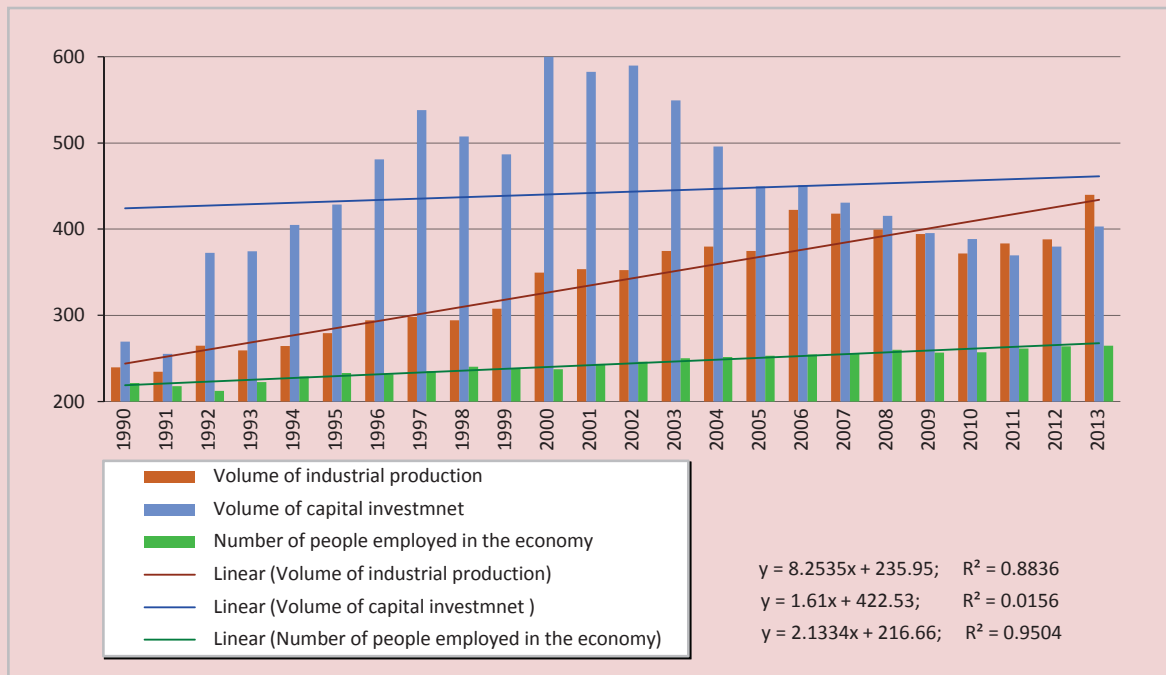- Volume of industrial production
- Volume of capital investmnet
- Number of people employed in the economy
- Linear (Volume of industrial production)
- Linear (Volume of capital investmnet)
- Linear (Number of people employed in the economy)

$y = 8.2535x + 235.95;$ $R^2 = 0.8836$
$y = 1.61x + 422.53;$ $R^2 = 0.0156$
$y = 2.1334x + 216.66;$ $R^2 = 0.9504$

* Calculated on the bases of data of the Federal State Statistics Service of the Russian Federation.

of wood products. There is a decreased level of production concentration in pulp and paper production, publishing and polygraph activities, manufacture of rubber and plastic products, metallurgical production and manufacture of finished metal products [33].

The steady but slight increase in the economic activity concentration in the regions is observed for average annual employment in the economy.

Model construction. Let us determine the factors affecting the agglomeration pro-cess development in Russian regions. The centripetal forces of agglomeration the pro-cess of direct impact traditionally include transportation costs, labor migration and increasing benefit from a scale. Other centripetal forces are indirect and influence agglomeration processes only through forces of direct impact. However, in our view, when carrying out socio-economic development policy in the region it is indirect impacts that are influenced by economic actors.

The centrifugal forces include a significant increase in the cost of living in the region, cost of doing business and negative aspects of "over-saturation" of the region: increased load on the environment, high density of road traffic, and a lag of offers of social services from fast-growing demand for them, etc.

As a basis for constructing a model of the concentration (dispersion) of economic activity on the basis of Russian regions we propose to use the approach of Laura Resmini. She used it for the countries of Central and Eastern Europe – new member-states of the European Union [27]. Thus, the main factors in the concentration (dispersion) of economic activity in Russian regions are the following: 1) growth in relative wages (wages in the region relative to national levels); 2) distance to large cities (assuming the orientation of key producers on foreign markets, a degree of liberalization and trade development); 3) foreign direct investment through spillovers and ties; 4) road density; 5) degree of service sphere development in the region. For all indicators we use values of their natural logarithm ([12]):

$$ln\left(\frac{E_{it}}{E_t}\right) = \alpha_{it} + \beta_{i1} \, ln\left(\frac{W_{it-1}}{\overline{W}_{t-1}}\right) + \beta_{i2} \, ln\left(\frac{DIST_{ic}}{\sum_i \omega_{it} DIST_{ic}}\right) + \beta_{i3} \, ln(FDI_{it-1}) + \beta_{i4} \, ln(ROAD_{it}) + \beta_{i5} \, ln(SER_{it}) + \varepsilon_{it} \quad (2)$$

The resulting indicator of the economic activity concentration degree is defined as a region's share in total employment in the economy:

$\frac{E_{it}}{E_t}$ – a share of the region i in total employment in manufacturing in the country for the time period t;

E_{it} – a number of people employed in manufacturing in a region i for the time period t;

E_t – a number of people employed in manufacturing in the country for the time period t.

To calculate this indicator we use data of the Federal State Statistics Service of the Russian Federation – "Distribution of an average annual number of the employed in the economy by types of economic activity (thousand people) – manufacturing".

This specification allows us to take into account the effects of a country's scale and aggregate demand.

Let us consider the model components in more detail:

$\frac{W_{it-1}}{\overline{W}_{t-1}}$ – a ratio of average wages in a region i to average wages in the country for the previous time period t;

W_{it-1} – average wages in a region i for the previous time period t;

$\overline{W}_{t-1}$ – average wages in the country for the previous time period t.

The level of salary and qualification of workforce are important factors in the agglomeration process. In case of making entrepreneurial decisions to locate production in a particular region the availability of labor resources with the required qualifications and at low cost comes to the fore. However, during the development of the agglomeration process the level of wages increases. The research of E. Glaeser and D. Mare shows that the level of economic activity affects wages strongly. In the cities with population over 500 thousand people wages are by 33% higher than that of the workers employed outside the city [34]. Let us note that the significant rise in the level of wages in the region of economic

activity concentration becomes a centrifugal force and can eventually lead to the process of dispersion.

To avoid the existence of synchrony in the regressions, the variable of wage is taken for the last period. More or less the indicator reflects market conditions; and we believe that the region's share in total employment in industry varies synchronously with the relation of wages in the region to the national level. To calculate this indicator we use data of the Federal State Statistics Service of the Russian Federation — "Average monthly nominal accrued wages of organization employees".

The second term in the formula represents a measure of geographical distance from the capital (for Russia, given its territorial vastness, we considered a distance to the nearest major city with a population of over 1 million people), which we regard as an economically isolated industrial center. In new economic geography agglomerations are discussed in terms of the theory of location and trade. A market is a center (core) of the economy. The home market effect occurs when the companies of sectors with imperfect competition organize their production nearby a large market and then deliver their products to small markets (involving transport costs) [38]. The home market effect creates a centripetal (gravitational) force for the concentration of economic activity in certain areas. A large domestic (home) market is as important for economic development of the region, as export orientation.

In this context the model of new economic geography introduces a distance variable — the closer the broad market to the region, the greater the likelihood of the agglomeration process. The distance variable should correlate with the index of relative employment in that case, if the liberalization and trade development will refocus primary production on foreign markets. Otherwise, the correlation of this variable with an indicator of relative employment will be negative, as the distance increases trade costs:

$$\frac{DIST_{ic}}{\sum_i \omega_{it} DIST_{ic}}$$ — a ratio of the road distance

from a region i to a country's capital to the average weighted distance to a large city;

$DIST_{ic}$ — road distance from a region i to a large city;

ω_{it} — a share of the road distance from a region i to a capital in the total sum of distances.

The third term of the equation reflects the role of direct foreign investment in the region. It appears that the agglomeration process development is influenced by factors that increase a degree of openness of the national economy and promote growth of trade flows and foreign direct investment[4]. Foreign direct investment plays a positive role in regional

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[4] Foreign direct investment is considered as an important factor in the agglomeration process in a number of econometric studies: A.M. Hansson, K. Olofsdotter (through the tax rates of regions in the EU-15 in 1986–2004) [14]; Poelhekke S., F. van der Ploeg (through the assessment of institutional environment in OECD countries in 1960–2000) [24; 28].

development through spillovers and ties. Relative employment in the region increases with the inflow of foreign direct investment. However, this impact can be negative, since foreign firms are actively involved in the restructuring of economic activity, especially at the initial stage of development (Resmini, 2003). To calculate this indicator, we use data of the Federal State Statistics Service of the Russian Federation – "Foreign investment in the economy of the Russian Federation – investment received – direct".

FDI_{it-1} – amount of incoming foreign direct investment in a region i for the previous time period t.

The availability of one or another economic entity (in terms of transport costs) is an important factor in the process of economic activity concentration. It is possible to use density of roads with hard surface as an indicative parameter. It is assumed that relative employment is higher in those regions where road density is higher. To calculate this indicator, we use data of the Federal State Statistics Service of the Russian Federation – "Density of public roads with hard surface".

$ROAD_{it}$ – road density in a region i for the time period t.

There is an important factor in the economic activity concentration process, such as a degree of services development in the region, which can be measured as a region's share in total employment in the service sector of the country. For this indicator we use data of the Federal State Statistics Service of the Russian Federation – "Distribution of an average annual number of the employed in the economy by types of economic activity – hotels and restaurants, transport and communication, real estate transactions, rent and provision of services, education, healthcare and social services, provision of other utility, social and personal services".

SER_{it} – a region's share in total employment in the service sector of the country for the time period t.

Since the service sector makes a positive contribution to the economic activity concentration process in the region, we believe that it has a positive correlation with production location.

$\alpha_{it}, \beta_{i1}, \beta_{i2}, \beta_{i3}, \beta_{i4}, \beta_{i5}, \beta_{i6}$ – equation coefficients obtained by the least squares method;

ε_{it} – a measurement error.

The assumption about endogeneity of the SER variable is tested with the use of the Durbin–Wu–Hausman test. It is established that to reject the null hypothesis of weak exogeneity of SER to E is impossible at an acceptable level of significance.

To build a model of factors influence on the processes of concentration (dispersion) of economic activity in Russia, we use panel data of 83 regions for 2010–2014. The calculation is conducted by the pooled method of least squares.

Analysis of results.

$$ln\left(\frac{E_{it}}{E_t}\right) = -1,7 - 0,529\,ln\left(\frac{W_{it-1}}{W_{t-1}}\right) -$$

$$-0,081\,ln\left(\frac{DIST_{ic}}{\sum_i \omega_{it} DIST_{ic}}\right) + 0,054\,ln(FDI_{it-1}) + \quad (3)$$

$$+0,094\,ln(ROAD_{it}) + 0,951\,ln(SER_{it}) + \varepsilon_{it}$$

$R^2 = 0.82.$

Thus, the model of the factors influence on the processes of concentration (dispersion) of economic activity constructed for Russian regions allows us to draw some conclusions. So, the increase in the relative wage in the region affects the economic activity concentration process (-0.529 with a standard error of 0.146)[5]. As noted earlier, the wage growth is a centrifugal factor in the agglomeration process development; that is, it actually prevents the concentration of economic activity and the receipt of effects from crowding production. The resulting factor of the model shows that this thesis is confirmed in Russian regions − the more the inter-regional gap in wages, the higher the occurrence of the economic activity dispersion process and the withdrawal of enterprises from more successful regions to the neighboring ones. This assumption is proved by the results presented above in figures 1b and 2. Low labor mobility in Russia and sufficient territorial sparsity will facilitate

the movement of firms to regions with low wages. This will involve changes in the current location of production forces[6].

The growth in direct foreign investment and road density promotes agglomeration processes in Russian regions (0.054 with a standard error of 0.009 and 0.094 and with a standard error of 0.034, respectively). Among centripetal forces, the service sector development in the regional economy (0.951 with a standard error of 0.053) has the greatest impact on the concentration processes.

Indeterminate results are obtained from the estimation of the impact of geographical distance from the region (the regional center is considered as a starting point) to the nearest big city (with a population of over 1 million people). This variable correlates with an index of relative employment in that case, if liberalization and trade development refocus key markets on foreign ones. Otherwise, the correlation of this variable with an indicator of relative employment will be negative as the distance increases trade costs. When constructing models on the basis of Russian regions, we can see that this factor affects the agglomeration process slightly[7].

The absolute term of the equation is equal to -1.7 (with a standard error of 0.396).

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[5] For comparison: in the study of regions of the European Union new member-states in 1993−1999 the factor in relative wages was insignificant for the agglomeration process (Resmini, 2003).

[6] In small countries the impact of wage growth on the change in industrial production is not very significant. V. Lutz shows that the rise in remuneration in more successful regions of Italy causes mass layoffs amid the introduction of new technologies and migration of laid-off workers to backward regions [35] ([36, p. 256]).

[7] For comparison: in a similar study on the European Union relative employment correlates with foreign investment, road density and a service sector positively [27].

Influence of boundaries on the distribution of productive forces and agglomeration processes. To conduct more detailed analysis by the model of factors influence on the economic activity concentration, we divide RF regions into 4 groups: regions bordering with post-Soviet countries (24); regions bordering with far-abroad countries (12); regions with maritime borders (8); internal regions (35). The study reveals that the number of regions has mixed borders (land and sea). In this case, the preference is given to the indicator of a land border; therefore, the regions, such as the Astrakhan Oblast, the Tyumen Oblast and the Arkhangelsk Oblast are identified as the ones bordering with post-Soviet states, and Chukotka Autonomous Okrug, the Murmansk Oblast,

Khabarovsk Krai and Primorsky Krai — the ones bordering with far abroad countries.

The Kaliningrad and Leningrad oblasts and the Altai Republic have borders both with post-Soviet countries and far abroad countries. It is decided to refer them to the group of regions bordering with far abroad countries by direction of foreign trade (the share of far abroad countries in foreign trade turnover of regions in 2010 amounted to 97.2, 97.5 and 99.3%, respectively). The developed model of factors influence on the processes of concentration (dispersion) of economic activity is constructed for each group of Russian regions (*tab. 2*).

The analysis of the model of factors influence on the concentration processes by groups of Russian regions shows that for the

Table 2. Coefficients of the model of factors influence on the processes of concentration (dispersion) of economic activity by groups of Russian regions in 2010–2014

Factor	BPSC	BEX	BM	INT
Relative wage β_{i1}	0.685 (0.353)	1.316 (0.363)*	0.306 (0.675)	-0.721 (0.166)*
Nearest large city β_{i2}	-0.109 (0.029)*	-0.020(0.037)	-0.002 (0.081)	-0.181 (0.020)*
Foreign direct investment β_{i3}	0.060 (0.012)*	-0.088 (0.043)*	0.027 (0.035)	0.004 (0.013)
Density of roads with hard surface β_{i4}	0.343 (0.086)*	0.361 (0.075)*	-0.122 (0.159)	-0.042 (0.032)
Region's share in total employment in the service sector β_{i5}	0.754 (0.107)*	1.462 (0.082)*	1.374 (0.192)*	0.705 (0.056)*
Free term α_{it}	-3.837 (0.756)	1.512(0.788)	1.304(1.502)	-1.748 (0.391)
Number of observations	96	48	32	140
Determination coefficient	0.84	0.94	0.86	0.84

Legend:
BPSC – regions bordering with post-soviet countries;
BEX – regions bordering with far-abroad countries;
BM – regions with a maritime boundary;
INT – internal regions.
* The parenthesis presents values of a standard error.

regions having a common border with the countries of post-Soviet space the centripetal factors are the following: development of services (0.754 with a standard error of 0.107), density of roads with hard surface (0.343 with a standard error of 0.086), and foreign direct investment (0.060 with a standard error of 0.012). The change in wages in this group of regions is not statistically significant for the agglomeration process encouragement.

For the regions bordering with far-abroad countries the centripetal factors are as such: development of services (1.462 with a standard error of 0.082), wages (1.316 with a standard error of 0.363), and density of roads with hard surface (0.361 with a standard error of 0.075).

For the regions with a maritime external border only the service sector development (1.374 with a standard error of 0.192) has such a nature. Changes in wages and foreign direct investment in this case are not significant for the agglomeration process promotion.

The country's internal regions are characteristic of a centripetal factor, such as service sector development (to a lesser extent than in other regions, but statistically significantly − 0.705 with a standard error of 0.056), and a centrifugal one, such as relative wages (-0.721 with a standard error of 0.166).

We can see that the growth in remuneration already contributes to the dispersion of economic activity in the internal regions of Russia, but stimulates the concentration in the regions bordering with far abroad countries. The distance to a nearest major market

(city with population over 1 million people) in accordance with the provisions of new economic geography has a negative impact on the agglomeration process development. We will note only that relations are statistically significant for the regions bordering with the former Soviet states and the internal regions. To some extent, this allows us to make a conclusion about higher openness to foreign trade of the regions bordering with far-abroad countries or having a sea border.

Foreign direct investment has a significant influence on the agglomeration process promotion in the border regions. Moreover, in the regions neighboring with former Soviet republics it is positive and in the regions bordering with far-abroad countries − negative. The density of hard surface roads is important for the development of border regions.

The service sector positively correlates with the regional share in total employment in the country's industrial production. It is not contrary to any provisions of economic science: the accelerated development of industry stimulates the service sector expansion, as companies prefer to locate production facilities in those regions where the service sector is already relatively well developed.

Conclusion. The research in the distribution of productive forces and the agglomeration process is important in the context of economic integration (change in the market, possibility of additional effects), strengthening of inter-regional differentiation (due to the constriction of resources in some regions)

and dispersion due to possible occurrence of a reverse process. It is important to understand the action and correctly evaluate the forces that affect agglomeration processes in the region. Scientists identify key factors, such as region's orientation on a capital city and a national border, a degree of trade openness, a level of wages, foreign direct investment, quality of road infrastructure, a degree of economic diversification, development of service activities. These factors are included in the author's econometric model.

The analysis of geographical concentration of economic activity in Russian regions (by means of the Herfindahl–Hirschman index calculation) in 1990–2013 reveals that investments in fixed capital are more sensitive to changes in economic environment. They tend to focus in several regions. In recent years the high concentration is observed in industrial production. Labor resources are dispersed in different regions of Russia, characterized by low mobility; the Herfindahl–Hirschman index has an upward trend.

Modeling of influence factors on the agglomeration process development shows that the service sector has the most significant effect on the economic activity concentration and direct foreign investment and density of hard surface roads have a positive impact. The article confirms the thesis of new economic geography about the importance of access to large markets for economic development. The growth in wages stimulates the diffusion of economic activity, that is, a centrifugal factor. The division of Russian regions into four groups in relation to a national border makes it possible to supplement the findings.

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BRANCH-WISE ECONOMY

Relationship between Fragmentized Collective Forestland, Farmers Investment and Forest Commodity Output: An Analysis on Nine Provinces Farmers Survey Data in China*

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Abstract. The purpose of this study is to quantify the relationship between fragmentized collective forestland, farmers investment and forest commodity output to examine the rationality of collective forest right reform after dispersed forestland operation. The data is based on the 2420 farmers' survey data in nine provinces of China including Fujian, Jiangxi, Hunan, Sichuan, Zhejiang, Guangxi, Henan, Shandong and Liaoning. The results show that if S index is used, fragmentized forestland reaches 0.41 and can be ordered (from high to low) as Zhejiang, Jiangxi, Hunan, Liaoning, Sichuan, Fujian, Guangxi and Shandong. Under certain fragmentized intervals (forestland fragmentized ratio lower than 0.22 or higher than 0.51), the higher the forestland fragmentized, the lower the farmers investment. The investment-output model indicates that forest block reflects the negative impacts to forest output while other variables such as labor, tangible inputs and forestland have positive impacts. When bamboo is produced, level of fragmentation has negative impacts on forestland acreage and significant positive impacts on labor used. The study implies that after the land is divided to households, physical investment is the key factor to affect the commodity output and should be considered by the related policies to increase the incentives of farmers. Based on this study, we provide some information and guidance on policy of farmers' forestland operation in large scale.

Key words: collective forest rights reform, fragmentized forestland, farmers' investment, forest commodity output.

1. Introduction

Forestland fragmentation is a process related to geography, population, family tradition and regulation changes. Landscape is complex in China, which provides advantageous condition for diversified forestland operation and at the same time, causes the fragmentation of natural forestland. From the historical point of view, China's population increased dramatically since Song Dynasty and land supply could not follow the speed of population boom. This is one reason for the increased forestland fragmentation. From the viewpoint of family tradition, forestland fragmentation increased due to the traditional heritage system because land must be divided for different children. From the viewpoint of forest right mechanism changes, forestland is further fragmentized due to the policy in 1980s and the collective forest right applied in 2003. In order to overcome the economic problem resulted from the small-scale business, government raised a series of policies in 2008. Debates never stop among scholars since some argue that forestland fragmentation would not enhance the operating efficiency while others argue that fragmentation of forestland is just one part of Chinese tradition because this is fair as every farmer has his own land. From the empirical side, fragmentation of forestland is not changed significantly although current collective forest reform policy releases the right of trade to farmers. So far, the studies about the large scale evaluation of forest fragmentation, farmers' contributions and

forest commodity outputs under such policies are insufficient. The study uses 2420 household survey data in 18 counties among Fujian, Jiangxi, Hunan, Sichuan, Zhejiang, Guangxi, Henan, Shandong and Liaoning provinces to answer the relationship between fragmentized collective forestland, farmers investment and forest commodity output and examine the rationality of the collective forest right reform after dispersed forestland operation.

1.1 Three fundamental stages of forest fragmentation process

In China, forest fragmentation and forest fragmentation reform starts simultaneously while the former occurs mainly in the southern collective forest. The fragmentation process can be divided into three stages. The first stage happened in 1980s with a central official document announcing that forest right should be stabilized, retained mountain should be claimed and forest production responsibility should be determined, which also accelerates the speed of forest fragmentation process. Statistics from the Department of Forest indicates that until 1984, 90% forestland owners among these 9 provinces held 0.43 hm^2 on average with 0.04 hm^2 per capita. Combination of forest, specialized farmers, and forest union increased to more than 400 households (Lu, 2002). Di's 1994 study believed that "Sanding" is a process of transferring collective forest rights to farmers household. The second stage was from late 1980s to 1990s, which supports sales. Lu

(2004) thought that this type of sale is to solve the existing problems such as low allocation efficiency and small scale associated with ongoing administrative land system. Through the forest sales, collective forest switches to forest farmers even further and increased the scale of forest operation. However, this does not solve the forest fragmentation. The third and last stage is to verify the forest rights. In 2003, Fujian province reformed the collective forest system including clarifying the ownership, enhancing the operation, releasing handling power and protecting beneficiary rights after the State Council announced the "decision of speeding the development of forestry". Jiangxi, Liaoning and Zhejiang provinces also reformed later. In June 2008 another official document that explicitly determined the main object to operate forestry business. Until the end of 2009, more than 100 million hm^2 forests that have been verified their ownership, which is 59.4% of total collective forest. Certified forests are more than 80 million hm^2, about 75% of total verified forests (Jia, 2009). The reform of forest right improves the diversification of ownership-operation and speeds the process of forest fragmentation (Kong, 2008).

1.2 Problems facing forest managers after forestland fragmentation

Focusing on the negative impacts brought from the forest fragmentation, many scholars criticize this situation and small scale operation from the viewpoint of scaling

operation. For example, some scholars (Song et al., 1997) suggest that household corporation system in China's collective forest operation may help benefit distribution. Li (2001) suggests that to improve the disadvantageous situation of forestry, combination forest rights might be a feasible possibility. Wang (2009) points out that speeding volunteer cooperation to solve the problem of forest fragmentation becomes an emergent task. Chinese farmers believe that owning forest is one form of their personal property instead of business operation while this kind of micro business operation results in a less competitive power due to scaling effects (Li and Wang, 2003; Liu, 2000). Zeng (2009) points out that household operation system increases the risks on expected return, short-term speculation, and monopoly of land resource while Luo and Li (1999) provided evidence in Sichuan and Guangdong for these risk exposures. However, opposite opinions do exist. Gao (2007) believe that under current China' social condition, it is not a good time because forest farmers are much more willing to invest labor and capital to enhance the forest productivity since they possess all benefits. Passion brings higher net profits. She suggests that no result is valid if it can not pass the cost-benefit analysis and because forestry requires lower technology, individual is very possible to handle his or her own forest.

2. Empirical study of the relation between fragmentized collective forestland, farmers investment and forest commodity output

2.1 Intuition of forestland fragmentation and quantitative method selection

2.1.1 Definition of forestland fragmentation

Concept of land fragmentation is widely used in China. Forest fragmentation is raised based on land fragmentation but without an exact definition. Therefore, this study infers the more mature definition on cropland fragmentation to define the forest fragmentation. Forest fragmentation has two necessary conditions including more than two separate forests and these forests should be small. Based on these conditions, forest fragmentation means a farmer must operate more than one small forests that are not adjacent. In this study, we focus on the economic analysis of the adjacent forests although possibility of transferring non-adjacent forests to adjacent and larger forests does exist. We also emphasize the economic intuition on the small blocks and scale economy, which is to enhance the return from the resource, increase income and reduce costs (Zhang and Huang, 1997; Cheng, 2001).

Based on this definition, forest fragmentation considers more on the economic side and thus should have the following two characteristics: (1) block is too small to realize the scale economy and (2) blocks can be combined through sales.

2.1.2 The measurement of forest fragmentation

There are two major methods for the measurement of forest fragmentation. One is to use single index to measure the level of fragmentation based on the number and area of blocks (Binns, 1950) and the other is to build a relatively complicate index. King and Burton (1982) constructed *S* indexes, *J* index and *I* index based on six factors including farm size, block number, block size, block shape, spatial and grain distribution of blocks.

These indexes are expressed as follow:

$$S = 1 - \frac{\sum\limits_{i=1}^{n} \alpha_i^2}{(\sum\limits_{i=1}^{n} \alpha_i)^2} , \qquad (1)$$

$$J = \frac{\sqrt{\sum\limits_{i=1}^{n} \alpha_i}}{\sum\limits_{i=1}^{n} \sqrt{\alpha_i}} , \qquad (2)$$

$$I = \frac{(\sum\limits_{i=1}^{n} \alpha_i)/n}{100} \times \sum W , \qquad (3)$$

where *n* is the block number owned by the farmer, *α* is the size of the block and *W* is the distance between blocks.

The values of *S* and *J* are between 0 and 1. When *S* is closer to 1, then the level of forest fragmentation is higher while *J* index has opposite meaning. All three indexes use block numbers and block size as important factors, but we are not able to determine which has greater impacts. In addition, *J* index cannot reflect the fact that the level of forest fragmentation should decrease when the area of larger-sized blocks increase and the area of smaller-sized blocks decrease.

Each method has advantages and disadvantages. In this study, we focus on the number and size of blocks and the distance between block and farmers' house. However, in order to provide a better measurement of the level of forest fragmentation, we also use *S* index as a supplementary.

2.2 Quantitative analysis of the level of forest fragmentation

2.2.1 Statistic description before and after forest right reform

Table 1 shows the number and changes of farmer forestland block before and after the forest right reform. Average farmer owned block increases 0.92, which is 16.12% higher than the reform has been applied. Among the research area, the number of owned blocks in Guangxi and Liaoning provinces increases the most while that in Hunan increases the least.

From Table 1 we also see that the problem of forest fragmentation did exist and the forest rights reform is to make this problem even serious.

Table 1. The change in number of farmer forestland block before and after RFPRS

Block numbers	Fujian	Guangxi	Henan	Liaoning	Shandong	Sichuan	Zhejiang	Jiangxi	Hunan	Average
Before RFPRS, block	1.83	2.13	1.38	2.25	1.13	6.31	4.06	3.87	3.02	3.35
After RFPRS, block	2.07	2.61	1.56	2.89	1.22	7.33	4.42	4.55	3.12	3.89
Change, block	0.24	0.48	0.18	0.64	0.09	1.02	0.36	0.68	0.10	0.54
Change ratio, %	13.11	22.54	13.04	28.44	7.97	16.09	8.87	17.57	3.31	16.12

Table.2 The block number of farmers' forest management on different scale

Survey range, household	Average number of Block per household, block	Operating 1~2 blocks forest land, %	Operating 3~4 blocks forest land, %	Operating 5~6 blocks forest land, %	Operating 7~10 blocks forest land, %	Operating 10 blocks and over forest land, %	Operating 20 blocks and over forest land, %
2420	4.52	36.47	27.98	16.87	13.01	4.48	1.18%
263	3	50.83	31.40	9.92	7.85	-	-

2.2.2 Analysis of the level of forest fragmentation based on 2420 farmer households

From the survey data, we see that 36.47% of farmers operate 1-2 forests, 27.98% of farmers operate 3-4 forests, 16.87% of farmers operate 5-6 forests, 13.01% of farmers operate 7-10 forests and 5.66% of farmers operate more than 10 forests *(Table 2)*. On average, each farmer operates 4.52 forests. Based on the statistic result, we see Jiangxi, Zhejiang and Sichuan have the highest farmer owned forests while Shandong has the lowest. The difference is mainly due to the landscape and time of forest rights reform.

Table 3 shows the forest block number operated by farmers. Farmer' average and forest size are largest in Shandong, which are 9.062 hm² and 7.487 hm², respectively. Farmers in other provinces also operate 2.5 hm² on average and the block size is greater than 0.66 hm². From the viewpoints of operating scale, 75% of farmers operate 1.33 to 3.33 hm² while 7.85% of farmers operate a forest less than 0.1 hm². The result indicates that after forest rights reform, scaling operation is more obvious and the block size is stable. Compare to the cropland, forestland fragmentation is not significant.

Tables 4 and 5 illustrate the forest block distribution in China and the block distribution between blocks and roads.

Table 3. The block list of forestland in the whole country and the sample provinces

Range	Average number of block per household, block	Average area per household, hm²	Average area per block, hm²	Maximum block, hm²	Minimum block, hm²
Shandong	1.220	9.062	7.487	46.667	0.013
Liaoning	2.890	5.307	1.837	20.000	0.133
Henan	1.560	0.788	0.507	5.533	0.004
Sichuan	7.330	2.549	0.676	8.333	0.003
Zhejiang	4.420	4.397	0.996	7.400	0.033
Fujian	2.070	5.193	2.507	21.667	0.107
Hunan	3.120	2.665	0.854	12.000	0.033
Jianxi	4.550	11.425	2.512	107.813	0.013
Guangxi	2.610	2.519	0.967	10.667	0.007

Table 4. The distribution of block of farmers' forest land in different scales

Range/ha	<1	20-40	40-50	50-60	60-100	>100
Percentage of average area per block, %	13.73	61.54	13.46	4.4	3.3	3.57
Percentage of average area per household, %	7.85	40.9	13.64	7.85	11.16	18.6

Table 5. The distribution of the proportion to distance between block and road

Range, meter	<100	100-500	500-1000	1000-2000	2000-3000	3000-4000	4000-5000	>5000
Percentage, %	9.22	24.25	22.24	20.64	11.82	3.81	2.41	5.61

Generally speaking, the distance between block and road should affect the efficiency of production because the longer the distance, the more time is needed to transport commodities. The longest distance in our samples is 16 km and 5.61% of block is longer than 5 km while 9.22% is shorter than 0.1 km. Distance between block and road is less than 0.5 km.

The comprehensive *S*-index describes the level of forest fragmentation even straight. In this study, the number and size of blocks and the distance between block to road increase the measurement of *S* index.

Table 6 shows that the level of China's forest fragmentation is 0.41. *S* index is highest in Zhejiang, followed by Jiangxi, Hunan, Liaoning and Sichuan. S index in Shandong is the lowest. The trial provinces (Jiangxi, Fujian, Zhejiang and Liaoning) have higher level of

forest fragmentation, which indicates that the forest rights reform has impacts on forest fragmentation. In addition, the level of forest fragmentation is directly related to natural geography because the results indicate that the level of forest fragmentation in mountain is significantly higher than that in plain. Sichuan is an example.

2.3 Description of farmers' investment under forestland fragmentation

Table 7 lists the forestry investment of farmers. The results show that average investment is less than $2200 Yuan but has increased year after year. Henan, Shandong and Zhejiang have relatively large investment due to commodity needed (ie. Fruit is the major product in these provinces). Guangxi, Hunan, Sichuan and Jiangxi have smaller investment because wood is the major product.

Table 6. The degree of forest land fragmentation in the whole country and different provinces

Region	China	Shandong	Liaoning	Henan	Sichuan	Zhejiang	Fujian	Hunan	Jiangxi	Guangxi
S index	0.41	0.11	0.46	0.16	0.42	0.62	0.42	0.48	0.58	0.40

Table 7. The forestry investment of farmer's family in 9 provinces(regions)

Year	Fujian, yuan	Guangxi, yuan	Henan, yuan	Liaoning, yuan	Shandong, yuan	Sichuan, yuan	Zhejiang, yuan	Jiangxi, yuan	Hunan, yuan	Average, yuan
2003	611.8	107.74	4995.2	384.7	1452.51	565.5	1430.34	391.94	73.72	1112.61
2007	983.8	122.23	6152.1	1702.83	1866.48	735.49	2089.43	616.51	214.52	1609.27
2008	945.2	152.53	6972.5	1670.93	2145.77	737.56	2228.55	902.89	431.23	1789.57
2009	1353	184.96	8188.5	1814.06	2297.92	925.17	2969.84	1027.39	639.96	2155.64

Table 8 indicates that average farmer's investment is low compared to their total household income. Usually the ratio is less than 0.06. In other words, farmers receive small return from forestry operation because of their low investment and thus, forestry has low importance in household income. In general, investment-income ratio in Guangxi, Hunan and Jiangxi is less than 0.03.

2.4 Relationship between farmers' investment and forest fragmentation

2.4.1 Relationship between farmers' investment and the level forest fragmentation

In order to examine the relationship between farmers' investment and the level of forest fragmentation, we use the level of forest fragmentation as independent variable *(X)* and household investment as dependent variable *(IN)* to construct a single variate regression model. The samples performs a nonlinear relationship (*S* shape) and thus the model is built in the following form:

$$IN = -10831{,}68 + 181454{,}30X - 586913{,}73X^2 + 530794{,}33X^3 , \tag{4}$$

where *t* is -3.742 for intercept, 5.485 for *X*, -5.991 for X^2 and 6.249 for X^3 with R^2 is 0.705 and *F* value is 28.668.

From equation (4) we see the R^2 is 0.705 and thus the model has high explanatory power. The *P* value of constant and independent variable is 0 and this means when others held constant, independent variable *X* does not have significant impact between the level of forest fragmentation and farmers' investment. Getting extreme value from this equation, when the level of forest fragmentation is between 0.22 to 0.51, higher level of forest fragmentation exists and when *X* falls outside this range, the level of forest fragmentation is smaller and suitable for household investment.

Table 8. The proportion of forestry investment and total income in farmer's family

Year	Fujian, %	Guangxi, %	Henan, %	Liaoning, %	Shandong, %	Sichuan, %	Zhejiang, %	Jiangxi, %	Hunan, %	Average, %
2003	3.2	1.1	15.1	2.6	12.3	4.8	4.9	2.0	0.6	6.6
2007	3.5	0.8	13.6	5.9	10.8	3.6	4.5	2.0	1.0	6.1
2008	2.8	0.9	14.4	4.9	11.4	3.5	4.1	3.0	1.8	6.2
2009	3.5	0.9	14.9	4.7	9.2	3.6	5.0	2.9	2.5	6.1

2.4.2 Relationship between the level of forest fragmentation and investment-income ratio

In order to analyze the impact between the level of forest fragmentation and investment-income ratio, we use the same independent variable and use the investment-income ratio *(YI)* as dependent variable to construct a single variate regression model. The model can be expressed as:

$$YI = 164,082X - 620,435X^2 + 592,516X^3, (5)$$

where *T* is 2.814 for *X*, -3.593 for *X²* and 3.958 for *X³*. The *R²* is 0.821 and *F* value is 55.154.

From equation (5) we see the *R²* is 0.821 and thus the model has high explanatory power. The *P* value of constant and independent variable is less than 0.01 and this means when others held constant, independent variable *X* does have significant impact between the level of forest fragmentation and farmers' investment-income ratio. Getting extreme value from this equation, when the level of forest fragmentation is between 0.17 to 0.52, higher level of forest fragmentation exists and when *X* falls outside this range, the level of forest fragmentation is smaller and suitable for household investment.

2.5 Impacts of forest fragmentation and farmers' investment on forestry production

2.5.1 Selection of model variables

This study utilizes the Cobb-Douglas production function to examine the relationship between forest fragmentation and forestry production. Because the study focuses on the impact of forest fragmentation and farmers' investment on forestry production, number of forest block is independent variable and unit forestry production is dependent variable. The Production function means that under certain technological level, a fixed amount of investment relies on the production possibilities. Investment includes labor, capital and land. In this study, independent variables are determined and explained as follow:

(1) Labor investment (LDTR): standard working hours (day);

(2) Other investment (WZTR): including seeds, chemicals, nutrients and miscellaneous inputs;

(3) Land area (LDMJ): area of operated forestland;

(4) Level of forest fragmentation (LDXSCD): number of forest block per household.

2.5.2 Model construction

The Cobb-Douglas production function can be expressed as

$$Y = \alpha_0 x_{1^1}^{\beta} x_{2^2}^{\beta} , \qquad (6)$$

where *Y* is production and *X_i* stands for *i*[th] input.

The number of forest block operated expresses change of forest fragmentation and thus it can not be used as one input variable. Based on the theories of developing economics and past experience, scaling operation is

firstly impacted by the forest fragmentation. Because β_i ($i = 1, 2 \ldots k$) is elasticity, we construct a model that links this to that forest fragmentation:

$$\beta_i = \alpha_i + \gamma_i^{LnP}, i = 1, 2 \ldots k. \quad (7)$$

P in equation (7) stands for the number of forest block and plugs into the Cobb-Douglas production function, we can get:

$$Y = \alpha_0 \; x_1^{(\alpha_1 + \gamma_1 \times LnP)} \times$$
$$\times x_2^{(\alpha_2 + \gamma_2 \times LnP)} \times x_k^{(\alpha_k + \gamma_k \times LnP)} \quad . \quad (8)$$

Put natural log both sides, we get model II and it is expressed as

$$LnY = Ln\alpha_0 + (\alpha_1 + \gamma_1 LnP)LnX_1 +$$
$$+ (\alpha_2 + \gamma_2 LnP)LnX_2 \quad . \quad (9)$$
$$+ \cdots\cdots + (\alpha_k + \gamma_k LnP)LnX_k$$
$$= Ln\alpha_0 + \sum \alpha_1 LnX_i + \sum \gamma_1 LnPLnX_i$$

From equation (8), the scale elasticity V can be expressed as

$$V = \sum \beta_1 = \sum (\partial_1 + \gamma_i LnP) = \sum \alpha_{i+} LnP \sum \gamma_i =$$
$$= \gamma_0 LnP + \sum \alpha_i, \text{ where } \gamma_0 = \sum \gamma_i.$$

Model II is the extension of Cobb-Douglas production function and can be used to examine the impacts of forest fragmentation on scale economy. Variable P should be a positive integer. When forest fragmentation does not exist ($P=1$), it returns to standard Cobb-Douglas function.

Two potential problems exist in model II. The first problem is the new variable $LnPLnX_i$ or $PLnX_i$ may have multi-linearity and the second problem is the property in standard Cobb-Douglas production function cannot be retained. One way to solve this problem is to add one constraint that all γ_i are equal.
That is

$$\gamma_1 = \gamma_2 = \ldots = \gamma_k = \gamma. \quad (10)$$

Therefore, we can get model III:

$$LnY = Ln\alpha_0 + \sum \alpha_i Ln\chi_i + \kappa\gamma(LnP\sum Ln\chi_i). (11)$$

The coefficient corresponding to scale economy is defined by $\sum \alpha_i + k\gamma LnP$ (under linear scale function, it is defined by $\sum \alpha_i + k\gamma P$). Therefore, if we find that $\sum \gamma_1$ or γ is less than 0, then forest fragmentation has negative impacts on scale economy and forestry production. The selection of scale function (linear or semi-log) depends on the value of R^2 and likelihood.

2.4.3 Result of model estimation
(1) Variable description
Survey data used in this empirical study collected from farmers among nine provinces in 2009. Forestry commodities include wood, bamboo, bamboo shoots, economic forest product 1, economic forest product 2, economic forest product 3, fuel wood and non-wood forest products. Output is calculated on a household basis and plant area is in hectares, physical investment is in dollars and labor is determined by working days. From the data

obtained, the major products are wood and bamboo while others are in a relatively small number.

(2) Model fitness and selection

Before we estimate the models, we analyze the likelihood function and R^2 (fitness of the samples and regression line) in order to select the models. The selection result shows that bamboo shoots, economic forest product 2, economic forest product 3 should be linear in the model. When using R^2, likelihood value is higher in economic forest products and others are low (see *Table 9*).

(3) Model selection

From *Table 10* we can see that when wood is output, only LDXSCD has negative impacts within four independent variables,

which is the same as our expectation. Other variables such as labor, land and capital have positive impacts on forestry outputs. T value of corresponding γ of physical investment is greater than 2, which indicates that the positive impact of physical investment is significant. However, the γ of forest fragmentation shows the negative impact of forest fragmentation is significant. The estimated result of bamboo is different from our expectation where the LDXSCD does not have negative impacts on forestry production while the LDMJ has the negative impacts and labor has positive impacts. From the coefficient of forest area, we see that the negative impact of bamboo area is significant.

Table 9. The results of model selection

Crop	Scale function	Goodness of fit R^2	Final selection model
Wood	Linear model	0.135342	
	Logarithmic model	0.267122	Logarithmic model
Bamboo	Linear model	0.025012	
	Logarithmic model	0.036994	Logarithmic model
Bamboo shoots	Linear model	0.676175	
	Logarithmic model	0.269619	Linear model
Economic forest product 1	Linear model	0.066245	
	Logarithmic model	0.095661	Logarithmic model
Economic forest product 2	Linear model	0.875314	
	Logarithmic model	Not applicable	Linear model
Economic forest product 3	Linear model	0.735718	
	Logarithmic model	0.667665	Linear model
Fuel wood	Linear model		
	Logarithmic model	0.057076	Logarithmic model
Non-wood forest products	Linear model	Not applicable	abandoned
	Logarithmic model	Not applicable	

Table 10. The main indicators of the wood, bamboo model estimating

Explanatory variables	Crop					
	Wood			Bamboo		
	Coefficient γ	*t* value	*p* value	Coefficient γ	*t* value	*p* value
LDTR	0.209085	1.624927	0.1069	0.247387	1.830346	0.0686
WZTR	0.316939	4.187608	0.0001	0.002072	0.022804	0.9818
LDMJ	0.219486	1.952609	0.0533	-0.19599	-2.17862	0.0305
LDXSCD	0.33482	-2.9077	0.0489	0.032924	0.876812	0.3816

3. Conclusion and discussion

The collective forest rights reform is the basis of China's forest fragmentation. Because of natural geographic and resource differences, effects of forest fragmentation become even stronger. The latest forest reform also increases the level of fragmentation. Survey data shows that the total block number has increased by 16.12% with the highest increase in Guangxi and Liaoning and smallest increase in Hunan.

The result also shows that even forest rights have been determined; the number of forest block does not increase per household. This tells that the latest forest rights reform only has limited impact on forest fragmentation. Compared the data, we find that mountainous area has more significant impacts on forest fragmentation than the plain area, but the impacts are limited by the spatial constraint and time lags. Statistics of number and size of block and average area of forest show that China's forest fragmentation is not very high.

Therefore, the living standard and household forest fragmentation does not increase in the same speed. Rather, dividing forest to household increases the size of forests owned by farmers, which push the scale forest operation. In general, scale effects mean lower production cost or higher production when operating expands. For this reason, we should not encourage land monopoly.

The quantitative analysis indicates that under certain S index intervals, the higher then level of forest fragmentation, the more difficult for farmers to invest. But when the level of forest fragmentation is lower than 0.22 or higher than 0.51, it would help investment. The same logic applies for the investment-income ratio. This says that the level of forest fragmentation and investment do not have negative linear correlation and the development of scale operation and investment do not have positive linear correlation, which is the same as the field survey. The main reasons for low investment include lack of capital

and labor low profits from forestry. Lacking of labor is due to the large-scale operation and high salaries. This indicates that under current operating condition, appropriate labor supply and external capital support must be an important policy suggestions to keep scale forest operation.

Fragmentized forest operation has negative impacts to forest wood production but no significant impact on bamboo. For bamboo, investment level is the most important factor to its output and when the capital is not sufficient, the larger the size of bamboo forest, the unit output is lower due to decrease on average investment. Therefore, labor, physical and ground investment have positive impacts on wood and bamboo products where the physical investment has the largest effect. This also means that after the land is divided to households, physical investment is the key factor to affect the commodity output and should be considered by the related policies to increase the incentives of farmers.

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Analysis of Transaction Costs in Logistics and the Methodologies for Their Information Reflection for Automotive Companies

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Abstract. Transaction costs emerge in different types of logistics activities and influence the material flow and the accompanying financial and information flows; due to this fact, the information support and assessment are important tasks for the enterprise. The paper analyzes transaction costs in logistics for automotive manufacturers; according to the analysis, the level of these costs in any functional area of "logistics supply" ranges from 1.5 to 20%. These are only the official figures of transaction costs of enterprises that do not take into consideration implicit costs. Despite the growing interest in transaction costs in logistics in the latest fifteen years, this topic is covered rather poorly in Russian literature; the definition of "transaction costs" is unclear, there is no technique of their information reflection and assessment. We have developed the methods for information reflection of transaction costs that can be used by automotive enterprises. Each enterprise will have an opportunity to choose the most suitable technique for information

reflection of transaction costs or to compare the level of transaction costs when using different techniques. Application of techniques for information reflection of transaction costs allows the enterprises to increase profits by optimizing and reducing costs and using their assets more effectively, to identify possible ways to improve cost parameters of their performance, to improve their efficiency and productivity; to cut out unnecessary or duplicate activities, to optimize the number of staff involved in a particular activity.

Key words: transaction costs, supply logistics, information reflection of costs, logistics costs.

Analysis, information disclosure and evaluation of costs are especially important tools for managing the enterprise in today's economy.

According to the European Logistics Association (ELA), logistics services account for 10 to 20% in the structure of the global gross domestic product, and logistics costs, depending on the industry, account for 10−40% in the cost structure of production enterprises. Moreover, this proportion continues to increase along with the rising cost of raw materials, components, and increased competition in the upstream market. The analysis of the structure of logistics costs in different industries in economically developed countries shows that the largest share in it is the cost of stocks management (20−40%), transport costs (15−35%), the costs of administrative and managerial functions (9−14%), one of the components of which are transaction costs (TC).

With the rapid growth of logistics costs, a tendency toward the increase in TC is becoming more and more pronounced, and therefore it seems relevant to analyze the level of TC at Russian enterprises, to determine their place and role in logistics, and to develop techniques for their information disclosure.

Formation of the TC theory as a coherent scientific concept is associated primarily with the works of R. Coase, J. Wallis, D. North,

A. Alchian, H. Demsetz, O. Williamson, S. Chang, Y. Barzel, M. Jensen, and others.

R. Coase based his thoughts on the concept of transaction and introduced the concept of "transaction costs" (1937) for estimating the cost of transaction operations [14].

As he noted, "without the concept of transaction costs, which for the most part is missing in modern economic theory, it is impossible to understand how the economic system works, to analyze a number of its issues and to develop the basis for the elaboration of policy recommendations" [8].

The analysis of the works of J. Wallis and D. North [22] shows that there exist different sources of increase in the transaction sector, which is typical for logistics as well.

When determining transaction costs, P. Milgrom, J. Roberts [20], E.A. Brendelev [2], Y. Barzel, [13] do not separate them from the manufacturing process. As for the study from the standpoint of logistics, it reveals new types of transaction costs that will not always depend on the production process.

O. Williamson [23], C. Dahlman [15], M. Jensen and W. Meckling [18] give the definition of TC using the instrumental category, such as the contract, without taking into account the principles of logistics.

Most researchers understand transaction costs as the costs of functioning of the system. However, there is no generally accepted

classification of these costs, every researcher draws attention to the most interesting elements. J. Stigler identified "information costs" [21], O. Williamson — "the costs of opportunistic behavior" [23] M. Jensen and W. Meckling — "the costs for monitoring agent behavior and the costs of its self-limitation" [18], Y. Barzel, — "the costs measurement" [13] P. Milgrom and J. Roberts — "influence costs" [19], H. Hansmann — "the costs of collective decision-making" [7]; C. Dahlman included in their composition "the costs of collecting and processing information, the costs of negotiation and decision-making, the costs of control and legal protection of execution of the contract" [7].

The estimate of TC in the total cost of the firm in the assessments of various researchers are presented in *Table 1.*

The role of TC in modern society is very significant. As follows from the table, the transaction sector of the economy is 50 to 70%, and it gradually growing. At the same time, the share of transaction costs in the total costs of the firm ranges from 1.5 to 15%, but in transition economies they can be significantly higher.

The following researchers studied TC in logistics: V.V. Borisova, E.A. Bondarenko, E.V. Loginova, S.V. Noskov, N.K. Moiseeva, M.Yu. Vinogradov, A.V. Parfenov, B.K., Plotkin, S.A. Cherkasov, N.I. Khrameshkin.

All these scientists contributed to the development of this research direction, but though the popularity of research on transaction and TC has increased, mostly these studies are fragmented and non-systematic. To date, the logistics experts are faced with the problem of insufficient knowledge of TC in logistics, this fact prevents from obtaining an objective disclosure of the situation at the level of subjects of the logistic system. Objective assessment of TC in logistics should be the main concern of managers, since obtaining such information that is required for making management decisions and monitoring their implementation is one of the main objectives of the company.

Transaction costs are important for explaining many phenomena in logistics. In an uncertain economic situation, senior managers are interested in proper management of the internal costs of the company and its transaction costs in the supply chain.

In modern conditions of development of logistics there is a change in the level of TC. This is reflected in the increase in their share in the cost structure of the firm. For example,

Table 1. Estimation of the amount of transaction costs, %

Information source	Extent of the transaction sector of the economy	Share of transaction costs in the total costs of the firm
J.J. Wallis, D.C. North [22]	54.7	
E.G. Furuboth, R Richter [16]	50–60	
J.K. Lafta [9]	tp to 70	
M.Yu. Vinogradova [3]		from 1.5 to 15
L.V. Gusarova, I. Mirgaleeva [4]		6.7
S. Osmolovets [10]		11. 57

the costs of marketing activities, the costs of maintenance of executive personnel, the costs of the services of logistics specialists, marketers and lawyers in today's market conditions can exceed the cost of creating the product itself. This stimulates the emergence of firms and, in the scale of economic systems, industries specializing in the production of means of transaction —management, logistics, marketing and auditing. In this respect, the growing TC in logistics can be seen as an indicator of economic progress of the society and its transition to a higher level of development.

The analysis of TC in the structure of logistics costs helps present more specifically the situation at the enterprises of the Russian Federation that concerns logistics costs and TC included in them.

All organizations in varying degrees depend on raw materials and services provided by other organizations. The implementation of supply is one of the main functions in each organization, and the costs of supply, as a rule, take the highest values, and therefore, the analysis of TC is carried out with the help of a functional area such as purchasing logistics.

The object of the study is transaction costs in supply logistics, studied on the example of the automotive industry of the Republic of Tatarstan (RT).

The object of analysis was selected on the basis of the following provisions. The Republic of Tatarstan is part of the Volga Federal District of the Russian Federation. According to the Federal State Statistics Service of the Russian Federation, the main indicators of socio-economic development in the Volga Federal

District are at a high level in comparison with other federal districts. Having analyzed the main socio-economic indicators of the republics constituting the Volga Federal District, we can conclude that of the Republic of Tatarstan is the most interesting region for analyzing TC in supply logistics at industrial enterprises.

In terms of the volume of industrial production, the Republic is among the top five regions of the Volga Federal District and among the top five leading regions of the Russian Federation as a whole.

We chose machine building, and namely its sub-sector − the automotive industry − in order to analyze logistics costs and TC included in them.

The automotive cluster created on the basis of leading enterprises "KAMAZ" and "Sollers" is one of the "engines" of economic growth of Tatarstan's industry. "KAMAZ" group of companies is the largest automotive corporation in the Russian Federation.

The share of KAMAZ, which is the key town-forming enterprise of the city of Naberezhnye Chelny, accounts for almost three quarters of the volume of industrial products produced in this city. Based on these indicators, we can conclude that Naberezhnye Chelny is a single-industry town. The volume of industrial production of its enterprises is about 20% of the total volume of products manufactured in Tatarstan.

The companies belonging to "Sollers" group of companies produce "Ford" cars, "Isuzu" trucks, and "SsangYong" SUVs.

In order to improve the reliability of the study, we formed a representative sample of the Republic's largest automotive enterprises

(50 companies, including "KamAZ" and "Sollers"), on the example of which we carried out the analysis of TC in supply logistics for 2008–2014 (*Fig. 1–2*). The figures show the level of TC calculated as a percentage of the total number of respondents.

Figure 1. Distribution of enterprises according to the share of TC in overall logistics costs in 2008–2014
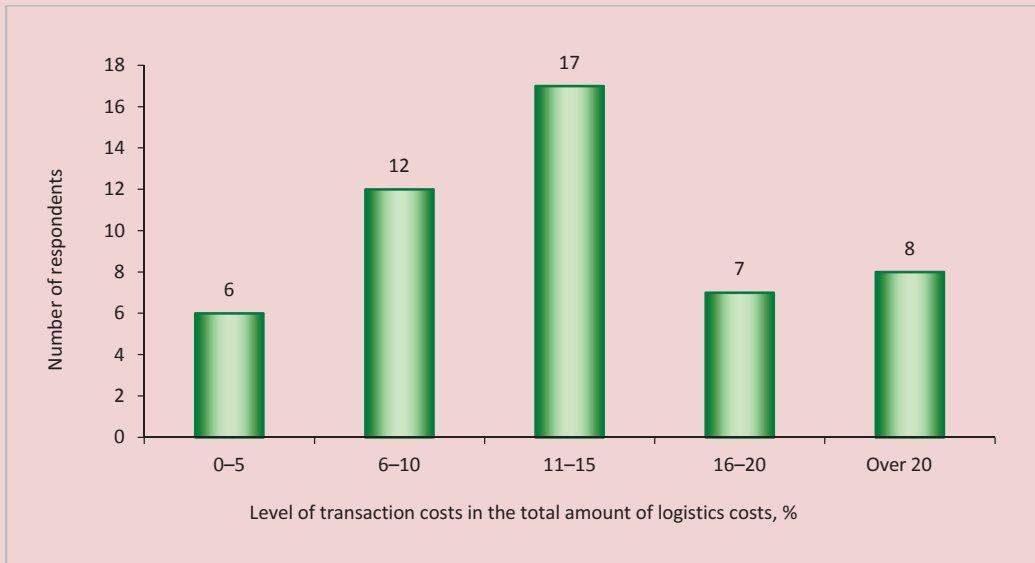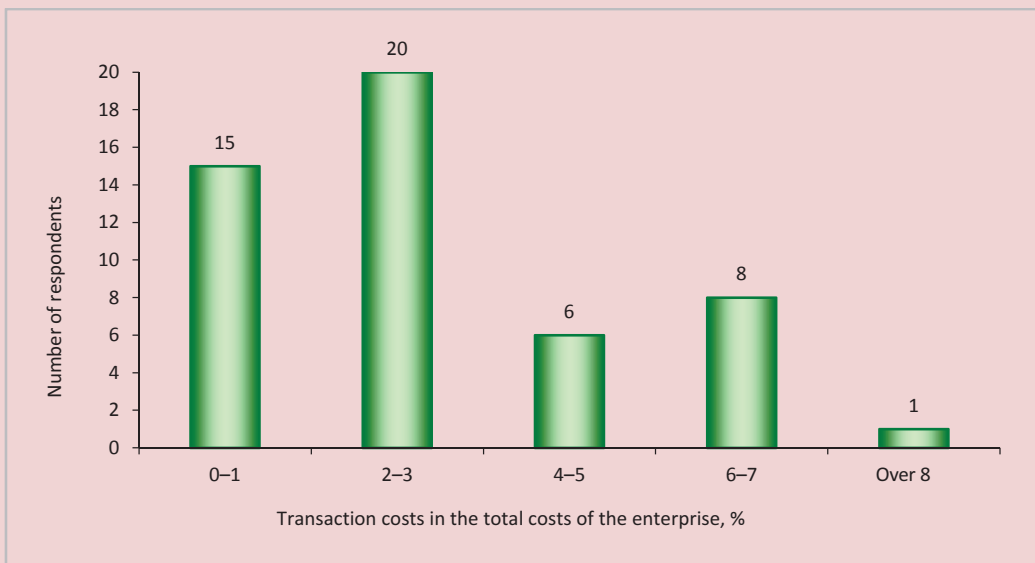

Figure 2. Distribution of enterprises according to the share of TC in the total costs of the enterprise for 2008–2014

As we can see, TC in supply logistics include:

1. The cost of finding information (communication services, including telephone calls, Internet, telex, fax and other means of communication, wages of employees engaged in search of the counterparties).

2. The costs of negotiating and concluding contracts (communication: telephone calls, Internet services, telexes, faxes, etc.; travel and hospitality expenses; the costs of requests and participation in auctions; the direct costs of legal registration of contracts; wage of employees who are engaged in negotiating and contracting).

3. The costs of conducting measurements (in the form of the costs of resources needed for the acquisition of measuring equipment in supply and the execution of measurement in assessing the quality of supplies; wages of inspectors engaged in the quality assessment).

Figures 1 and 2 illustrate a fairly high level of TC in supply logistics, it reaches more than 20% in eight automotive companies of the Republic, which confirms the relevance of the chosen research topic.

The similarly high level of TC in supply logistics is observed in the leading enterprises of the automotive industry abroad (*tab. 2*).

Transaction costs of automotive companies in this table are calculated as the cost of the goods purchased by one employee of the supply service who performs transaction functions at that.

Over the past decade, many Western companies experienced a noticeable growth of logistics costs in logistical functions such as transportation, order processing, information and computer support, and logistical administration.

The integrated approach in logistics revealed a lack of information on costs. The planning and accounting systems that are traditionally used do not help allocate transaction costs from the total amount of costs. The analysis of TC in supply logistics with regard to their significant value for logistics systems predetermines the conclusion about the urgent need to develop methods of information disclosure of TC in supply logistics.

The techniques of information disclosure of TC in supply logistics are based on the principles of the ABC method [5, 6].
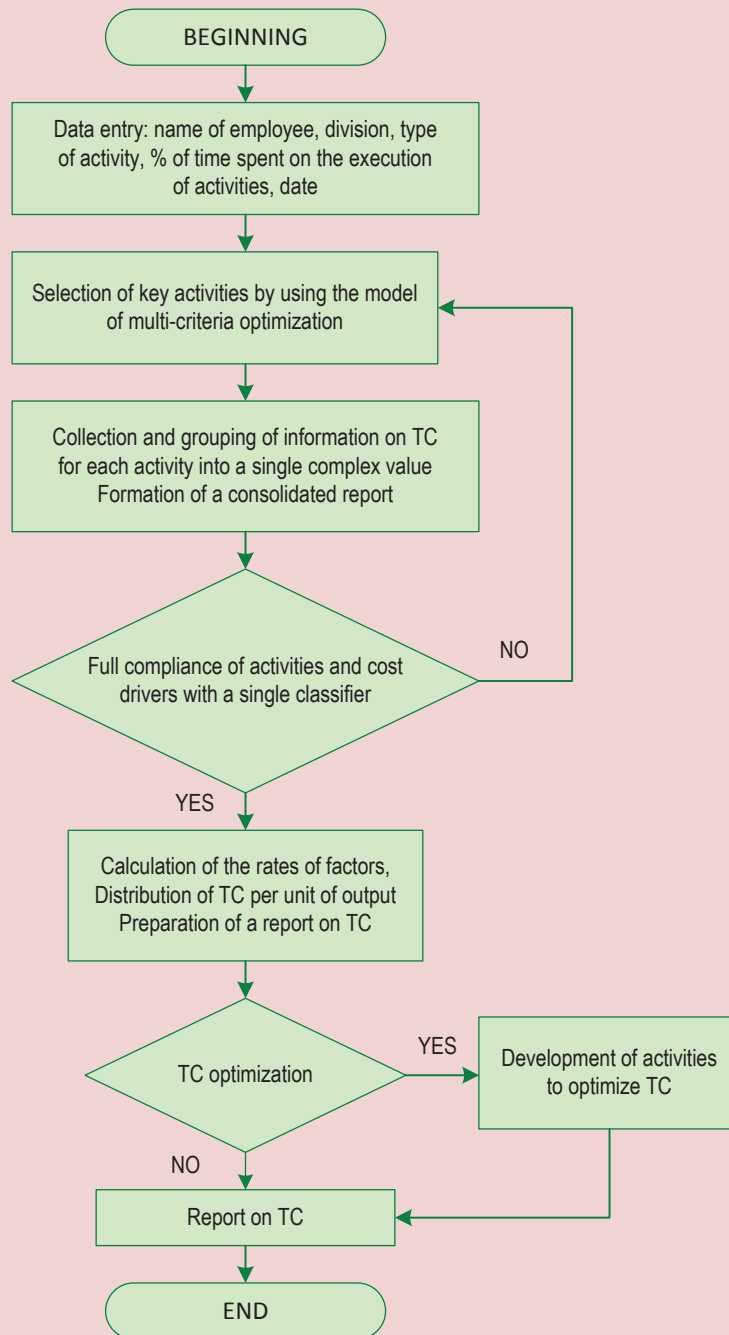
Figure 3 presents the algorithm for the technique of informational disclosure of TC in supply logistics. It includes the following steps:

1. Formation of a unified classifier of actions using a method of interviewing. Heads of departments that are the centers of TC are interviewed for the purpose of finding out what functions (actions) they perform and how much time it takes to perform these functions.

Table 2. Transaction costs in supply logistics at the leading enterprises
of the automotive industry abroad [17]

Name	Chrysler	Ford	GM	Nissan	Toyota
TC of automotive companies, million US dollars	5.7	5.3	1.6	9.6	12.6

Figure 3. Algorithm for the technique of informational disclosure of TC in supply logistics

BEGINNING

Data entry: name of employee, division, type of activity, % of time spent on the execution of activities, date

Selection of key activities by using the model of multi-criteria optimization

Collection and grouping of information on TC for each activity into a single complex value
Formation of a consolidated report

Full compliance of activities and cost drivers with a single classifier

NO

YES

Calculation of the rates of factors,
Distribution of TC per unit of output
Preparation of a report on TC

TC optimization

YES

Development of activities to optimize TC

NO

Report on TC

END

2. Types of activities are selected, because they will consume resources and incur costs. It is important to select only those actions which end in the obtaining of any result, because only then can they be attributed to a specific activity.

In order to reflect the costs of a particular activity, it is necessary to fill in the primary documents in accordance with the following requirements (*tab. 3*).

3. Based on the generated classifier of actions, the personnel that performs functions connected with supply logistics fill the form of the primary documentation, in which, according to their job description, they indicate the types of work performed, and the percentage of time spent on their execution.

4. The cost factors for each type of activity are selected and approved. On their basis, all the TC for this type of activity are distributed. The cost factor acts as a carrier of costs associated with certain activities, it is used as a base for the distribution of costs in this group.

The problem of choosing the types of activities, which emerges at this stage, is solved using the model for selecting and ranking the priority activities developed by the author [11].

5. Information on TC for each type of activity is grouped into a single value complex. The rates of factors (cost objects) are calculated.

When determining the costs in terms of type of action, it is necessary to use the factors to distribute among them the resources of overhead costs and TC. The costs associated with the actions performed by people will be distributed in proportion to the wage of the employee who performs the functions connected with supply logistics. The proportion of TC is defined as the product of the value of the cost factor R_i of the activity and its quantitative variable K_i, correlated with the specific object of calculation:

$$TC = R_i \cdot K_i. \qquad (1)$$

Next, we allocate the costs by the type of activity by product (object). At this stage, TC are distributed by objects of calculation in the framework of the functionality of supply logistics. This stage allows us to identify the functions in the performance of which and the functionality in the framework of which the transaction costs reach the highest values, and which specific types of activities have the highest level of TC.

Table 3. Requirements to the registration of primary documentation
on TC in supply logistics on the basis of the ABC method

No.	Economic operations	Primary document	Basis for establishing the code	Responsible service
1.	Payroll	Register of distribution of working time, job orders for contractor work	Types of works performed	Services, groups, departments
2.	Deductions from wages	Payslip	Type of payroll	Accounts department at the enterprise, finance department
3.	Overhead costs related to transactional activity in supply logistics	Registers of overhead costs	Types of overhead costs	Accounts department at the enterprise, finance department

The technique for information disclosure of TC in supply logistics includes a large volume of calculations; due to this fact, we propose the software that could be introduced at the automotive enterprises. It is possible to develop the information system on the basis of SAP. To facilitate the work of employees at this stage the proposed system coding transaction costs to work in SAP. This method of information disclosure is presented in more detail in [12].

According to many researchers who study the specific nature of TC, they consist of the costs of time and resources to conduct the transactions. Despite the wide distribution of this theoretical direction, currently there is no model for assessing TC in supply logistics. It is proposed to solve this problem with the help of an alternative technique for information disclosure of TC in supply logistics, which will make it possible to obtain one of the components of TC, and also with the help of models for assessing TC in supply logistics that we have developed.

As an example of a model for evaluating TC in supply logistics, the paper presents a model for estimating the costs of information search, the costs of negotiations and concluding contracts and the costs of measurement and control.

1. The costs of information search in supply logistics:

1.1. The costs of the search of information on suppliers of supply products and prices of supplies (C_{fi}):

$$C_{si1} = WS + n \cdot C_{communication}, \quad (2)$$

where WS is the wage of employees who are engaged in the search for information on suppliers of supply products and prices of supplies (calculated according to the methodology of accounting TC in supply logistics), rubles;

$C_{communication}$ is the costs of communication, including, phone negotiations, Internet services, telex, fax and other means of communication, rubles;

n is the standard for the costs of communication.

1.2. The costs of the search for information on alternative suppliers (due to the incompleteness and inaccuracy of information):

$$C_{si2} = C_{si1} - (n \cdot C_{communication} + WS), \quad (3)$$

where WS is the wage of employees who are engaged in the search for information on alternative providers of supply products (calculated according to the methodology of accounting TC in supply logistics), rubles;

$C_{communication}$ is the costs of communication, including, phone negotiations, Internet services, telex, fax and other means of communication, rubles;

n is the standard for the costs of communication.

2. The costs of negotiation and contracting in supply logistics (C_{NaC}):

2.1. The costs of negotiations with contractors on supply logistics issues:

$$C_{NaC} = WS + HE + n \cdot C_{communication} + C_{travel}, \quad (4)$$

where $C_{communication}$ is the costs of communication, including, phone negotiations, Internet services, telex, fax and other means of communication (calculated with use of developed standards), rubles;

n is the standard for the costs of communication;

HE — hospitality expenses, rubles;

C_{travel} is travel costs associated with the coordination of supply logistics issues (calculated using developed standards), rubles.

2.2. The costs of contracting:

$$C_{NaC} = n \cdot C_{communication} + C_{requests,\ auctions} +$$
$$+ C_{LR} + C_{travel} + WS, \qquad (5)$$

where $C_{communication}$ is the costs of communication, including, phone negotiations, Internet services, telex, fax and other means of communication (calculated with use of developed standards), rubles;

n is the standard for the costs of communication;

$C_{requests,\ auctions}$ is the costs of requests and participation of the company in auctions, rubles;

C_{LR} is the direct costs of legal registration of contracts;

C_{travel} is travel costs associated with the coordination of supply logistics issues (calculated using developed standards), rubles;

SW is the salary of a lawyer engaged in contracts with the contractors on supply logistics issues (calculated according to the methodology of accounting TC in supply logistics), rubles.

The standard for communications costs when searching for information changes depending on the number of counterparties (suppliers, logistics intermediaries) that were found when searching for information. Observations made at different enterprises show that, on average, 600 minutes per month are allocated for telephone communication (including telexes and faxes), 20 working days each consisting of 8 hours (a total of 160 hours per month) — for Internet services. Searching for information on one contractor on average

takes 20 minutes of telephone talks and 30 minutes of surfing the Internet. Based on the information received we calculated the standards needed to calculate costs in supply logistics.

3. The costs of measurement and control in logistics (C_m):

3.1. C_m when assessing potential sources of supply:

$$C_m = SW \cdot (1 - P_e), \qquad (6)$$

where SW is the salary of the controller who makes the measurements (calculated according to the methodology of accounting TC in supply logistics), rubles;

P_e is the percentage of measurement errors ($P_e = 0.001 \div 0.002$).

3.2. C_m in assessing the quality of supplies:

$$C_m = C_{resources} + SW \cdot (1 - P_e), \qquad (7)$$

where $C_{resources}$ is the cost of resources needed for measurement equipment in the supply and for measurement in assessing the quality of supplies, rubles;

SW is the salary of the controller who assesses the quality (calculated according to the methodology of accounting TC in supply logistics), rubles;

P_e is the percentage of measurement errors ($P_e = 0.001 \div 0.002$).

The models for evaluating TC help determine their level in supply logistics. The composition of TC can change depending on the specifics of work of the enterprise.

The values of TC obtained with the use of the alternative method are compared with the values of TC calculated according to the

methodology of information disclosure of TC on the basis of the ABC method for the purpose of their deeper analysis.

Further, we propose to systematize the obtained values of TC to determine their consolidated features, identify their patterns, since the types of TC are qualitatively and profoundly different, they have different properties, degrees of complexity, and development specifics.

The difference from the previous technique consists in obtaining the information about the aspect of TC: the amount of time spent on the performance of transactional activities, expressed in the form of wages, in the framework of the functions of supply logistics.

The alternative technique for information disclosure of TC in supply logistics involves the same stages, except for the following differences:

1. In the context of the alternative technique for information disclosure of TC in supply logistics, it is proposed to choose the amount of time spent on the given type of activity (number of hours) as the cost factor for all kinds of activities.

2. Requirements for primary documentation are generated as follows (*tab. 4*).

Due to the fact that the information disclosure of TC in supply logistics is carried out at the strategic management level and at the operational level, it is necessary to use information on the wages of employees engaged in the strategic and operational management issues.

3. When calculating the costs of cost factors of one of the components of TC (salaries of the staff involved in transactional activities), it will be necessary to calculate the cost of one hour of each type of activity, which will vary depending on the level of management.

The accounting and managerial accounting data will serve as sources of information for the implementation of the proposed scheme for the assessment and informational disclosure of TC in supply logistics. In order to calculate TC in supply logistics, it is necessary to have the information about the average wage of employees and amount of the annual fund of working time. It will require additional analytical work on the informational disclosure of TC, and on the evaluation and development of optimization measures. The calculation of TC will be automated, which will facilitate the application of this methodology at the enterprise.

In order to reflect the actual parameters of the processes and real reserves for improvement of management activities, the application of the proposed methodologies is presented on the example of OJSC "Sollers — Naberezhnye

Table 4. Requirements for the registration of primary documentation on TC in supply logistics

No.	Economic operations	Первичный документ	Basis for establishing the code	Responsible service
1.	Payroll	Register of distribution of working time, job orders for contractor work	Types of works performed	Services, groups, departments
2.	Deductions from wages	Payslip	Type of payroll	Accounts department at the enterprise, finance department

Chelny". We analyzed logistics costs and TC included in them at this enterprise. The data for calculating TC of the enterprise were obtained from the reports of the enterprises on the accounts 25-1, 25-2, 26, 44, and the annual financial plan for 2009.

After calculating TC in supply logistics using various options, we compare the results obtained *(tab. 5)*.

Thus, the highest level of TC in supply logistics has been determined by using the method of information disclosure of TC with the use of the model for selecting the key types of activities in supply logistics.

Having calculated the value of TC in the functional area "supply logistics", the enterprises carried out optimization of TC [1] to reduce total logistics costs. *Table 6* presents

Table 5. Results of calculating transaction costs

Functionality of supply	Amount of TC calculated according to the method of information disclosure of TC with the use of the model for selecting the key types of activities in supply logistics, rubles	Amount of TC calculated according to the alternative method of information disclosure of TC, rubles
Procurement management	2,485,624	2,573,863
Supplier management	1,568,650	1,639,725
Placing orders	114,659.5	186,556
Transportation	3,506,689	4,005,080
External materials handling	1,732,706	432,362
Warehousing	1,783,924.7	1,966,706
Inventory management	6,030,783	59,139
Return of packaging (defective product)	419,610.1	6,319,366
TC TOTAL	17,642,646	17,182,797

Table 6. Results of the analysis of economic indicators of OJSC "Sollers – Naberezhnye Chelny" before and after optimization of TC

Indicators	before 2009	after 2009	Deviation +,-
Revenue from the sale of products, thousand rubles	3 377 991	3 377 991	-
Cost of sold products, thousand rubles	3 269 074	3 230 246	-38 828
Direct costs, thousand rubles	2 822 058	2 802 885	-19 173
Marginal revenue, thousand rubles	555 933	575 106	19 173
Overhead production costs, thousand rubles	447 016	427 361	-19 655
Gross profit, thousand rubles	108 917	147 745	38 828
Profit from sales, thousand rubles	-322 953	-274 502	48 451
Profit before tax, thousand rubles	-1 518 420	-1 407 274	111 146
Net profit distribution, thousand rubles	-1 309 434	-1 206 043	103 392
Profitability:	-13.51	-12.47	1.04
R of assets, %	-372.20	-264.95	107.25
R of own capital, %	-38.76	-35.70	3.06
R of sales, %	-9.88	-8.50	1.38
R of industrial activity (economic), %	-3.22	-2.71	0.51
R of productive capital, %	-13.51	-12.47	1.04
Total logistics costs, thousand rubles	3 875 142	3 855 828	-19 315

the results of the analysis of economic indicators of OJSC "Sollers — Naberezhnye Chelny" for 2009 prior to and after the implementation of optimization measures.

The implementation of measures to optimize TC resulted in a positive change in the total logistics costs by 19,315 thousand rubles, in a decrease in the overhead manufacturing expenses and self-cost on the whole by 38,828 thousand rubles, and also in a positive change in the indicators of profitability and cost-effectiveness. During the optimization for all types of TC it is forecast that there will be further increase in profit margins and productivity and decrease in net cost.

In modern conditions of tough competition on the commodity markets, it is a very challenging task to increase the company's profit by increasing production volumes, expanding markets and applying the policy of increasing prices. Therefore, the management of modern companies considers it a priority to reduce rationally its own costs in the areas of management, production, and logistics structures.

The functioning of logistics systems requires considerable resources: human, material, energy, information. In this regard, logistics costs account for a large share in the total costs of production and circulation. Transactions and related TC are an important part of logistics activities.

The share of the logistics component in the net cost of domestic products can reach 60%. In Europe, the cost of everything associated with delivery, storage and warehousing are 15% on average. The reasons for this contrast are connected with the fact that in Russia prices are overcharged due to transportation and storage costs and disruptions of delivery dates, which has become a typical phenomenon in the relations between the Russian supplier and consumer.

The proportion of TC in the aggregate costs of the company is 1.5 to 20%, when the company is functioning on traditional markets; TC can increase up to 20–25% when it enters new markets. Specifics of the markets of some products can have great influence on the composition and structure of TC.

Thus, the problem of information disclosure an effective evaluation of transaction costs in logistics becomes a task of prime importance and is connected with effective management of the organization as a whole.

The proposed methods for information disclosure of transaction costs in supply logistics make it possible to distinguish them from the total costs of the enterprise, to avoid errors in their calculation thanks to minimizing the averaging of their value, which is so typical for traditional accounting systems. These methods also provide an opportunity to determine their real value, help obtain a large amount of information for managerial decision-making in other problem areas related to the logistics of supply, and determine possible ways of optimizing TC.

Alternative methods for information disclosure of TI in logistics, supply — tool reasonably accurate estimates of the value of the results of actions in terms of types of products. The technique provides information in the form understandable for the personnel directly involved in the business process.

If it is necessary to make a more detailed calculation of TC in supply logistics that requires a detailed clarification of the composition of TC, it is recommended to use an alternative method for information disclosure of TC, which will allow enterprises to identify possible ways of improving the cost parameters of activities, to achieve improvements in efficiency and productivity, to identify the types of activities that involve the number of staff that exceeds the norm.

The choice of specific methods for information disclosure of TC in the logistics of supply will depend on the objectives of the enterprise.

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ECONOMICS OF THE AGRO-INDUSTRIAL COMPLEX

Research on Transformation Development of Pig Industry with Environment and Resource Restriction*

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Abstract. Adequate food and pork products are important to the safety of the world. China is the world's largest country in pig production and pork consumption. Pig industry plays a significant role in the animal husbandry production of China and has become one of most dynamic pillar industries in agriculture and rural economy at present. With the increasing environment and resource restriction, pig breeding is heading to standardized, large-scale and ecological development, which will promote the ecological transformation of pig industry, ensure animal products safety, ecological environment safety and resource safety and improve the comprehensive benefit of animal husbandry.

Key words: production and consumption of pork, situation in pig industry, imports and exports of pork, standardized large-scale development.

1. Development status of pig industry

1.1 Pig production and consumption condition in China

As per data from Food and Agricultural Organization, the pig slaughtering in China was 735,100,000 pigs in 2014, the breeding stock was 465,830,000 pigs at the end of 2014 and the pork production realized 56,710,000 tons, occupying 65.14% of total meat production (87,067,000 tons) of China, increasing by 0.78% compared with the same period of 2013, and occupying 51.3% of total pork production (110,540,000 tons) in the world.

As per data from National Bureau of Statistics of China, during 2010 and 2014, the pig breeding stock was slightly decreasing; however, the pork production was increasing steadily, and residents' pork consumption was increasing steadily *(Tab. 1 and Fig. 1)*. In 2014, per-capita consumption of pork for urban residents was 23.6kg, per-capita

Table 1. Pork Production and Consumption Condition in China in 2010-2014

Year	Pig breeding stock (10,000 pigs)	Pig slaughtering (10,000 pigs)	Pork production (10,000 tons)	Urban per-capita consumption (kg)	Rural per-capita consumption (kg)
2010	46460.0	66686.4	5071.2	20.7	14.4
2011	46862.7	66362.1	5060.4	20.6	14.4
2012	47592.2	69789.5	5342.7	21.2	14.4
2013	47411.3	71557.3	5493	23	15
2014	46583	73510	5671	23.6	16

Figure 1. Diagram for pork consumption and production condition in China in 2010–2014
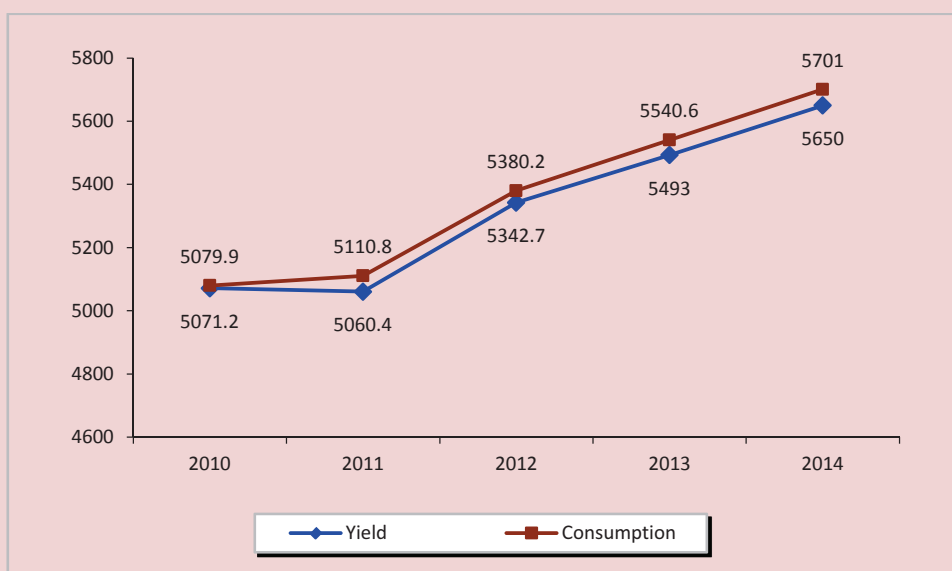
consumption of pork for rural residents was 16kg and the average growth in recent ten years was 8.3%. With the improvement of living standards of urban and rural residents, residents' consumption was changing from originally having ample food to focusing on food nutrition and safety, which increased the market demand of pork products. Meanwhile, as the pig breeding may gain higher income than that of agricultural planting, large-scale breeding and facility feeding ensure the pig production.

1.2 Total import and export trade volume of pork and structure

As per the customs statistics, in 2014, the accumulated import and export volume of pork in China was 656,000 tons, 0.2% lower than that in 2013 (the same below); it's worth 9.04 billion yuan, increasing by 1.9%. Wherein, the import volume of pork was 564,000 tons, decreasing by 3.3%; it's worth 6.44 billion yuan, decreasing by 6%; the average import price was 11.4 yuan/kg, decreasing by 2.8%. In the same period, the export volume of pork was 92,000 tons, increasing by 24.7%; it's worth 2.6 billion yuan, increasing by 28.7%; the average export price was 28.4 yuan/kg, increasing by 3.2%. Although in international competition, Chinese pork enjoys comparative advantage of low labor cost; however, as predicted by Food and Agriculture Organization of the United Nations (FAO), the pork consumption in China will increase 1.6 percentage points per year in the future. Limited by the land, environmental protection, fodder and rising of labor cost, the pork import volume will increase rapidly *(Fig. 2)*.

Figure 2. Monthly tendency chart for import and export volume and average price of pork from January 2012 to December 2014
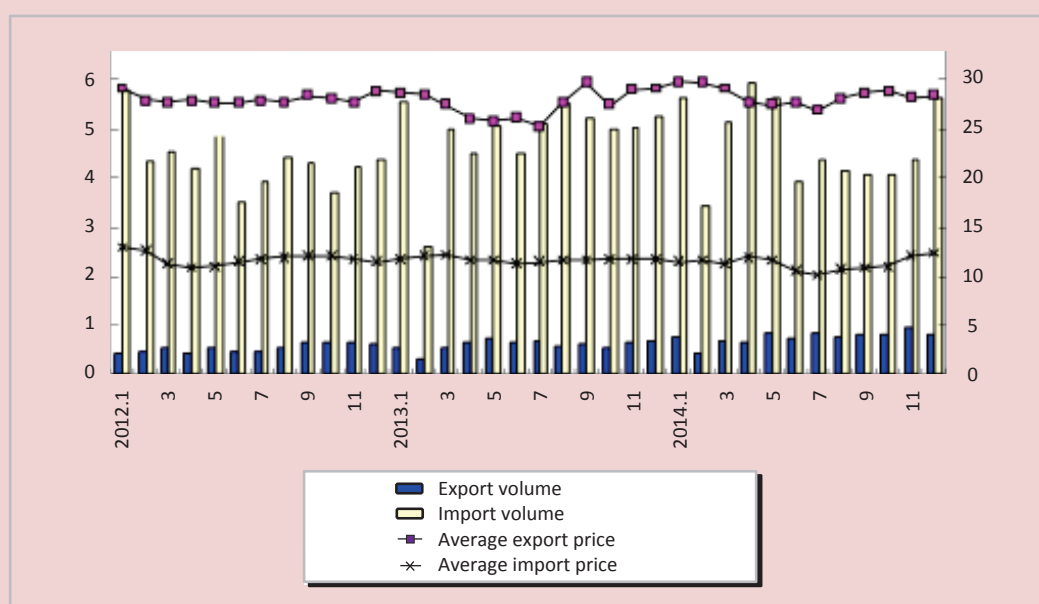
Table 2. List of China's main import countries (regions) of pork in 2014

Main market	Import volume (ton)	Year-on-year growth (%)	Import value (10,000 yuan)	Year-on-year growth (%)
EU	368576	0.0	418032	-2.8
USA	117146	-1.7	144355	-1.6
Canada	52133	-29.9	556	35.4
Chile	25500	27.8	24997	22.5
Brazil	880	-43.3	1271	-44.2
Total		-3.3	644255	-6.0
Data source: *China's Import and Export Condition of Pork in 2014.* Available at: www.xumurc.com				

Table 3. List of China's main export countries (regions) of pork in 2014

Main Market	Export volume (ton)	Year-on-year growth (%)	Export value (10,000 yuan)	Year-on-year growth (%)
Hong Kong of China	65260	8.1	186266	12.9
Kyrgyzstan	11068	205.2	31945	206.4
Macao of China	4316	5.7	12190	3.3
Russia	3599		8966	
North Korea	2488	283.7	5643	306.7
Total	91516	24.7	259622	28.7
Data source: *China's Import and Export Condition of Pork in 2014.* Available at: www.xumurc.com				

In 2014, the import volume of pork from EU was 369,000 tons, which was basically the same as that in 2013, occupying 65.3% of total import volume of pork in China in the same period. Meanwhile, the import volume of pork from the USA was 117,000 tons, decreasing by 1.7% from 0.3% in previous 11 months, presenting continuously great decreasing trend since 13.8% in June. In December, the import volume from the USA was 10,000 tons, decreasing by 15% compared with the same period. The import volume from Canada was 52,000 tons, decreasing by 29.9% *(Table 2)*. In 2014, the export volume of pork to Hong Kong of China was 65,000 tons, increasing by 8.1%, occupying 71.3% of total export volume of pork in China in the same period. The export volume of pork to Kyrgyzstan was 11,000 tons, sharply increasing 2.1 times. The export volume of pork to Macao of China was 4,000 tons, increasing by 5.7%. From October 2014, China began to export pork to Russia and the total export volume was 4,000 tons, so the export window for pig between China and Russia was opened again after ten years *(Table 3)*.

1.3 Comparison between import and export market share of pork

As per customs statistical yearbook of previous years, influenced by the consumption custom and pork price, main import varieties of pork include frozen fresh pork and chopped entrails of pigs. In 2010-2013, the import volume of chopped entrails of pigs in China occupied 80% of total import volume of pork. Main export varieties of pork mainly include frozen fresh pork. With the progress of pork processing technology, in 2010-2013, the

Table 4. Market share of main pork export countries in the world, %

Country	2010	2011	2012	2013
27 countries of EU	28	31	3%	31
Canada	20	17	17	18
USA	31	34	33	32
China	2	5	2	1

specific gravity of pork processing product was increased. Limited by domestic demand, production cost, especially fodder price, if the pig feeding fodder conversion rate in the USA reaches 1.91[1], while the pig fodder conversion rate in China is between 2.5 and 3, the pork export of China enjoys low international competitiveness *(Table 4)*.

In 2013, the export volume of pork from China was 73,000 tons, only occupying 1% of total export volume of pork in the world (7,060,000 tons). In the same year, the export volume of pork from the USA, EU and Canada respectively occupy 32%, 31% and 18% of total export volume of pork in the world. International competitiveness doesn't match with the status of the country with great pork production and consumption.

2. Standardized, large-scale and ecological development of pig industry

2.1 Standardized and large-scale breeding of pig

At present, the animal husbandry industry in China is in the development stage transforming from quantity growth to quantity and quality growth and quality improvement. The pig breeding is transforming from scattered breeding by thousands of households to breeding of appropriate scale. The pig breeding subject is realizing diversified change from general famer to industrialist and business-men, as well as returned migrant workers. The pig breeding fund is changing from farmer's capital to multi-channel financing like industry and commerce capital, business capital, etc. The pig breeding technology support is changing from relying on experience of the owner to technical guidance of large-scale farming enterprises. Jiangxi Province is one of provinces with great pig breeding in China. Taking it for example, at present, the proportion of large-scale pig breeding in Jiangxi Province has exceeded 80%, ranking in the top of China[2]. Enterprise groups like Zhengbang, Twins, Guohong, etc. develop the mode "company+peasant household" to promote the rapid development of large-scale breeding, base construction and manage-ment integrating modernization, science, environmental protection and energy-saving. The standardized scale breeding has become a main force promoting the continuous and stable growth of pig production and ensuring effective market supply and food safety.

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[1] Wang Jingjing, Chen Yongfu. Pig Industry Development in the USA: Contract Manufacturing and Longitudinal Integration. *World Agriculture*, 2014, no. 1, pp. 119-123.

[2] Tang Anlai. Reform and Practice of New Type of Agricultural Management System in Jiangxi Province. *Agricultural Science and Technology Press of China,* 2014, no. 4, pp. 8-10.

2.2 Ecological breeding of pig

Ecological breeding is a sustainable development mode for animal husbandry with basic characteristics of low consumption, low emission and high efficiency. In 2014, *Ordinance of the Scale Cultivation and Pollution Prevention and Treatment for Livestock and Poultry* was formally executed and on January 1, 2015, *Environmental Protection Act* was formally implemented. The degree of punishment for enterprises causing pollution was enhanced. The research and promotion of ecological breeding new process, new technology and new mode of all places were enhanced. Ecological breeding of pig and resourceful disposal of pig farm feces are key measures to realize the pig breeding safety, quality, high-efficiency, pollution-free and sustainable development. Jiangxi Guohong Group mainly takes following measures:

1. Reasonable location, scattered layout. From the pig farm selection, reasonably arrange the breeding production base and select the pig farm site in mountainous area, middle-levels, places away from the crowd, so as to yield twice the result with half the effort for disease prevention and control of pig farm. When newly building the pig farm, select the site strictly in line with the principle. After site selection, build the sow farm, nursery pig farm and fattening farm in different areas with distance of 10-20km in the principle of scattered layout, which is good for preventing the spreading of viral disease.

2. Planting and breeding, pollution abatement. When building the pig farm, to reduce environmental pollution or build ecological park or cooperate with farmer and enterprise implement the planting and breeding mode "pig- marsh gas-vegetable, pig-marsh gas-fruit tree, pig-marsh gas-forestry, pig-marsh gas-fish", reasonably make use of feces and reduce environmental pollution. For example, Jiangxi Nanchang Guohong Group built pig farm available for 10,000 pigs and ecological park of 1,500 mu. The feces discharged will flow to the biogas digester and then drained to irrigate the melon and fruit in the park. Pig breeding project for 180,000 pigs was built in Xiushui County. Cooperate with local peasant households, provide feces for free to farmers for growing vegetables and then buy back vegetables and sold vegetables uniformly, which can reduce pollution and bring benefit to the company and farmers.

3. Changing limited breeding and implementing open and back to nature mode. When implementing modernized and large-scale pig breeding, discuss green, organic, ecological, environmental protection and welfare breeding mode. Jiangxi Xiushui County has mountainous area of over 1,000 mu, breed pig, goat, cattle, etc. in the mountainous area with fence surrounded and let animals back to nature and enjoy freedom and welfare, which embody the harmony and unity between human and nature.

4. Green and safe fodder without illicit drug. Green and safe fodder is an important factor ensuring healthy pig and no excessive hazardous substance in pork. Strictly control the fodder safety to ensure the pork quality and safety. Slaughter pigs nearby and quarantine pigs in a concentrated way, build slaughter house to slaughter pigs bred by the company or cooperated with farmers. Animal husbandry

quarantine law enforcement officers are at site to do quarantine to prevent no diseased pigs, dead pigs and pork with illicit drug from flowing to the market. Improve the enterprise's benefit through fine processing and go on a healthy, environment-friendly, safe, and high efficient modern agricultural development road.

3. Main problems, countermeasures and suggestions for pig industry

3.1 Main problems

The pig production of China is transforming from traditional production mode to modernized production mode. Main difficulties and problems in the transformation process include:

• High breeding cost. New *Environmental Protection Act* will significantly increase the proportion of environmental protection cost to the pig breeding cost. At present, the environmental protection cost in newly built scale pig farm occupies over 40% of total cost. Small breeding households failing to reach the environmental protection standard will rapidly exit and the scale of pig breeding is to be improved.

• Poor infrastructure. Scattered feeding farm with annual slaughtering of below 50 pigs occupies about 30% of total breeding. The production facilities and production mode of breeding farm (household) are relatively lagged behind.

• Extensive growth mode. At present, the pig production is generally in extensive growth mode based on quantity. With the increasing of environment, land and labor cost, compared with developed countries, pork production in China is characterized by low efficiency but high cost.

• Poor market competitiveness. The international competitiveness of pork from China is poor so it's to decompose the structure of meat product to improve the competitiveness[3]. The export pork product is unique and the market is relatively concentrated[4]. The pig breeding industry frequently experiences market price fluctuation, excessive supply or shortage, great pressure for stable production, which directly influences the income of farmers. Pig disease prevention and control and pork price fluctuation may influence the stable development of pig production and influence the competition of pig in domestic and foreign market as well as the export of pork products.

3.2 Countermeasures and suggestions

(1) Optimizing industrial distribution and innovating industrial management mode

Scientifically calculate the regional pig breeding ability, reasonably divide the banned area for breeding livestock and poultry, controlled breeding area and proper breeding area, optimize the industrial development layout of pig, and adjust the industrial structure. Pig production leading enterprise with the concept of environmental protection, energy saving, low consumption and high efficiency builds new pig farm and drive the development of pig industry of surrounding areas. Based on the principle of pig industrial chain integrated development, promote the large-scale and industrialization of pig

[3] Liao Yi, Zhou Faming. An Empirical Study on the International Competitiveness of Pork Products in China. *Exploration of International Trade*, 2011, no. 12, pp. 25-33.

[4] Chen Changhong. Research on Pork Export Structure and International Competitiveness of China. *Journal of South China Agricultural University (Social Science)*, 2010, no. 9(2), pp. 37-42.

industrial development, actively promote the cluster development of pig industry and obtain scale benefit. Relying on information and technical innovation, satisfy the market demand, closely connect the fodder supply, breeding, processing, consumption and other links, focus on meat product quality and safety and improve the industrial added value and competitiveness.

(2) Mastering the market discipline and regulating and controlling the pork price transmission mechanism

Enhance the understanding of pig industry cycle fluctuation law, promote the collection and transfer of price information, create more reasonable pig price; greatly carry out pig price target insurance pilot and enhance the ability of pig resisting natural risk and market risk. Insist on scale breeding, maintain benefits of small scale breading households, and promote the co-development of enterprise pig breeding and farmer pig breeding. From many aspects, enhance the pig price adjustment, promote the stability of domestic consumption market and expand the foreign market of pork products.

(3) Persisting in green development and enhancing quality safety supervision

Start from environmental protection, improve the animal welfare, build "green and healthy" pig breeding and pork processing flow[5], adopt ecological pig breeding technology and mode, improve the living environment of pig to fundamentally solve health and safety problem of pork products, and reduce disease

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⁵ Tang Xu, Wang Kai. Research Progress and Case Study on the Competitiveness of Pork Industry Chain System. *Tianjin Agricultural Sciences*, 2014, no. 20(1), pp. 48-51.

risk; establish the quality tracking system, complete the pork quality monitoring system, regulate the whole process (before, during and after production) of pig industry, and maintain documents; and establish pig products market access system (only certified harmless, green, organic pig products or products meeting national standard can be sold in the market). Protect the rights and physical health of consumer, improve the product quality safety and enthusiasm of production operators participating in the quality certification, and form the quality and safety pork product market mechanism.

(4) Promoting scientific and technological progress and completing technology supporting system

Adapt to domestic pig industry development trend, promote advanced scientific breeding technology, apply government force, connect the market, inspire the enterprise's vitality through policy, fund and technology support, lead the enterprise to optimize and modify the variety, focus on pork quality, improve the pig quality transformation and improve the benefit of local pig market. Based on the boar localization and breeding system unification and diversification, reasonably make use of quality boar resource introduced, greatly cultivate grain-saving boar, improve the growth performance of pig, meat quality and disease prevention ability and ensure that the export pork quality reaches international first class level. With reference to experience of developed countries, establish the system combining scientific research, education and promotion. Accelerate the research of key technologies like high-efficient fodder

production, disease prevention and control and feces treatment, and enhance the popularization and application of research achievements.

(5) Enhancing environmental protection and completing pig industry support policy system

Enhance the support for construction of large-scale breeding farm and feces harmless treatment facilities, improve the boar breeding, animal nutrition, pig group healthy management, high-efficient scale production, provide breeding subsidy and support to farmers, and provide high-quality pig source and open the market for commercialization development. Encourage the development of professional pig breeding organization, enhance the degree of development of leading enterprise, complete pig future market, effectively dispose price fluctuation and evade market risk; complete pig breeding insurance policy system, improve the insurance coverage and content; promote breeding of appropriate scale and environmental protection and prevent scale monopoly[6]; gradually establish pig breeding social service system; lower the pig breeding cost; consider the connection between pig industry development and other social policies, improve the policy aiming policy and maintain scientific and valid support policy.

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[6] Wang Jingjing, Chen Yongfu. Pig Industry Development in the USA: Contract Manufacturing and Longitudinal Integration. *World Agriculture*, 2014, no. 1, pp. 119-123.

DISCUSSION PLATFORM

Economic Journal in Russia: Quality Assessment Issues

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Abstract. The paper attempts to assess economic journals included in the List of peer-reviewed scientific journals and editions that are authorized to publish the principal research findings of doctoral (candidate's) dissertations (the VAK List, it was established by the Decision of the Ministry of Education and Science of the Russian Federation and entered into force on December 01, 2016). The general assessment of the journals that include more than 380 titles is carried out by analyzing their bibliometric indicators in the system of the Russian Science Citation Index, in particular, by examining the values of their impact factors. The analysis conducted at the Institute of Socio-economic Development of Territories of RAS shows that a relatively small number of economic journals publish a significant proportion of articles that obtain a large share of citations. The author reveals that the new VAK List includes over 50% of journals specializing in economic sciences, which have a lower level of citation or which are virtually not cited at all. This indirectly indicates that such journals are "left behind" the "main stream of science", that their significance is local, availability low, attractiveness for the audience and scientific authority insufficient. The analysis proves that when forming the list of peer-reviewed scientific publications recommended for publication of dissertation research findings, along with other criteria, it is advisable to use tools that help assess the level of the journal. It is very important that the evaluation had quantitative expression and served as a specific measure for ranking the journals. One of these tools may be a criterion value for the two-year impact factor, which helps identify journals with a sufficient citation level. The paper presents the results of analysis of the RSCI list, which was proposed by the Council for Science under the Ministry of Education and Science of the Russian Federation as an alternative to the new VAK List. The author draws a conclusion about the need to review the first results of the project and to continue working with

them, because the issues identified still do not allow the RSCI list to be used as a full replacement for the VAK List. The paper propose options to expand the RSCI list. The author substantiates the necessity to expand the geography of journals included in the RSCI.

Key words: economic journal, bibliometric indicator, economic institutions of RAS, impact factor of the journal, Russian Scientific Citation Index (RISC), Russian Science Citation Index, VAK List, RSCI list.

Due to the continuous increase in the number of scientific journals, it has become very important to assess their quality, which would allow us to understand what publications guarantee a high level of materials they publish. Previously this function was fulfilled, to a certain extent, by the List of leading peer-reviewed scientific journals and editions that are authorized to publish the major research findings of dissertations, the so called VAK List.

In accordance with the order of the Ministry of Education and Science of Russia dated July 25, 2014 No. 793, as amended by the order of the Ministry of Education and Science of Russia dated June 03, 2015 No. 560, a new List of peer-reviewed scientific editions that are authorized to publish the major research findings of candidate's and doctor's dissertations (hereinafter – the List)[1]. The number of journals in it has increased significantly compared to the previous list. However, as noted in the statement of the Council on Science under the RF Ministry of Education and Science dated March 31, 2016, the new list, formed by application principle, included "a large number of publications of a low scientific level that do not ensure a

serious professional examination of published materials", and they publish articles that have "large-scale incorrect borrowings"[2]. It is emphasized that in Economics, Pedagogy and Law, such journals represent over 15% of all publications in the relevant specialty included in the List. The Council has proposed to conduct gradual replacement of the List with the list of journals of the Russian Science Citation Index (hereinafter – the RSCI list) on the Web of Science platform, taking into account the fact that the quality of such journals is confirmed by the examination carried out in Russia and abroad.

In this paper, we attempt to analyze economic journals included in the List and in the RSCI list, and to assess the appropriateness of possible replacement of the List with the list of journals of the Russian Science Citation Index.

As of April 19, 2016, 388 journals on the specialty "08.00.00 – the Economic Sciences" are on the List. Here it should be noted that among them there are not only economic, but also multidisciplinary editions. General characteristics of these journals may be given by examining the values of their impact factors.

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[1] List of peer-reviewed scientific editions that are not included in international abstract databases and that are authorized to publish the major research findings of candidate's and doctor's dissertations (as of April 19, 2016). Available at: http://vak.ed.gov.ru/87

[2] Statement of the Council on Science under the Ministry of Education and Science of the Russian Federation "On the VAK List". March 31, 2016. Available at: http://sovet-po- nauke.ru/info/31032016-declaration_VAK

The impact factor was introduced by the American scientist Eugene Garfield and he first used it as a term in the article published in the journal "Science" in 1955 [14]. The impact factor is a basic scientometric indicator of citation. Foreign and Russian experts adhere to the opinion that the impact factor can serve as an estimate of a journal's authority (Campbell Ph. [13]; Garfield E. [15]; Gordon M.D. [16]; Saha S. [18]; Libkind A.N. [4]; Markusova V.A. [5]; Shaikevich I.V. [6]; Pislyakov V.V. [9]; Rozenberg G.S. [10]). Being essentially an indicator of the authority of articles, this indicator measures the number of citations received on average by one article that is included in a given set of publications for a certain fixed period of time [15]. In our opinion, there is no reason to argue with C. Hoeffel, who indicates that although the impact factor has not become the ideal indicator for measuring the quality of articles, at present, it is the most objective tool for scientific evaluation. Hoeffel thinks that its wide distribution as an indicator of usefulness and influence is due to the fact that it correlates well with the opinion which has been established among scientists about the best journals in their disciplines [17, p. 1225]. As we have noted earlier, when using the impact factor to assess scientific journals, it is necessary to consider the fact that its value may be sufficient to characterize the journals included in authoritative databases (e.g. Web of Science and Scopus) that select their content based on very strict criteria that allow inferior publications to be weeded out [12, p. 163]. When we are dealing with indicators of the impact factor calculated in the Russian

Science Citation Index, the obtainment of more accurate results requires application of additional quantitative characteristics of journals, in particular, the indicators that taking into account self-citation, in order to exclude the issue of artificial overstatement of indicators. Due to this fact, when assessing the journals, we used the value of the RSCI two-year impact factor without self-citations. We ranked all the 388 journals listed in the specialty "08.00.00 — the Economic Sciences" with the use of the above criterion, and determined the proportion of the journals with different values of the impact factor in the total number of publications. The results are presented in *Figure 1*.

Our analysis shows that only 19 journals have the impact factor greater than unity. Their share is about 5%. We can say that these editions are highly-cited. These figures indicate that a relatively small number of economic journals publish a significant number of articles that receive a large share of citations. Experts in the field of scientometric studies point out that this is a common trend as among all scientific journals, including those that are in the global system of citation. Thus, according to the analysis carried out on the journals indexed in the Web of Science database, 4% of the journals account for 51% of all citations [7, p. 113]. In the language of scientometric indicators, this is reflected in the high values of impact factors, significantly exceeding the corresponding indicators for other journals.

The impact factor of the majority of economic journals included in the List is less than unity. At that, the share of low-cited

Figure 1. Distribution of the journals included in the List on the specialty "08.00.00 – the Economic Sciences" according to the value of the two-year RSCI impact factor (excluding self-citation) for 2014 (data of the Scientific Electronic Library as of February 20, 2016), %
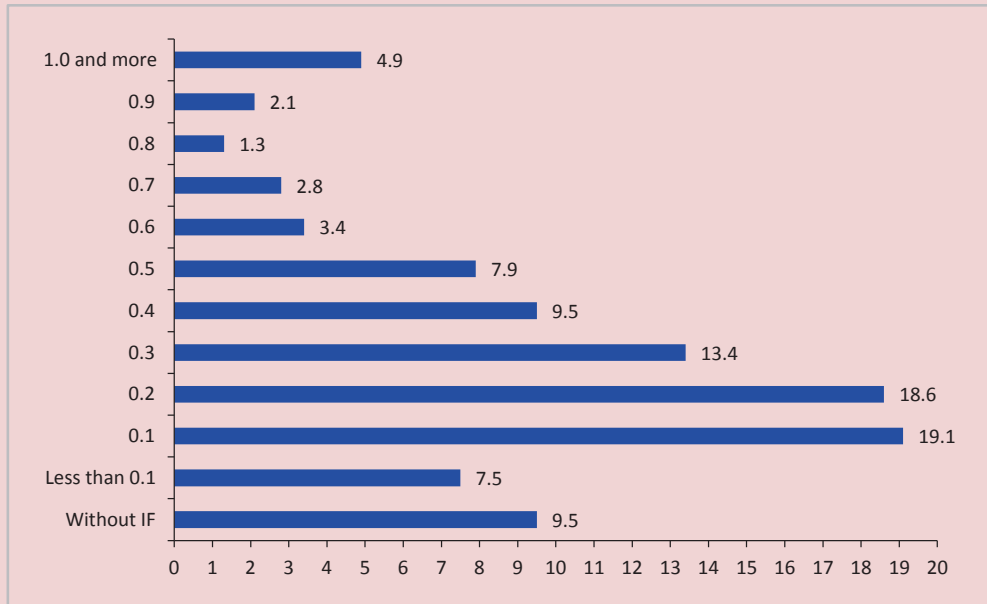
journals with the impact factor less than 0.3 is 45%. The share of the journals, the impact factor of which is not calculated in the Russian Science Citation Index at all is 9.5%. Thus, it appears that the List includes more than 50% of the journals in the "Economic Sciences" specialty, which have a low level of citation or are virtually not cited at all. And if, in the opinion of experts, the high value of the impact factor does not guarantee the quality of the journal, as this figure may be raised artificially due to the vulnerability of the Russian Science Citation Index to potential manipulation [8, p. 133], then its low value is more revealing: it indirectly indicates that the journal is not in the "mainstream of science" [2, p. 75], its significance is local, availability and attractiveness to the audience are low, and it has no proper scientific credibility.

The above analysis proves that when forming the list of peer-reviewed scientific editions that are authorized to publish the findings of dissertational studies, along with other criteria, it is advisable to use the tools that helps assess the level of the journal. It is very important that the evaluation should have quantitative expression and serve as a specific measure for ranking the journals. One of these tools may be a criterial value of the two-year impact factor, which will help identify the journals with sufficient citation rate. In our view, the median of impact factors can be used as a criterion indicator. In our case, for economic journals, the median is equal to 0.3, i.e. half of the journals has the impact factor above 0.3, while the other half has the impact factor below 0.3. This approach would help clear the List from a significant share of

journals with low citation rates and that are not in demand; thus the current list of publications in the specialty "08.00.00 — the Economic Sciences" would be reduced to approximately 170 journals.

Having in mind the imperfection of the new VAK List, the Council on Science under the Ministry of Education and Science of the Russian Federation made a suggestion to the Ministry of Education and Science to replace it gradually by the list of journals of the Russian Science Citation Index (hereinafter — the RSCI list) on the Web of Science platform, and, as before, to include those publications that are covered in international databases and citation systems like Web of Science, Scopus, MathSciNet and others listed in the current Regulations on awarding academic degrees[3]. The RSCI list was established through evaluation and selection of scientific journals indexed in the Russian Science Citation Index, to improve visibility and enhance the prestige of Russian scientific journals in the international information space. Currently it has just over 650 journals. Journals are selected on the basis of their bibliometric and expert assessment: the list of the journals that meet certain formal criteria is revised by experts in different scientific areas. According to the report of the Working group on the evaluation and selection of journals for this project, the final decision on the inclusion of the journal in the RSCI list was made on the basis of their

compliance with formal selection criteria, a number of bibliometric indicators of RSCI and taking into account the results of the expert assessment of the journals in the main thematic areas and public examination by leading Russian scientists[4] .

A complete list of journals indexed in the RSCI in the "Economic Sciences" specialty and included in the RSCI list is presented in *Table 1*. The list includes 29 titles that were ranked according to the value of the integral index used in constructing the ranking of Russian scientific journals in the Science Index system. The table additionally includes the information about the publisher/founder, the place of publication, and the inclusion of the journal in the VAK List, and their coverage in the global citation indexes Web of Science and Scopus.

Analysis of the values of the two-year impact factor excluding self-citation for these journals *(fig. 2)* shows that the share of highly cited journals (the impact-factor of which is more than 1) among them is 24%, which is almost five times greater than the corresponding indicator for economic journals included in the new VAK List. The value of the two-year impact factor for more than 70% of the journals is in the range of 0.3—0.9. Thus, it is possible to say that the RSCI list mostly includes the journals with sufficient citation rates, i.e., the journals that have considerable influence and importance in their knowledge field.

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[3] Statement of the Council on Science under the Ministry of Education and Science of the Russian Federation "On the VAK List". March 31, 2016. Available at: http://sovet-po- nauke.ru/info/31032016-declaration_VAK

[4] Press release of the Working group on the evaluation and selection of journals for the RUSSIAN SCIENCE CITATION INDEX project. Available at: http:// elibrary.ru/rsci_press.asp.

Table 1. Bibliometric indicators of the journals in the Economic Sciences covered
in the Russian Science Citation Index and included in the database of RSCI database,
2014 (data of the Scientific Electronic Library as of February 20, 2016)

No.	Journal	Founder/publisher	City	Coverage in the List, citation indices	IF$_2$ excluding self-citation	Integral indicator Science Index
1.	Voprosy ekonomiki	Non-commercial partnership "Editorial of the journal "Voprosy ekonomiki"	Moscow	VAK	4.676	20.458
2.	Rossiiskii zhurnal menedzhmenta	Saint Petersburg State University. Graduate School of Management	Saint Petersburg	VAK	1.000	5.502
3.	Journal of Institutional Studies ("Zhurnal institutsional'nykh issledovanii")	CJSC "Gumanitarnye perspektivy"	Rostov-on-Don	VAK	1.359	4.231
4.	Forsait	NRU "Higher School of Economics" (Moscow)	Moscow	VAK, Scopus	2.077	3.785
5.	Problemy prognozirovaniya / Studies on Russian Economic Development	Institute of Economic Forecasting, RAS	Moscow	VAK, Scopus	1.419	3.756
6.	Mirovaya ekonomika i mezhdunarodnye otnosheniya	Russian Academy of Sciences (RAS), Institute of world economy and international relations (IMEMO) Russian Academy of Sciences	Moscow	VAK	1.234	3.720
7.	Ekonomicheskii zhurnal Vysshei shkoly ekonomiki	NRU "Higher School of Economics"	Moscow	VAK	0.936	3.198
8.	Innovatsii	OJSC "Transfer"	Saint Petersburg	VAK	0.558	2.606
9.	Zhurnal novoi ekonomicheskoi assotsiatsii	Autonomous Non-Commercial Association "The Journal of the New Economic Association"	Moscow	VAK	0.860	2.068
10.	Ekonomicheskaya nauka sovremennoi Rossii	Central Economic Mathematical Institute of RAS	Moscow	VAK	0.988	2.036
11.	Region: ekonomika i sotsiologiya	Siberian Branch of RAS; Institute of Economics and Industrial Engineering within the Siberian Branch of the Russian Academy of Sciences	Novosibirsk	VAK	1.043	1.811
12.	Den'gi i kredit	Central Bank of the Russian Federation	Moscow	VAK	0.970	1.468
13.	Vestnik Sankt-Peterburgskogo universiteta. Seriya 8: Menedzhment	Saint Petersburg State University. Graduate School of Management	Saint Petersburg	VAK	0.568	1.355
14.	Vestnik Sankt-Peterburgskogo universiteta. Seriya 5: Ekonomika	Saint Petersburg State University	Saint Petersburg	VAK	0.880	1.306

End of the Table 1

No.	Journal	Founder/publisher	City	Coverage in the List, citation indices	IF$_2$ excluding self-citation	Integral indicator Science Index
15.	Universitetskoe upravlenie: praktika i analiz	Non-commercial partnership "Journal " Universitetskoe upravlenie: praktika i analiz"	Yekaterinburg	VAK	- (0.963 – 2013)	1.209
16.	Ekonomika i matematicheskie metody	Russian Academy of Sciences; Central Economic Mathematical Institute of RAS; Market Economy Institute of RAS	Moscow	VAK	0.552	1.176
17.	Prikladnaya ekonometrika	Moscow University for Industry and Finance "Synergy"	Moscow	VAK	0.482	1.078
18.	Problemy upravleniya	Sensidat-Plyus	Moscow	VAK	0.538	1.051
19.	Prikladnaya informatika	Moscow University for Industry and Finance "Synergy"	Moscow	VAK	0.600	0.943
20.	Vestnik mezhdunarodnykh organizatsii: obrazovanie, nauka, novaya ekonomika	NRU "Higher School of Economics"	Moscow	VAK	0.537	0.887
21.	Ekonomicheskaya politika	The Russian Presidential Academy of National Economy and Public Administration; Gaidar Institute for Economic Policy	Moscow	VAK	0.915	0.826
22.	Korporativnye finansy	NRU "Higher School of Economics"	Moscow	VAK	0.368	0.826
23.	EKO	Institute of Economics and Industrial Engineering within the Siberian Branch of the Russian Academy of Sciences (Novosibirsk)	Novosibirsk	VAK	0.633	0.678
24.	Vestnik Finansovogo universiteta	Financial University under the Government of the Russian Federation	Moscow	VAK	0.424	0.649
25.	Terra Economicus	Southern Federal University	Rostov-on-Don	VAK WoS (ESCI)	0.584	0.573
26.	Vestnik Moskovskogo universiteta. Seriya 6: Ekonomika	Lomonosov Moscow State University	Moscow	VAK	0.391	0.496
27.	Biznes-informatika	NRU "Higher School of Economics"	Moscow	VAK	0.579	0.458
28.	Upravlencheskie nauki	Financial University under the Government of the Russian Federation	Moscow	VAK	0.506	0.314
29.	Ekonomika. Biznes. Banki	Russian-Italian International University	Moscow	VAK	0.195	0.061

Figure 2. Distribution of economic journals included in the RSCI database according to the value of the two-year impact factor RSCI without self-citation in 2014 (data of the Scientific Electronic Library as of February 20, 2016), %
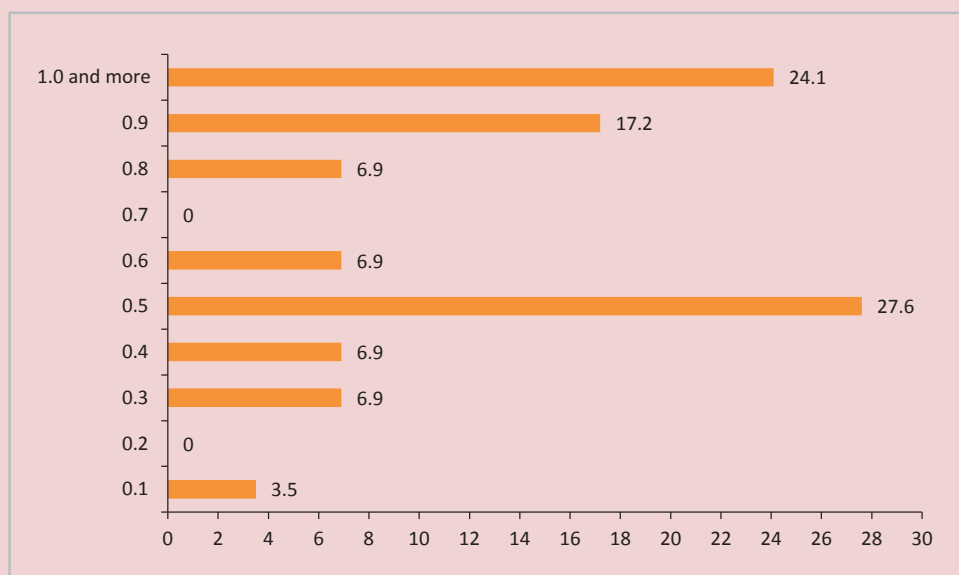
However, we think that the proposal to replace the VAK List with the RSCI list, initiated by the Council on Science under the Ministry of Education and Science of the Russian Federation, cannot be accepted unconditionally. On the one hand, we cannot but agree with the opinion of many experts who point out that the new List includes many low-quality journals, journals with low citation rates do and journals that have no authority in the scientific community. Obviously, today this list cannot be regarded as an authoritative source able to confirm the proper status of a scientific journal. But on the other hand, the RSCI list in its present form leaves a lot of questions unresolved.

First, according to the statement of the Working group on the evaluation of journals for this project, the journals were selected on the basis of their bibliometric evaluation; after that, the list of journals that meet certain formal criteria was adjusted by experts in different scientific areas[5]. It is clear that this approach helps exclude all the journals that have low bibliometric indicators at the first stage already. However, the analysis of the group of economic journals alone shows that the final list contains a journal with low citation rate (the two-year impact factor excluding self-citation is 0.195) and a low value of the integral indicator in the Science Index system, which takes into account important parameters characterizing the quality level of scientific publications. In the 2014 Science

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[5] Press release of the Working group on the evaluation and selection of journals for the RUSSIAN SCIENCE CITATION INDEX project. Available at: http:// elibrary.ru/ rsci_press.asp.

Index ranking in the "Economics. Economic Sciences" category, this journal ranks 238 (out of 300 journals; the data of the Scientific Electronic Library as of April 25, 2016).

Second, in our opinion, a big problem of the list of economic journals included in the RSCI, is the fact that their geographical distribution is not extensive *(fig. 3)*. It includes the journals published mostly in Moscow (20) and Saint Petersburg (4); their share in the total number of economic publications in this list is about 83%. It includes only five journals that are issued in the regions. It should be emphasized that several federal districts are not represented in the RSCI list at all: for example, the Volga, North Caucasian, and Far Eastern federal districts. However, the largest federal districts — the Central and Northwestern — are represented by the scientific journals published exclusively in their central cities.

While the constituent entities of these districts contain a significant number of scientific institutions and research centers that conduct serious research, including the research in the Social Sciences, and publish high-quality journals with high bibliometric indicators and credibility in the academic community. It is obvious that when creating the list of journals recommended for publication of dissertational research findings, it is necessary to take into account the regional aspect: if the leading role belongs to journals issued in central areas, then the economic science in the regions will suffer irreparable loss.

It should be pointed out that the share of the journals of the Russian Academy of Sciences in the RSCI list, in particular the journals on economics, is very modest. Their share is only 20%. Although many experts agree that today the scientific success of the

Figure 3. Geographical distribution of economic journals included in the RSCI list
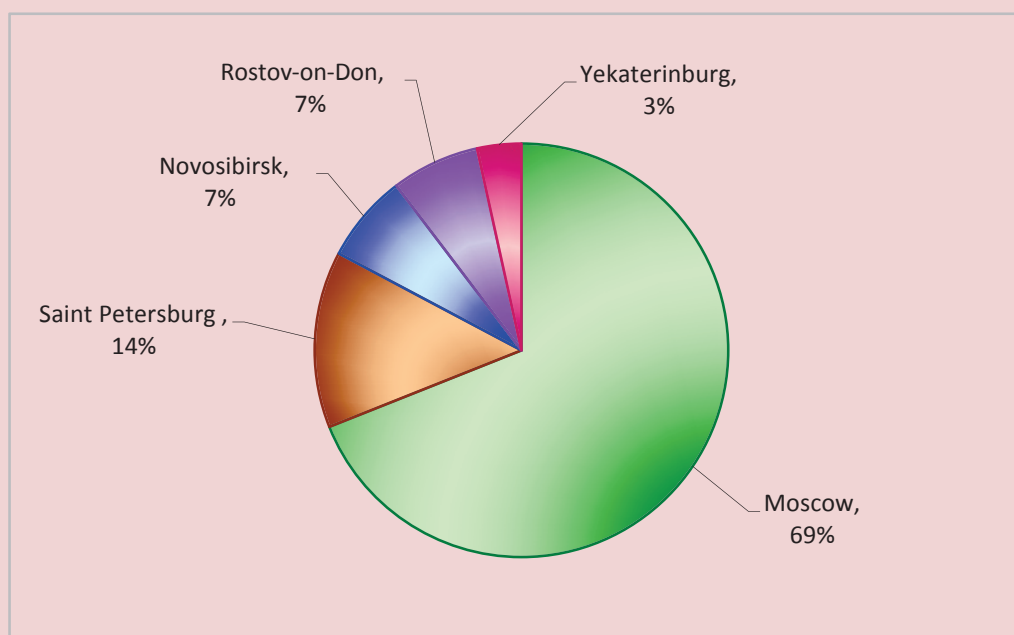
journal depends largely on its connection to RAS and on its adherence to academic traditions and standards, which are important in the formation of the leading scientific editions of the country [1, p. 111-112]. Scientists believe that academic journals serve as a kind of model for authors and publishers in terms of "structure, clarity of expression and clarity of thought" [3, p. 173]; the fact that a journal is published under the Russian Academy of Sciences indicates the high quality of the publication. And it is not just words. Academic scientific journals were among the first to shift to international publishing standards, they implemented best practices of reviewing manuscripts and provided through these measures the quality of their publications

corresponding to a world level. As a result, several journals published by RAS institutions (we emphasize that these institutions are regional), entered global citation indices. For instance, the journal "Ekonomika Regiona" (Institute of Economics, Ural Branch of RAS, Yekaterinburg) is now covered in Scopus; the journal "Economic and Social Changes: Facts, Trends, Forecast" (English version; ISSN: 2307-0331) issued by the Institute of Socio-Economic Development of Territories of the Russian Academy of Sciences (Vologda), is covered in the Emerging Sources Citation Index, which is a new database in the Web of Science Core Collection. But, despite the fact that both journals have high publication performance in the RSCI *(tab. 2)*, enjoy

Table 2. Bibliometric indicators of scientific journals in economics and related disciplines issued by economic institutes under RAS in 2014 (data of the Scientific Electronic Library as of February 20, 2016)

Journal	Institute	City	Two-year impact factor RSCI without self-citation	Ranking on the two-year impact factor RSCI without self-citation on the subject "Economics. Economic sciences"	Two-year self-citation coefficient, %	Five-year Herfindahl index for cited journals	Position in the SCIENCE INDEX ranking for 2014 on the subject "Economics. Economic Sciences"
Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz	Institute of Socio-Economic Development of Territories of RAS	Vologda	1.117	18	15.7	429	48
Prostranstvennaya ekonomika	Economic Research Institute, Far-Eastern Branch of RAS	Khabarovsk	1.057	20	8.6	411	45
Ekonomika regiona	Institute of Economics, Ural Branch of RAS	Yekaterinburg	0.960	28	12.2	1090	19
Zhurnal ekonomicheskoi teorii	Institute of Economics, Ural Branch of RAS	Yekaterinburg	0.670	47	27.6	574	84
Problemy razvitiya territorii	Institute of Socio-Economic Development of Territories of RAS	Vologda	0.661	49	21.6	732	103
Vestnik Instituta ekonomiki RAN	RAS Institute of Economics	Moscow	0.500	80	16.4	458	120

authority in the scientific community and have made significant progress in terms of integration into the global academic space, they are not included in the RSCI list. The table also shows the main bibliometric indicators of scientific journals in economics and related disciplines for some economic institutes under RAS. The table presents the journals with a significant average citation rate (the two-year impact factor RSCI without self-citation is 0.5 and above). According to the basic bibliometric indicators that characterize citation, all of these journals are superior to many publications, included in the RSCI list. Their scientific credibility in professional circles is beyond doubt, because these journals are published by influential economic institutes under the Russian Academy of Sciences, have a strict system of peer review, and publish the findings of basic research conducted by leading economists. Some of these journals have already adopted modern publishing standards and they have high-quality bilingual websites. Despite all this, they were not included in the RSCI list.

We do not set before ourselves the task to carry out a similar analysis for other scientific journals in economics published by universities and other organizations. Probably, among them there are also publications that could complement the RSCI list.

Without questioning the importance of the Russian Science Citation Index project for the promotion of Russian journals and their integration into the international information space, we would like to note that the first results require comprehensive consideration and further research. So far, experts are cautious in their assessments of this project.

Thus, O.V. Kirillova, Director of the Training and Consulting Center at NP NEICON, an authorized consultant and expert for Scopus gives a generally positive assessment of the RSCI and points out that neither variant of the examination takes into account international standards, and as a result, the RSCI list includes even those publications that have no necessary data translated into English, and the publications in which do not meet strict international standards[6]. Obviously, all this will not allow such titles to be integrated into the international information space, and will not make them more visible to the global scientific community.

In our opinion, the RSCI, in particular, the list of economic journals, can and should be complemented by quality publications that have, first of all, the full-text English-language version, possess modern publishing platforms, bilingual sites and meet global requirements. This list should include a larger number of academic journals that traditionally have a strict system of peer review and publish the results of fundamental research. And, of course, the geography of the journals needs to be expanded. If the geographical distribution of the journals is narrow, and in the case of economic journals it is limited mainly by Moscow-based editions, this can create significant obstacles to the development of economic science in the regions.

It is clear that the very procedure of evaluation and selection of journals needs to be more transparent and open to the scientific

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[6] Vidy na vidimost'. Stanet li nasha nauka zametnee? [Views on Visibility. Will Our Science Become More Visible?]. *Poisk* [Search], 2016, no. Available at: http://www.poisknews.ru/theme/kpd/18461/

community. This is especially concerns expert evaluation, which in essence can have a certain amount of subjectivity. At least, while the results presented by the authors of the project are assessed positively, there are still the issues concerning the inclusion of some publications in the list and the exclusion of some of them from the list.

Summarizing all of the above, we should note that today, indeed, there exists a difficult situation in the sphere of scientific journals. In our opinion, the new VAK List needs to be revised, because in its present form it is not an authoritative source to confirm the proper status of a scientific journal. The RSCI list, which was proposed as an alternative by the Council on Science under the Ministry of Education and Science of the Russian Federation and which received cautious assessments by the expert community, requires reflection and further development. In our view, this list, even if it is supplemented by the journals included in international citation indexes, is not yet ready to fully replace the List of peer-reviewed journals that are authorized to publish the major research findings of candidate's and doctor's dissertations. However, if the geography of the journals on the RSCI list is expanded, and if this list includes a larger number of academic and other scientific periodicals that meet international standards and have sufficiently high bibliometric indicators, this project has good prospects to obtain wide support in the scientific community as the guarantor of the quality of the scientific journals it contains.

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YOUNG RESEARCHERS

Overview of the Russian and Foreign Experience of Agent-Based Modeling of Complex Socio-Economic Systems of the Meso-Level*

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Abstract. The paper presents an overview of the agent-oriented models of complex socio-economic systems of the meso-level developed by Russian and foreign scientists. It considers agent-oriented models of municipalities: cities, urban agglomerations, suburban areas, etc. When choosing models for the review, preference was given to municipal level models that have a detailed description of agents, their behavior and rules of interaction accompanied by a visual diagram of the conceptual model. However, the important criterion was the availability of information about the testing of the constructed model on the actual data for a specific municipality. Foreign experience of application of the agent-oriented approach to the study of socio-economic systems of the meso-level is disclosed on the example of the models of municipalities that are the most interesting and promising from our point of view: these models are models of the virtual economy of the city, the model of interrelated markets for housing and land, the models of expansion of the city area, the models of reducing the city, the model of intra-city migration, the models of interconnected development of creative industries and spatial structure of the city. The author also considers the experience of Russian scientists in this field presented in scientific publications on the current models of socio-economic development of cities and municipal areas. The main agents acting within each model, the environment of their functioning, and the rules of interaction between themselves and with the external environment are described. The author presents conceptual models of interaction between the agents. The paper shows possibilities and examples of practical application of the described agent-based models.

Key words: agent, agent-based model, review, meso-level, municipal formations.

In the modern age of active development of information technology, the efficiency of public administration at any level increasingly depends not only on the volume and accuracy of information that the government have about the social and economic changes taking place in their territory, but also on the ways that are used in processing such data. The amount of information which the decision makers have to deal with, is growing every day. At the same time, we agree with *A. Musaev* and *A. Shevchik*, who note that the human brain cannot perceive more than three or four interrelated parameters of a dynamic process. Therefore, to develop the most effective management decisions, it is advisable to involve "cognitive advisors" capable of processing hundreds or thousands of interrelated parameters [13, p. 50]. Such cognitive advisors, in our opinion, are computer agent-based models that take into account the characteristics and peculiarities of behavior of economic entities at the micro-level; these models help forecast the processes at the macro- and meso-level and test different options of controlling actions.

Agent-based models belong to a special class of models based on individual behavior of agents and created for computer simulations [2, p. 24]. They represent an artificial society consisting of independent interacting agents, each of which has a given set of personal characteristics ("resources"), target functions ("interests") and follows the rules of behavior that determine its reaction in various situations involving the scope of its interests [14, p. 5].

The works of *B. Heath, R. Hill* and *F. Ciarallo* [25] show that agent-based modeling is becoming more and more popular, the number of articles on the subject is steadily increasing from year to year, with about half of all agent-based models being designed in the field of the social sciences and economics, modeling various social and economic phenomena and processes.

The majority of agent-based models in socio-economic field is represented by macroeconomic models. Foreign publications introduced the notion of "MacroABM" as a result of the widespread use of agent-based modeling in the study of macroeconomic processes and systems to denote this class of models [27]. EURACE [23] — an agent-based computable model of the European economy is a telling example of macro-level models.

Micro-level agent-based models are also widespread because they are used in optimization of business processes in order to increase the profits of enterprises and organizations. The smallest segment is occupied by agent-based models of the meso-level (from the Greek word *mesos* — middle, intermediate), i.e. the models of cities and regions that are less common in foreign and domestic publications.

However, it should be recognized that some models of the macro-level can be adapted to the meso-level. At the same time, this is not always possible, since agent-based models of socio-economic systems of the meso-level have their own characteristics that consist in specific types of agents and environment. According to the authoritative opinion of Academician *V.L. Makarov* and Doctor of Economics *A.R. Bakhtizin*, any real life objects can be agents in agent-based models; however, the main objective of their consideration in the framework of the model is their correct specification. In particular, the models

of socio-economic systems usually have aggregated agents that represent either the industry or region, or household [9, p. 21].

The goal of the present paper is to review agent-based models of complex socio-economic systems of the meso-level developed by Russian and foreign scientists. To achieve this goal, we considered agent-based models of municipalities: cities, urban agglomerations, suburban areas, etc. that we find most interesting. At that, for each model we described major agents, the environment of their functioning, the rules of interaction between the agents and the external environment. The paper also provides visual imagery of conceptual models for agents' interaction, discloses the possibilities and examples of practical application of the agent-based models described in the study.

The information base of the research is domestic and foreign publications on agent-based modeling, in particular, the articles and monographs of scientists of the Central Economics and Mathematics Institute under the Russian Academy of Sciences, who actively develop this research direction in Russia; international publications available on the Internet served as information sources as well.

I. Overview of foreign experience

Currently described in foreign publications, the practice of agent-based modeling of socio-economic systems of the meso-level basically simulates the development of cities, urban agglomerations and suburban areas. As we know, modeling urban development that has a long history is represented by a wide range of methods, including social physics, cellular automata and so on [20]. The history

of development of this direction is reflected very well in the works of *M. Batty,* the world's leading expert on urban modeling [19], who considers the city as a complex socio-economic system of the meso-scale [18].

A study of urban development with the help of agent-based modeling is a relatively new and promising direction. However, scientific community has accumulated considerable experience in building agent-based models of urban socio-economic space. Some of them can be found in a review article by the famous English specialist in agent-based modeling *A. Heppenstall* and her co-authors [26]. However, the purpose of this review is somewhat different from our goals, because our review contains extensive coverage of publications, but very superficial description of the nature of the models themselves. The authors highlight the purpose of the models described; as for the design of the models, which is, in our opinion, the most interesting, is given very little attention. In addition, this review focuses more on the models within the scope of the interests of authors, and ignores many other models that deserve attention.

When selecting agent-based models for our review, preference was given to the models at the municipal level that have a detailed description of agents, their behavior and rules of interaction, accompanied by a visual diagram of the conceptual model. At the same time, an important criterion was considered the availability of information about testing the models on actual data for a specific municipality. It means that abstract theoretical agent-based models that are intended for practical use were deliberately excluded from the review.

The Virtual Economy Model. The work by *P. Čech, P. Tučník, V. Bureš* and *M. Husráková* [31] proposes an agent-based model of the virtual economy designed for the study of economic processes and progress in the city of Hradec Králové (Czech Republic). The model simulates the processes of production and consumption in the real economy and contains four types of autonomous agents:

1) consumers or C-agents;

2) producers or F-agents (from the English word "factory");

3) mining companies or M-agents;

4) transport or T-agents.

According to the authors, the model they propose is similar to the virtual economy model designed by their Japanese colleagues [22], which was simplified, since it had more specific productions and a more complex network of relations between its agents than was required in the study. In particular, the Czech model unlike the Japanese model does not include banking operations and the work of the government, that is why agents such as "the Bank", "the Central Bank" and "the Government" were excluded. In addition, instead of four specialized agents representing agriculture, bakery industry, metallurgy and mechanical engineering, one agent was introduced – "the Producers" and a new type of agents – the "Transport" – was added.

The behavior of the agents in the model is as follows:

1. Consumer agents can buy goods of three types: essentials, normal goods and luxury items. The structure and rate of consumption are determined by the individual consumption function that depends on the welfare of agents, which in turn is determined by the job and qualification. The agents can dispose of their wealth, making a choice between investment in advanced training and investment in consumption.

2. Producer agents consume raw materials and other products and produce the final product purchased by consumer agents, or the intermediate product purchased by other manufacturers. The raw materials and products that are purchased and their proportion are determined by the consumption function, and the range of products manufactured is specified by the production function. The output depends on the technology used and on the skills of consumer agents employed in production.

3. Mining companies are responsible for converting natural resources into raw materials used by producer agents. Here each agent of this type provides only one kind of raw material. The cost of production is determined by the function of consumption, reflecting the necessary energy and technology.

4. Transport agents are intermediaries between mining companies and producer agents. The task of the transport agent is to find the best route. The performance of the transport agent is determined by the speed of movement, capacity and technology. The transportation cost depends on the distance.

In addition to all of the above, consumers, manufacturers and transport agents can be united in small communities that the model refers to as "colonies". Colonies compete for resources and have two basic characteristics: position in space and size (population size). The success of the colony is determined by its wealth, which is calculated as the sum of welfares of all its agents (*fig. 1*).

Figure 1. Conceptual model of the virtual economy (Hradec Králové)
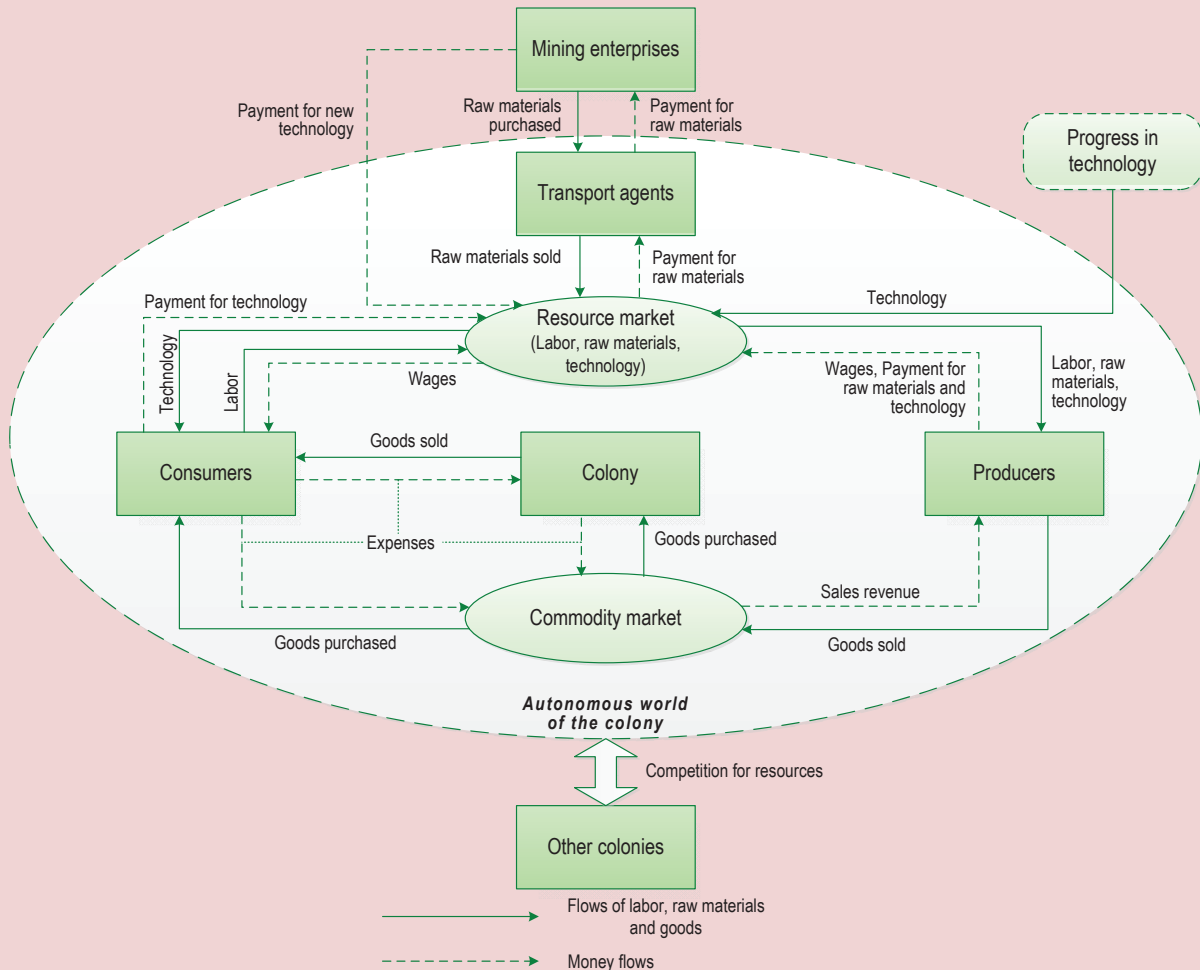
Source: Čech P., Tučník P., Bureš V., Husráková M. Modelling Complexity of Economic System with Multi-Agent Systems. 5th International Conference on Knowledge Management and Information Sharing (KMIS 13), Vilamoura, Algarve, Portugal, September 19-22, 2013. Pp. 464-469.

In general, the agent is described as a vector of eight variables:

$$AGENT = (pos, w, s, con, e, pro, mob, a),$$

where pos – position in two-dimensional Cartesian space,

w – welfare ($w \geq 0$, i.e., debt is not allowed),

s – storage capacity of the warehouse,

con – consumption volume,

e – efficiency,

pro – production function,

mob – mobility,

a – affiliation with the colony.

The colony, in turn, is defined by five variables:

$$COL_{metaagent} = (pos, s, w, cw, CP),$$

where cw − creditworthiness of the colony,

CP − colony population (number of agents) [21].

The primary simplified computer model of the virtual economy described by the authors is implemented by them on the NetLogo platform and simulates processes such as: extraction of raw materials, transfer of raw materials to transport agents, transportation of raw materials to the colony, detection of obstacles during transportation (swamps, forests, water reservoirs, sand), production, purchase, sale and final consumption of the products by consumer agents. The final model, according to the authors, should be consistent with the behavior of economic entities of Hradec Králové and based on real statistical data.

Coupled Housing and Land Markets Model (CHALMS) is one of the most famous economic agent-based models of meso-level [30] − a model of interrelated markets for housing and land, developed by *N. Magliocca* and describing the dynamics of a hypothetical suburban area (*fig. 2*).

The main agents in the model are landowners, consumers and developers. The model simulates the gradual transformation of suburban agricultural land into residential areas of the city as a result of actions of the agents in the land and housing markets. According to the authors, this model reflects main trends in the development of most suburban areas of the United States.

Urban Expansion models. The agent-based model of the Chinese city of Changsha developed by *H. Zhang, Y. Zeng, L. Bian,* and *X. Yu* [32] also contains three types of agents: urban residents, farmers and government. The model considers resident agents, who choose a new place of residence, as one of the main

Figure 2. Conceptual model of coupled housing and land markets
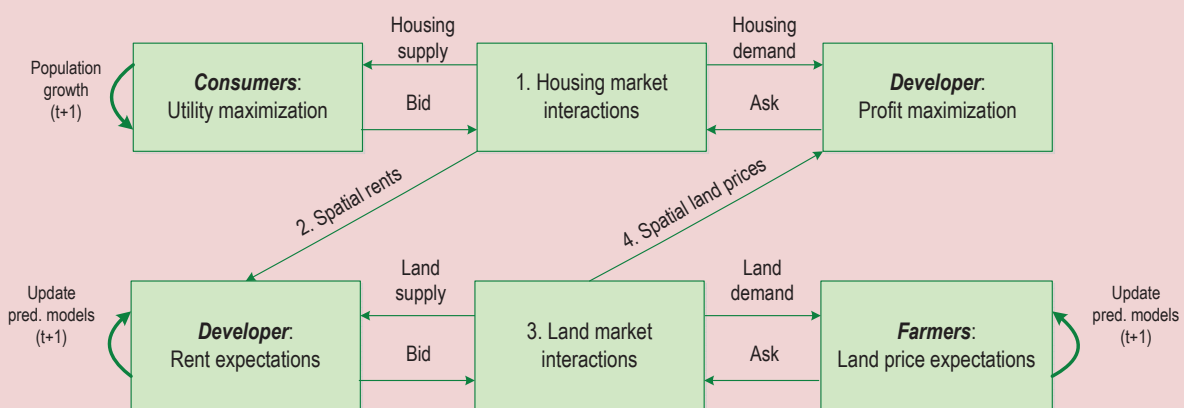
Note: the numbers indicate the sequence of events within one model time step.

Source: Magliocca N., Safirova E., McConnell V., Walls M. An Economic Agent-Based Model of Coupled Housing and Land Markets (CHALMS). *Computers, Environment and Urban Systems*, 2011, no. 35, pp. 183-191.

driving forces behind urban expansion. Here, two types of resident agents are considered: new residents coming from outside, and existing residents who move to a new place of residence. It is assumed that when searching for a new place of residence, the agent seeks to maximize the utility function:

$$U_{x,y} = \alpha \cdot C_{x,y} + \beta \cdot L_{x,y} + \gamma \cdot E_{x,y} + \mu_{x,y} \ ,$$

where C, L and E − standardized transport accessibility, land value and natural value of the place (x, y), respectively,

α, β и γ − the weight of each factor for a specific agent ($\alpha + \beta + \gamma = 1$),

$\mu_{x,y}$ − random residual. The introduction of weight coefficients helps take into account the fact that the significance of the factors considered when choosing a place of residence for agents with different income levels and family composition is not the same.

Searching for a more comfortable life, farmer agents strive, on the one hand, to live closer to the city and "civilization", on the other hand − not to lose the land that feeds them, because it is the land situated near the city limits and major roads that will most likely be transferred to the city. Decision-making on the part of farmer agents in the model depends on a whole range of factors: the share of protected agricultural land, the proportion of land for development and areas of possible development, distances to railroads and highways, distances to main urban roads and the city center, population density etc.

The government in the model is the agent of a special type: it has no spatial characteristics unlike agents of the other two types; however, it can make decisions that promote the most

rational use of lands, ensure sustainable development of the city while protecting and preserving valuable agricultural land. The model is based on actual statistical data on the socio-economic development of Changsha since the 1990s, it uses a GIS map of the city and is implemented as a cellular automaton.

Another example of agent-based models of urban growth is the Greater Toronto Area expansion model [33], also mentioned in the article [7, p. 34]. The model contains three types of agents: residents, developers and government (*fig. 3*). Like in the "Chinese" model described above, here we consider two kinds of residents: new and existing. New residents in search of a place of residence encourage developers (who, of course, are profit-oriented) to design housing development projects and send them for consideration to the government and the residents of the houses adjacent to the area of potential development. Depending on the fact whether the existing residents have or do not have any objections, the government makes a final decision about the approval or rejection of the project and in case of positive decision new territories are developed and the city expanded.

Intra-Urban Migration Model. Agent-based modeling of the major reason for the expansion of cities − intraurban migration − is considered in the work of American scientists *S. Sun* and *S.M. Manson* [34]. The main agents in the model are households that create demand in the real estate market, developers that form the supply of new housing, and the government that regulates the use of land. The authors carry out the modeling of intraurban migration in four stages: 1) determination of characteristics of the environment and

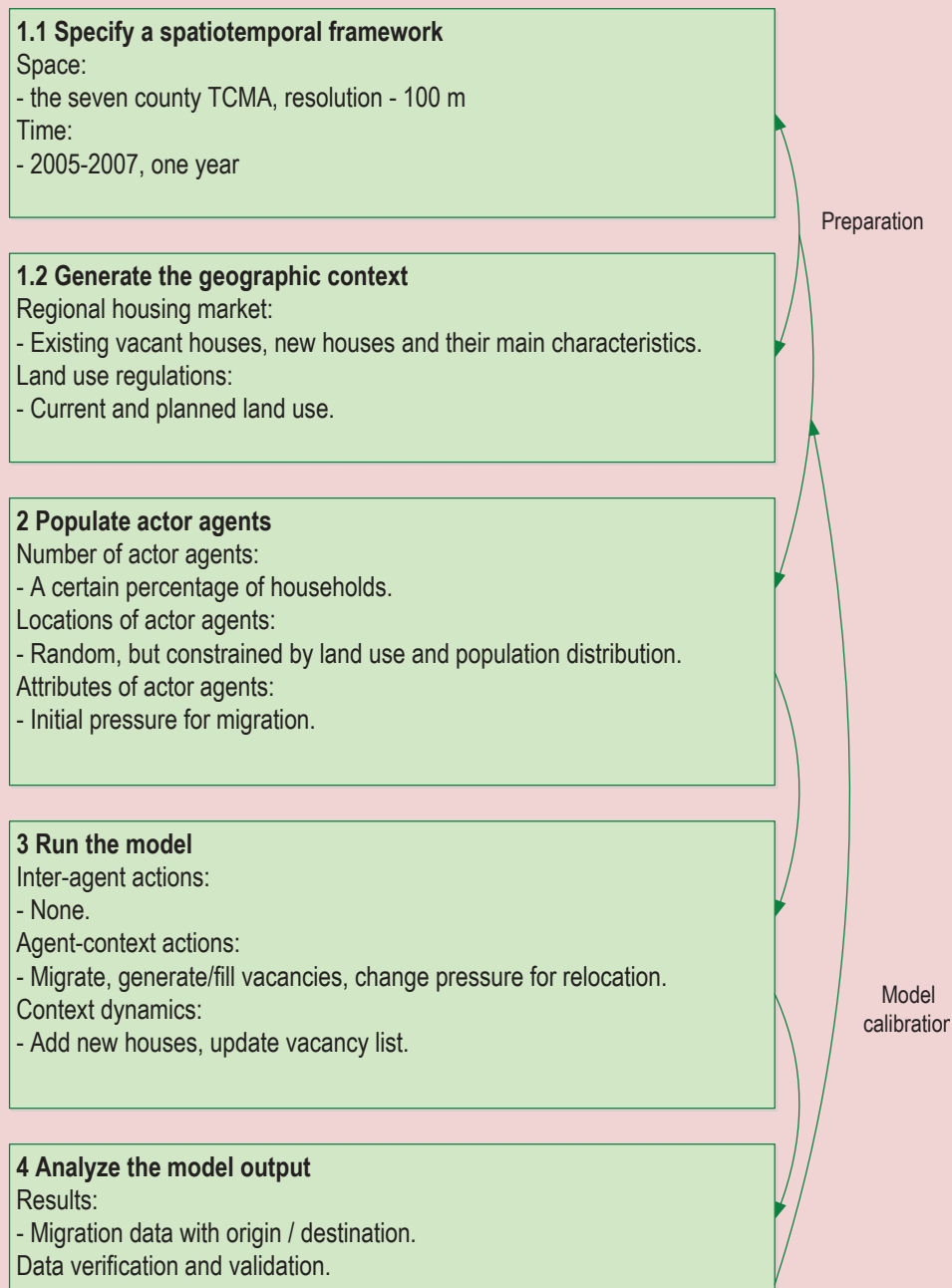Figure 3. Conceptual model of urban expansion (the Greater Toronto Area)
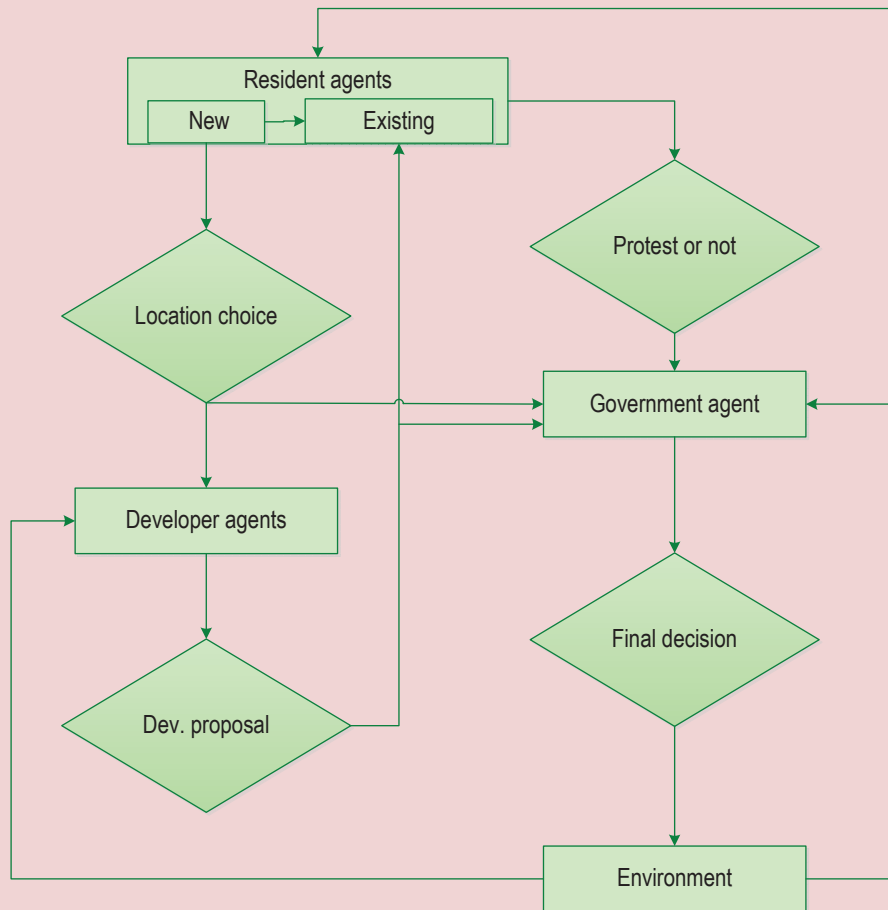
Source: Rui Y., Ban Y. Multi-agent Simulation for Modeling Urban Sprawl In the Greater Toronto Area. *Proc. of the 13th AGILE International Conference on Geographic Information Science. – Guimarães (Portugal), 2010.* Available at: https://agile-online.org/Conference_Paper/CDs/agile_2010/ShortPapers_PDF/124_DOC.pdf.

spatio-temporal framework, 2) uploading the data about the agents, 3) running the model, 4) analyzing the model output (*fig. 4*). The model is calibrated and verified using actual data on the Metropolitan area of Minnesota, which is formed by the so-called Twin Cities: Minneapolis and adjoining Saint Paul.

Shrinking City Model. The reverse process − the shrinking of the city − is considered in the work of German researchers *D. Haase, S. Lautenbach,* and *R. Seppelt* [24] who used agent-based modeling for studying migration and land use in Leipzig. The computer agent-based shrinking city model that authors called

Figure 4. Main stages of modeling intraurban migration (Twin Cities)

1.1 Specify a spatiotemporal framework
Space:
- the seven county TCMA, resolution - 100 m
Time:
- 2005-2007, one year

Preparation

1.2 Generate the geographic context
Regional housing market:
- Existing vacant houses, new houses and their main characteristics.
Land use regulations:
- Current and planned land use.

2 Populate actor agents
Number of actor agents:
- A certain percentage of households.
Locations of actor agents:
- Random, but constrained by land use and population distribution.
Attributes of actor agents:
- Initial pressure for migration.

3 Run the model
Inter-agent actions:
- None.
Agent-context actions:
- Migrate, generate/fill vacancies, change pressure for relocation.
Context dynamics:
- Add new houses, update vacancy list.

Model
calibration

4 Analyze the model output
Results:
- Migration data with origin / destination.
Data verification and validation.

Source: Sun S., Manson S.M. Simple Agents, Emergent City: Agent-Based Modeling of Intraurban Migration. *Computational Approaches for Urban Environments*. Berlin: Springer, 2015. Pp. 123-147.

RESMOBcity is based on a conceptual model (*fig. 5*), consisting of three sections:

1. "Population" component: population dynamics is determined by migration increment, birth rate and mortality and, in turn, affects the types of households and life cycles.

2. "Space" component: each point of the urban space, besides its territorial jurisdiction, describes a set of characteristics reflecting the conditions of residence in this place: security, crime, household pattern, available educational and medical facilities, shopping centers, recreation and entertainment facilities, transport accessibility (roads), type of residential development, the cost of purchasing and renting property.

3. "Decision-Making" component: each household assesses the attractiveness of the place of residence and makes a choice between relocation and preservation of its former residence.

As the result of resettlement of households, the least appealing housing is released, and if it is not in demand for a long time (over 5 years), then it is demolished.


Figure 5. Shrinking city conceptual model (Leipzig)
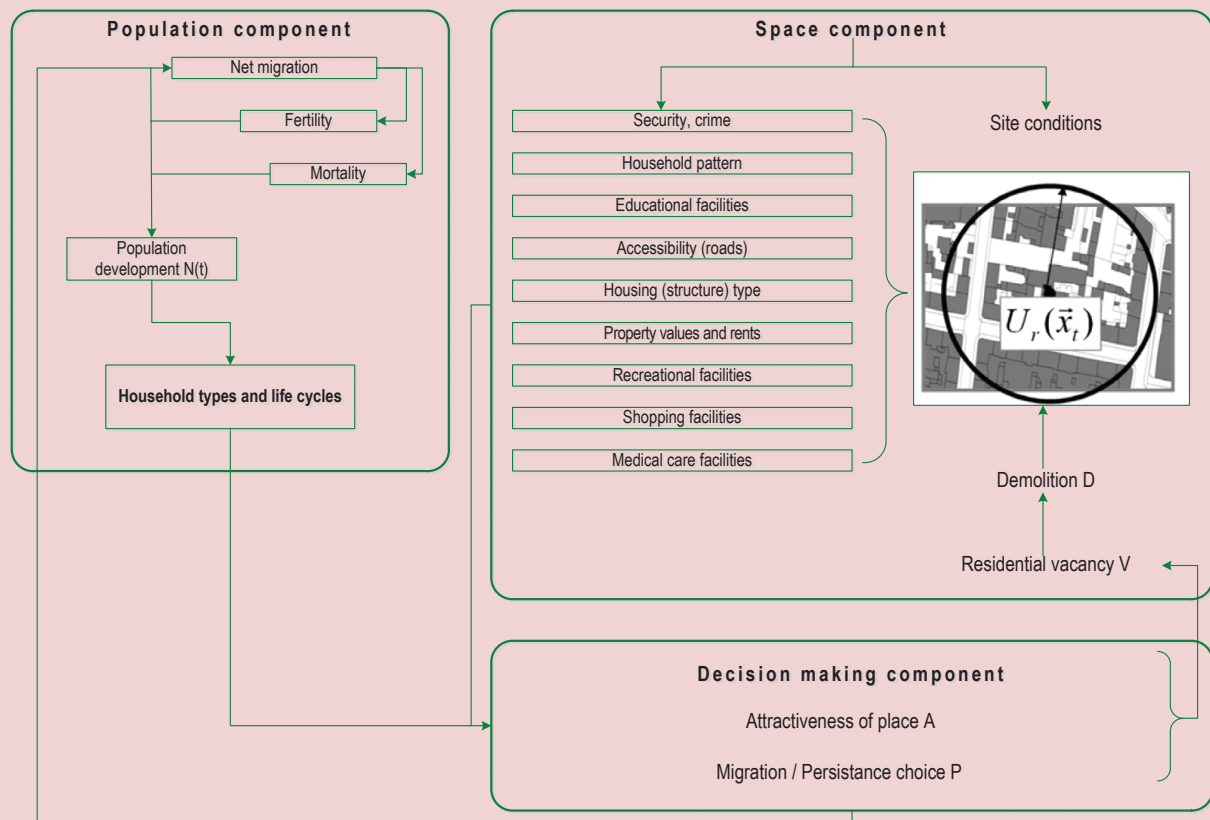
Source: Haase D., Lautenbach S., Seppelt R. Modeling and Simulating Residential Mobility in a Shrinking City Using an Agent-Based Approach. *Environ. Model. Softw.,* 2010, no. 25, pp. 1225-1240.

Creative Industries Urban Model. H. Liu and *E.A. Silva* [28, 29], researchers at Cambridge University, developed an agent-based model of interrelated development of creative industries and spatial structure of the city. The agent-based model is implemented by the authors in NetLogo in the form of a computer model called CID-USST and tested on data of the Chinese city of Nanjing. The model contains three types of agents: creative firms, creative workers and urban government (*fig. 6*).

Firms can appear and disappear, hire workers and increase the staff or fire workers and reduce their staff, move from one office to another. Creative workers can also appear and disappear, and change their place of residence. Urban government is responsible for the planning of urban land use and it can implement policies to support both private firms and some urban areas, making or canceling the policy decisions regarding the use of urban land. Each land plot in the model is characterized by a set of properties, including: location, land use type, topography, suitability for use, city neighborhood, development quality, etc. Some of these properties may change depending on the actions of the agents, and, on the contrary, dynamics of properties of land has an impact on the actions of agents in the model.

Figure 6. Conceptual model of the interrelated development of creative industry and spatial structure of the city (Nanjing)
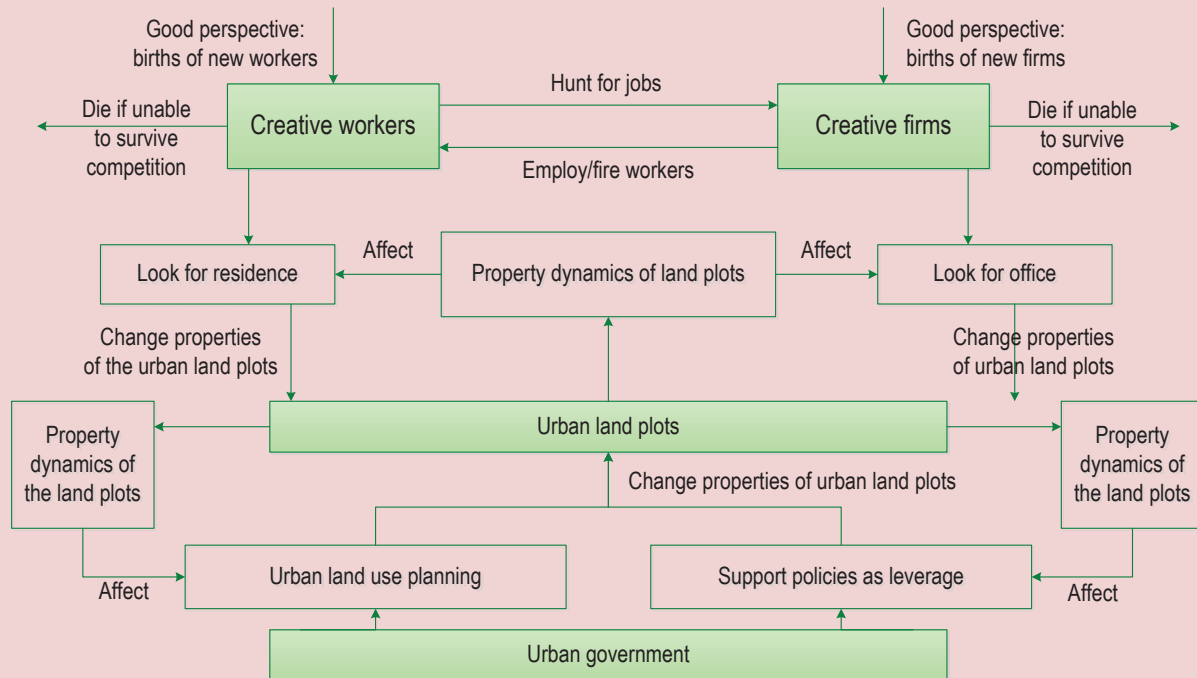
Source: Liu H., Silva E. A. Creative Industries Urban Model: Structure and Functioning. *Urban Design and Planning*, 2015, vol. 168, no. 2, pp. 88-100.

At the end of our review of international experience, we note that the models described above do not cover the whole variety of agent-based models of the meso-level developed abroad[1]; however, they are, in our opinion, the most interesting and well-researched, as evidenced by their detailed description in the articles that we have analyzed. Also, the focus of the majority of developers on the practical application of the models designed and on the use of real statistical data on municipalities sets good prospects for further development of models with quality calibration and validation.

So, answering the question indicated in the title of his article "How Good are Agent-Based Models at Simulating Individuals and Space in Cities?", *A. Heppenstall, A., N. Malleson* and *A.Crooks* [26] conclude that although the urban agent-based modeling, due to its "descent" to the micro-level and greater detail, led to a deeper understanding of local intraurban processes and urban dynamics, however, there remains a number of unresolved problems related to calibration and validation of agent-based models, modeling of individual behavior, the quality of input data, etc. Summing up their reasoning, the authors point out the existence of great potential of agent-based modeling as a method to simulate urban development, noting that the solution of selected problems is of crucial importance if agent-based modeling is going to be applied in practice in the future to help managers develop sustainable and smart cities.

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[1] You can find a detailed description of other models in the collection *Agent-Based Models of Geographical Systems*. Ed. by A.J. Heppenstall et al. Springer Science+Business Media B.V., 2012. 759 p.

II. Review of Russian experience

Agent-based modeling in Russia began to develop somewhat later than abroad, and is not widespread yet. For this reason, the number of agent-based models developed in our country is much fewer, and there are very few agent-based models of complex socio-economic systems. However, it is worth mentioning that, despite this fact and despite a relatively small experience of agent-based modeling, the quality of the models already developed is very high. First and foremost, it is a merit of researchers at the Central Economics and Mathematics Institute under the Russian Academy of Sciences, they actively develop this direction in Russia. To date, CEMI RAS specialists developed the following models:

— integrated agent-based model of socio-economic development of megalopolises [15];

— multi-agent model of municipal formations in the region [7];

— demographic model of the conditional region [6];

— agent-based regional model "the Governor" [14];

— agent-based demographic model "Russia" [8] and other models.

The researchers sum up the accumulated experience of agent-based modeling in two books: "Agent-Based Economic Models" [2] and "Social Simulation – a New Computer Breakthrough (Agent-Based Models)" [10]. Let us consider the meso-level models.

Model of Urban Socio-Economic Development. The integrated agent-based model of socio-economic development of megalopolises [15], developed by M.R. Fattakhov was named CABMUD (Complex Agent-

Based Model of Urban Development). It consists of five sections: two types of agents and three types of environment (*fig. 7*). The main agents in the model are people – inhabitants of the megalopolis, and also municipal enterprises and organizations. The environment of the model is represented by city districts, their public roads and public transport lines. In the process of functioning of the model, its agents-people interact with the other kind of agents – enterprises (the agent-agent type of relation), i.e., they either are already working and receive a monthly income or are on the job market searching for a job. Living in the districts, they interact with the environment of the model (the agent-

environment type of relation). Here they pay for the cost of living (utility bills, rent).

The agents can change the district of their residence based on their preferences or on current financial situation. Moving between home and work, agents-people interact with two types of environment – public roads and public transport. The choice of transport type influences the amount of monthly expenses and the time spent by the agents on travelling. The agents of this type have the following characteristics: age, memory, available money, monthly income, district of residence, district of work, time when his/her working day starts, monthly transportation costs, presence or absence of a personal vehicle. The agents-

Figure 7. Conceptual scheme of an agent-based model of the development of the megalopolis (Moscow)
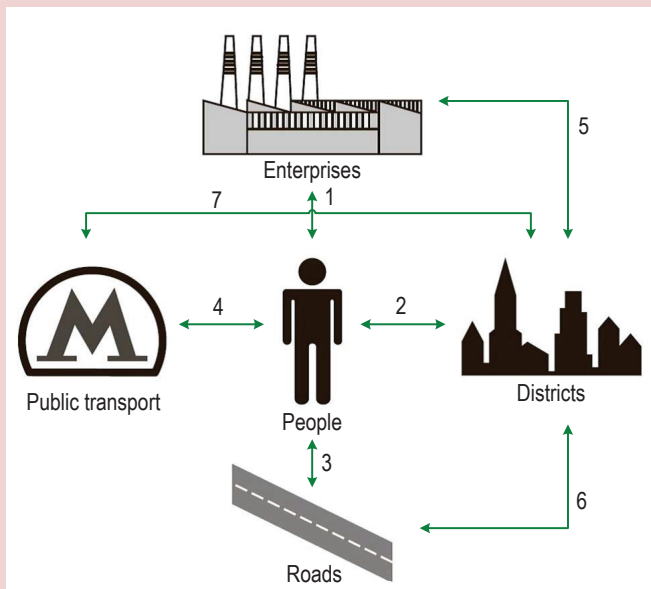
Legend: 1 – interaction between agents: people work at the enterprises and earn wages or search for a job, 2 – interaction with the environment: agents-people live in the city districts; 3 – interaction with the environment: agents-people use public roads for travelling; 4 – interaction with the environment: agents-people use public transport; 5 – interaction with the environment: agents-enterprises located in the city districts pay monthly rental fee; 6 – implementation of the principle of hierarchical structure of the environment: public roads are located in the city districts; 7 – implementation of the principle of hierarchical structure of the environment: public transport lines pass through the city districts.

Source: Fattakhov M.R. Agento-orientirovannaya model' sotsial'no-ekonomicheskogo razvitiya Moskvy [Agent-Based Model for Socio-Economic Development of Moscow]. *Ekonomika i matematicheskie metody* [Economics and Mathematical Methods], 2013, no. 2, pp. 30-42.

people can be in one of four states: content, neutral state and discontent in the waiting state (*fig. 8*). The CABMUD model created by M.R. Fattakhov makes it possible to develop long-term forecasts and scenarios of socio-economic development of the city based on the level of comfort of its residents, and also to receive the quantitative evaluation of management decisions' results. The model was tested on the example of Moscow [16] and showed good results.

At present, specialists at CEMI RAS, together with their colleagues from the North-West Institute of Management at the Russian Presidential Academy of National Economy and Public Administration are developing a large-scale agent-based model of the social system of Saint Petersburg [9, p. 23].

The Model of Municipalities. The agent-based model of the municipality, developed by E.D. Sushko deserves special attention [7]. It contains two types of agents: agents-natural persons (inhabitants of the municipality) and agents-legal entities (enterprises and organizations operating on the territory of the municipality). Agents-organizations are divided into two categories: enterprises of the real sector and organizations of the social sphere. The author implements the principle of hierarchical structure of the model: the agents-natural persons are the agents of the first hierarchy level, and the enterprises and

Figure 8. States of human agents in the CABMUD model
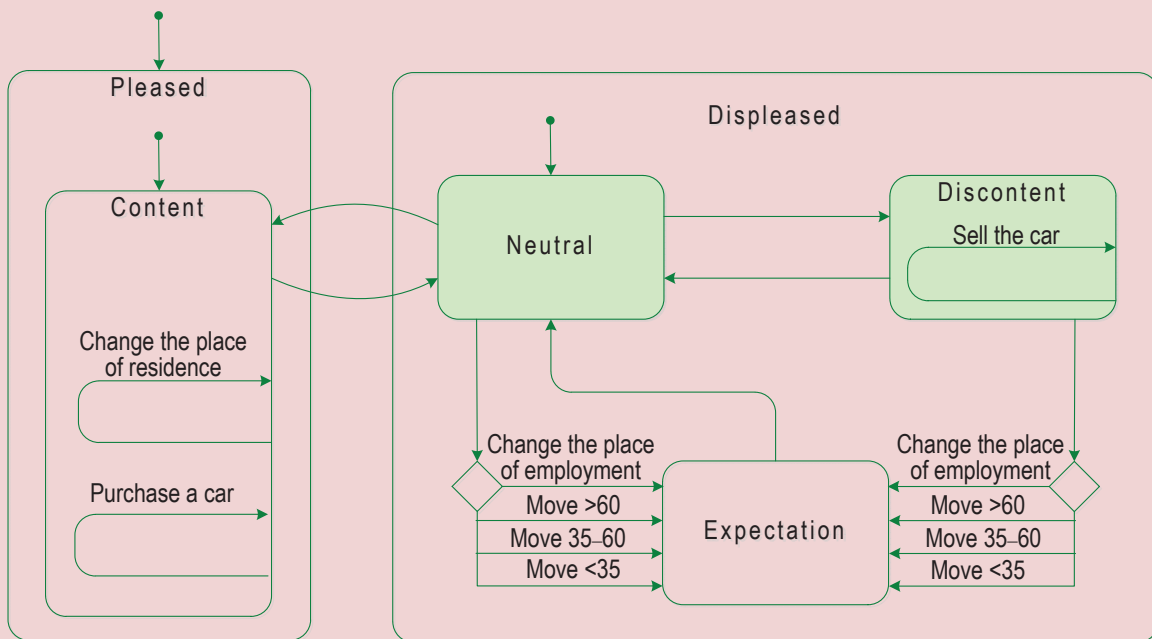
Source: Fattakhov M.R. Agento-orientirovannaya model' sotsial'no-ekonomicheskogo razvitiya Moskvy [Agent-Based Model for Socio-Economic Development of Moscow]. *Ekonomika i matematicheskie metody* [Economics and Mathematical Methods], 2013, no. 2, pp. 30-42.

organizations that employ residents of the municipality are the agents of the second level. Municipal formations in the simulation of the region will become the agents of the third level of the hierarchy. Moreover, the agents of the same level in the model do not directly interact with each other.

Each agent in the model has a certain set of individual characteristics. For agents of the first level, such characteristics are the level of education and health, work experience, etc. The main characteristics of the agents of the second level are as follows: fixed assets, available financial means, labor potential

of employees, etc. The status of the agents in the model is influenced by numerous environmental factors.

The behavior of agents of both types is due to their "system of values" (preferences) and is simulated on the basis of target functions. The people agents who work at the enterprises and organizations in the municipal entity analyze the information available on the external environment and their own place in it, and, like in *M.R. Fattakhov's* model described above, shift in accordance with their system of values to one of the three states that the author refers to as "normal", "discontent"

Figure 9. Agent's behavior pattern in the model of the municipal formation
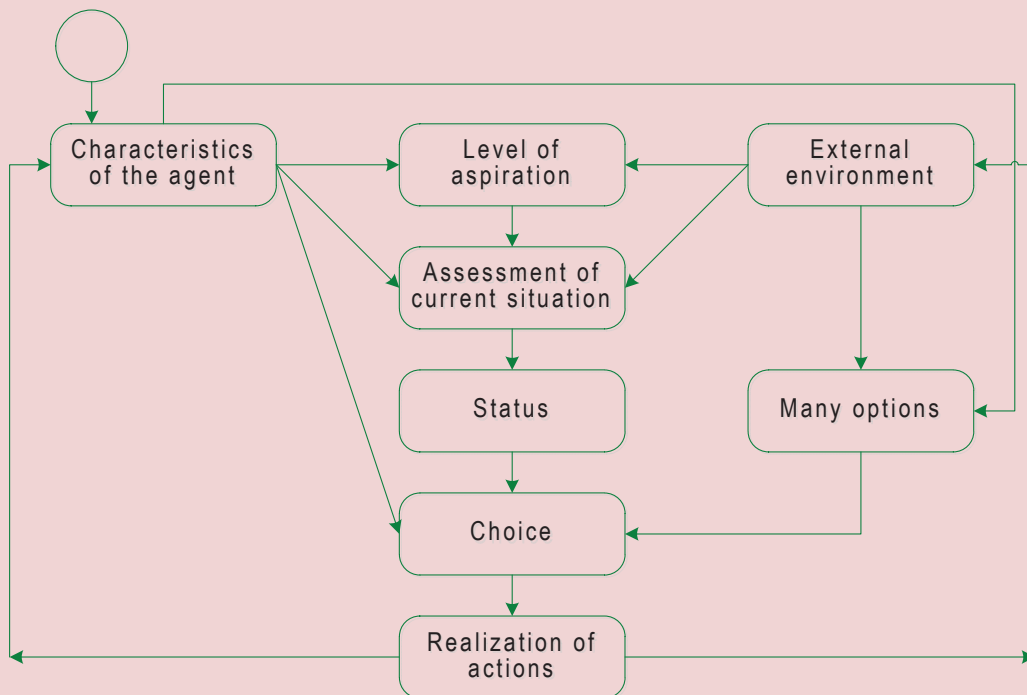
Source Sushko E.D. *Mul'tiagentnaya model' regiona: kontseptsiya, konstruktsiya i realizatsiya: Preprint # WP/2012/292* [Multi-Agent Model of the Region: Concept, Design, and Implementation: Preprint # WP/2012/292]. Moscow: TsEMI RAN, 2012. 54 p.

and "critical". The normal state is the initial state of the agents in the model, and the critical state indicates the need for urgent action to change the situation. The general scheme of agents' behavior in the model is represented in *Figure 9*.

The agent-based model is tested on the example of municipal districts of the Vologda Oblast with reference to its map and implemented by the researcher in the form of a custom software product developed in the simulation software AnyLogic[2] produced by "The AnyLogic Company" (Russia) formerly known as "XJ Technologies". It is important to emphasize that the computer model focuses on practical application in managerial activities and enables testing different strategies of management of revenues and expenditures of municipalities' budgets. Testing is done by changes in the controlled parameters of the model, in particular, budget expenses on the social sector and the tax burden.

It is worth mentioning that, along with the statistical data of the Federal State Statistics Service, the sociological data presented by ISEDT RAS researchers in the monograph "Local Self-Government in Regional Development" served as the information base for the creation of the computer-based agent-based model of municipal formations of the Vologda Oblast [1], and that the methodological approach to the assessment of labor potential described in the monograph "Labor Potential of the Region" [5] was used in the process of designing the model.
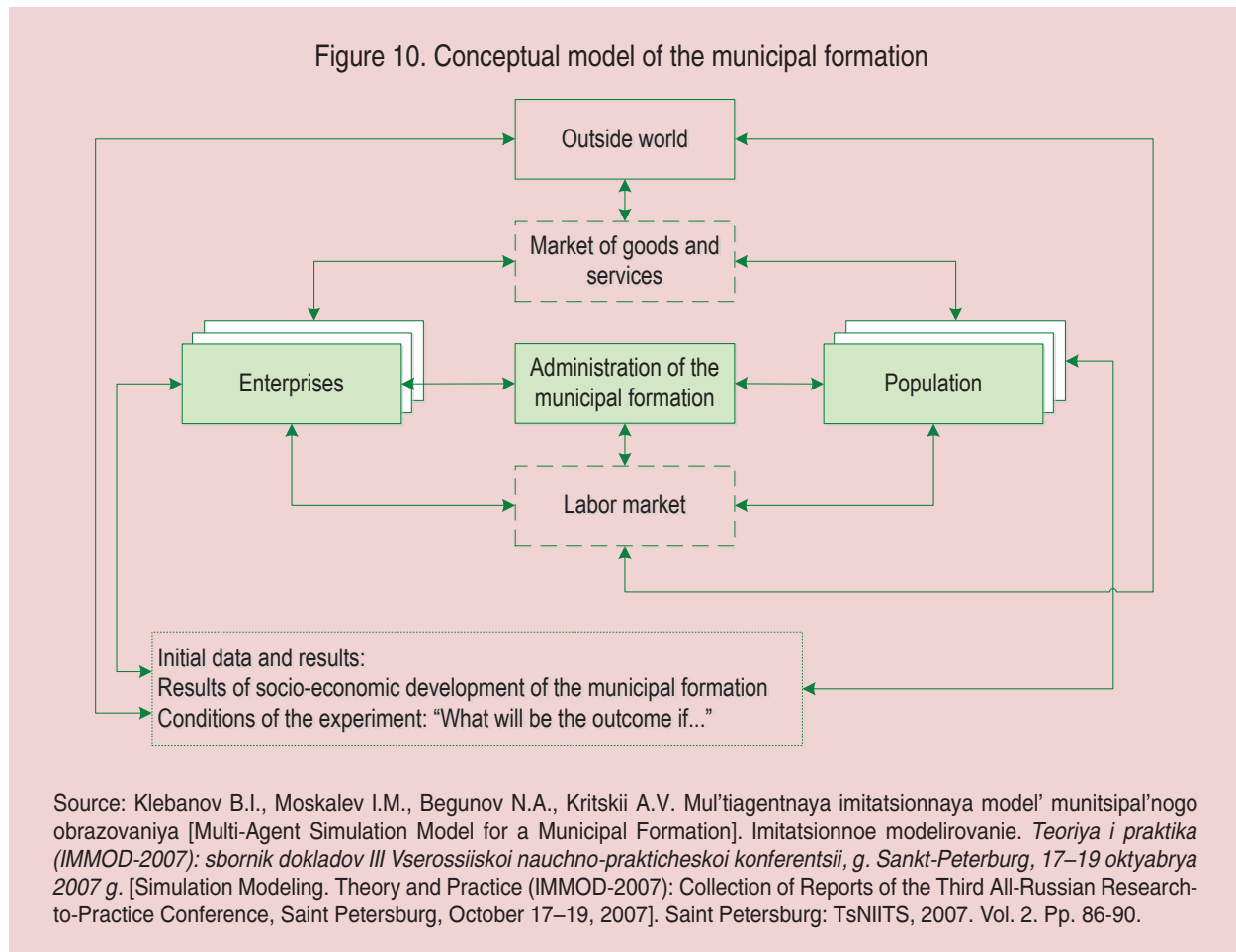
The multi-agent simulation model of the municipality developed by the Yekaterinburg team of scientists supervised by *N.A Begunov* [3] can be named as similar to the above model in its concept and purpose. The authors believe it is important that managers use automated systems that support decision-making and that are developed on the basis of multi-agent simulation models of municipal formations; the authors also argue that such a system can become a tool for the comprehensive analysis and forecast of social-economic development of the municipality, allowing to test the implementation of various projects, and assess their potential impact on the quality of life [12]. A conceptual model of the municipal formation is represented simplistically in *Figure 10*.

According to the developers, the model considers the following types of agents of the municipality and its environment: enterprises of two types (industrial and services), population of the municipality, labor market, market of goods and services, housing stock and the budget of the municipality, and federal and regional budgets [4]. Moreover, the behavior pattern of each economic agent includes two models — the model of life cycle and the model of behavior at specific stages of development.

The development and improvement of an agent-based model allowed the authors to develop an online service for forecasting the development of economic and social processes of territorial formations and offer it to managers [11]. According to the authors, a service, in which the agent-based model is its main link, can be used to conduct optimization experiments, evaluate strategic projects, carry out situational modeling and collective work of finding and making optimal managerial decisions.

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[2] Official website of the product: http://www.anylogic.ru/

Figure 10. Conceptual model of the municipal formation

Source: Klebanov B.I., Moskalev I.M., Begunov N.A., Kritskii A.V. Mul'tiagentnaya imitatsionnaya model' munitsipal'nogo obrazovaniya [Multi-Agent Simulation Model for a Municipal Formation]. Imitatsionnoe modelirovanie. *Teoriya i praktika (IMMOD-2007): sbornik dokladov III Vserossiiskoi nauchno-prakticheskoi konferentsii, g. Sankt-Peterburg, 17–19 oktyabrya 2007 g.* [Simulation Modeling. Theory and Practice (IMMOD-2007): Collection of Reports of the Third All-Russian Research-to-Practice Conference, Saint Petersburg, October 17–19, 2007]. Saint Petersburg: TsNIITS, 2007. Vol. 2. Pp. 86-90.

Thus, the accumulated domestic and foreign experience of agent-based modeling of complex socio-economic systems of the meso-level consists primarily in the modeling of socio-economic and spatial development of cities, urban agglomerations, suburban districts and other municipal formations. The main agents operating in the models are mostly residents of the municipal formation or they can be households, enterprises and organizations operating on the territory of the municipal formation, including their types such as construction firms, and the government.

The fact that the model includes a specific agent such as the administration of the municipal education provides an opportunity for using them for testing various options of management actions on the territory of the municipal formation due to the changes in controllable parameters of the model, for instance, management of allocation of budget expenditures and taxes, introduction of certain restrictions or issuance of permits (e.g. construction permits), grant and other support of economic entities.

At the same time, the review of foreign and domestic publications on the agent-based

modeling of socio-economic processes of the meso-level, allows us to conclude that there are significant problems that hinder the introduction of agent-based models in municipal management practice at the present stage of their development.

The first problem consists in the lack of theoretical and methodological elaboration of agent-based modeling method, in particular, there are significant difficulties associated with calibration, verification and validation of the models constructed. It is pointed out by both Russian and foreign experts. The solution to this problem is possible, in our opinion, by developing the algorithms for calibration of agent-based models, and by creating instructions or recommendations on their verification and validation. However, all this requires consolidation of efforts of the scientific community, and significant labor and time costs.

The second problem is that agent-based models need to be filled with real data. As a result, there emerges the necessity to collect representative data about micro-level agents.

Partially this problem can be solved through the use of opinion polls. However, the methodology of sociological measurements must ensure comparability at various levels of modeling and the possibility of implementing the hierarchical principle of building the models.

The human factor is the third obstacle to the implementation of agent-based models in practice of municipal management. It is necessary to ensure that the government receives the information about the possibilities and prospects of agent-based modeling of socio-economic systems and the feasibility of its use in making management decisions and selecting optimal strategies of public administration.

However, as we see it, all these problems can be solved, and if there is political will, then in the near future, agent-based computer models can enter the practice of public administration and become a kind of cognitive advisors that are able to increase significantly the effectiveness of governance at any level, starting with the level of municipality.

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Review of the Monograph

Belarus on Its Way to the Future: Sociological Assessment.
Ed. by I.V. Kotlyarov. Minsk: Belaruskaya navuka, 2015. 499 p.

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Terra incognita, or What do we know about Belarus?

If we decide to hold an impromptu case study, go out in the streets of Russian cities and ask passers-by a simple question "What do you know about Belarus?", then we will very quickly understand that our ideas about this country are vague and the knowledge fragmentary. People will probably say that Lukashenko is a strong President who knows how to restore order in the country. They will also recall the cleanliness of Belarusian streets and security of ordinary citizens, the facts they know either from experience or from the stories of their acquaintances. Perhaps, these few bits of information make up the notion of the Russians about the life of their Western neighbors.

Therefore, the publication of the monograph "Belarus on the Way to the Future: the Sociological Dimension", a large-scale work comprising almost 500 pages and dedicated to the development of the Belarusian society and touching upon virtually all aspects, including the development of political institutions and social development, will probably be good news for those who lamented the well-known informational isolation of Belarus. The book was published in 2015 in Minsk. Its authors are leading Belarusian sociologists: I.V. Kotlyarov, V.L. Abushenko, E.M. Babosov and others.

Leafing through the pages…

While reading the monograph, one cannot but notice a complex conglomerate of assessments, ideas and impressions it contains. The

most variegated views are intertwined here, among them we can find such ideas that cannot be found in the Russian ideological space any more. For example, a telling example is the formulation of the issue concerning the attitude of the Belarusian people toward entrepreneurship, it implies that the attitude can be not only positive but also negative. In the eyes of almost 20% of the Belarusians, entrepreneurs look compromised: they "don't create jobs, they produce nothing, and are engaged only in trade", and 13% of surveyed residents of Belarus believe that entrepreneurs hamper economic growth and competition. It is worth mentioning in the same context the section of the monograph under the catchy title "The working class in the postindustrial world of illusions". This section sharply criticizes the idea of the "death of labor", which supposedly should come with the formation of the post-industrial society.

At the same time, the research team that is developing the "Socio-cultural portrait of Russia's regions" project under the supervision of N.I. Lapin will find very interesting the section devoted to the study of socio-cultural determinants in the development of Belarus, especially after Belarusian sociologists expressed their intentions to study this direction more deeply, particularly in the framework of the research on "finding a clue to the cultural code" of the Belarusians.

The book provides evidence that Belarusian scientists are able to learn from Russian mistakes. The reform of healthcare financing mechanisms in the aspect of transition to insurance principles and, consequently, gaining additional source of funds, which was undertaken in Russia, has given very insignificant

results. The reasons for this failure are obvious: no matter what tools the government uses for the allocation of funds, the financial substrate that feeds the social system remains the same. The authors demonstrate a complete understanding of this relationship, and we should hope that the Belarusian authorities will listen to these reasonable arguments.

However, of the greatest interest are the sections of the book that are related to social and political aspects of life of Belarusian people. The authors show that it is difficult to call the citizens of Belarus wealthy under all possible assumptions. For example, a significant share of Belarusian pensioners — 60% — are not satisfied with the amount of their pensions. People say that the amount of pension payments is only enough to buy food and utilities, but the majority of them have to save up money to buy clothes and shoes, not to mention durable goods. The satisfaction with life index in Belarus measured in the monitoring mode is 50%. A significant proportion (36%) of the citizens are optimistic, believing that in the near future the situation will change for the better, but still 20% think it will remain unchanged, 7% expect a change for the worse, while about 37% of the Belarusians do not presume to speculate upon the prospects for the development of the country. The life satisfaction index, according to estimates of the authors of the monograph, is 87%, however over 30% describe their living conditions as "difficult but bearable". Meanwhile, Belarusian citizens say that life in their country is safe: more than 80% feel safe on the streets. It turns out that, although the standard of living of the Belarusians is low, they feel protected by the government.

A "special" path of Belarus

What is the secret of the "special" path of Belarus? After the Soviet Union, the last empire in world history, collapsed in 1990, the former Soviet republics, having gained independence, started to move toward political liberalization. It is often forgotten that true democracy does not eliminate the need for a strong government able to protect property rights, to fight against external and internal threats, to create a modern infrastructure, and what Western scholars call the "rule of law". The experience of the Russian Federation shows that to build a modern state is a not less but more difficult task than to form democratic institutions. The attempts to achieve this goal were not successful even in Ukraine, where, it seems, there was a mature civil society and the desire for freedom has traditionally been very high. In this sense, the path of Belarus is unique: unlike Russia and Ukraine, where from time to time after all there emerged new "iconic" leaders on which the people pinned their hopes, Belarus throughout the whole post-Soviet period was headed by one President – Alexander Lukashenko. Today, he remains the main subject and the center for the adoption and implementation of fundamental political decisions. The all-time President has become a kind of symbol of the firmness of the existing political system and lack of prospects for moving toward democracy. However, there is reason to believe that the Belarusian people do not view this as a big problem. In the latest election, Alexander Lukashenko won a landslide victory; his national recognition is confirmed by the data of sociological surveys: 82–84% of voters are ready to vote for the incumbent President.

How do Belarusian scientists estimate the prospects for democratic development of their country? They say that the democratic path is desirable, but they do not see any fatal contradictions between democratic values and the order established in Belarus. When listing the criteria of democracy, the authors seem to imply that Belarusian political life meets almost every one of them. So, I.V. Kotlyarov, in the section of the book devoted to a multi-party system that failed, sharply criticizes Belarusian political parties, accusing them of all possible evils: absence of charismatic leaders and bright ideas, corruption and outright laziness. Analyzing the development of the political system, he comes to the conclusion that "citizens of Belarus do not feel the real need of the parties, and, therefore, there is no demand for them in the Belarusian society". At the same time, according to the data of the monitoring that he provides, 47% of the Belarusians want their country to have strong political parties.

It is very likely that for the Belarusians the negative examples of socio-economic development in the neighboring CIS countries serve as a warning about the dangers that may await them on the path of democratic transformation. This fact has strengthened in the Belarusian people their strong loyalty to the state, which they are based on and which they perceive as a guarantor of stability, as a core value. Frankly speaking, even in Russia, many representatives of the middle-class support Vladimir Putin mainly due to the fact that the concept of "democracy" has absorbed a lot of negative connotations because it has become associated with the chaos of the 1990s, economic crisis and the looting of the country.

And although we can not but point out the fact that there is no developed civil society and multiparty system in Belarus, and we cannot but express doubt about the fairness of the presidential elections, but we also cannot hush up the victory of the Belarusian authorities in one important point — the legitimacy of the regime, which American political scientist and sociologist Seymour Martin Lipset identified as the consent to move along the chosen path, regardless of economic failures.

It is no coincidence that in Russia, where if not the political outrage, then, at least, the indifference of the government to its people is still present, many are nostalgic about the Soviet past, saying that "there was more order at that time". Thus, the results of public opinion measurements carried out by Levada-Center indicate that more than half of the citizens consider the economic model based on state planning and distribution to be more adequate than the market model, and 37% of the Russians would prefer the Soviet political system. It is the very power of the state, the power that the Russian society lost in the era of Boris Yeltsin, and has not recovered in present era (according to Levada-Center, only 23% of the Russians are satisfied with the contemporary Russian political system) that is so appealing to the Russian people when they consider the Belarusian political regime, to some extent reminiscent of the Soviet system. The power of the state, apparently, is the key to its permanence. However, the question remains open concerning the possibility of progress in the development of democratic institutions in the Republic of Belarus in the foreseeable future.

Despite the fact that the research of Belarusian scientists is primarily based on the monitoring, "index" approach, we can say that the large volume of factual material contained in the book will provide wide perspectives for interpretations, even to those sociologists who do not advocate "hard" research methods. At the same time, the authors of the monograph not just provide the key indicators and a dry description of detectable trends, but they also interpret the processes under observation in line with the general demographic, socio-cultural and socio-economic development of the country and in the context of the conceptual-theoretical and methodological field of modern sociology. Perhaps, this book will help the Russian citizens at least, the representatives of scientific and educational community, to fill the gaps in the knowledge about the life and fate of the Belarusian people and, at the same time, to think about the future of their own country.

Information about the Author

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