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FACTS, TRENDS, FORECAST

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ECONOMIC AND SOCIAL CHANGES: FACTS, TRENDS, FORECAST

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

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

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

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

MAIN RESEARCH DIRECTIONS

Due to the Resolution № 96 by the Presidium of Russian Academy of Sciences dated from March 31, 2009 ISEDT RAS carries out investigations in the following fields:

- problems of economic growth, scientific basis of regional policy, sustainable development of territories and municipalities, and transformations of socio-economic space;
- regional integration into global economic and political processes, problems of economic security and competitiveness of territorial socio-economic systems;
- territorial characteristics of living standards and lifestyle, behavioral strategies and world view of different groups of the Russian society;
- development of regional socio-economic systems, implementation of new forms and methods concerning territorial organization of society and economy, development of territories' recreational area;
- socio-economic problems regarding scientific and innovative transformation activities of territories;
- elaboration of society's informatization problems, development of intellectual technologies in information territorial systems, science and education.

INTERNATIONAL TIES AND PROJECTS

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

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

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

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

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

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

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

2013 – Cooperation agreement is signed with Jiangxi Academy of Social Sciences (China, 2013).

July 2013 – The application for research performance by international consortium involving ISEDT RAS within the 7th Framework Programme of European Community.

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

NEW PUBLICATIONS OF ISEDT RAS

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

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

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

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

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

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

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FROM THE CHIEF EDITOR

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Significance of the Thesis "Cadres Decide Everything" as Applied to Modern Russia

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June 15, 2017 Russian President Vladimir Putin held his annual live TV phone-in session with the nation. The president answered questions that came from all over Russia. As usual, social issues like the standard of living, healthcare, education, and others were among the most acute ones. The live TV phone-in has proved once again that everyday matters that are of major concern to the people are not being addressed by those who, by virtue of their position, must address them. And the citizens have nothing left to do but ask the President to resolve these matters... This again raises a question concerning the effectiveness of personnel (or "cadres") in the entire system of public administration. The slogan "Kadry reshayut vse!" [Which means "Cadres decide everything". A more accurate translation, with respect to the context, would be "Cadres are a key to everything". – Translator's note.] becomes more and more relevant with regard to the present and future of Russia.

The modern period of world development is characterized by fundamental changes in science, economy, and public administration. These processes are accompanied by escalation of geopolitical competition, growing complexity of social relations, and emergence of new global challenges. The world is moving toward a new economy – an economy based on knowledge and innovation. In such an economy, human and intellectual potentials are becoming decisive factors not only in the country's development, but also in preserving its national security and sovereignty.

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The inevitability of the above trends leaves the ruling elites no time to tread water. Every ill-conceived management decision aggravates social tension and weakens the geopolitical position.

Under such circumstances it becomes especially relevant to recall Russia's historical experience, because our country endured all sorts of events ranging from outright betrayal of national interests by the ruling elites to the outstanding achievements that make the Russian people proud of their homeland.

In this sense, a special role in Russian history belongs to Joseph Stalin, his experience as a ruler, and his personal qualities. Despite his tough management decisions (due to which experts still argue about his role in our nation's history), we cannot deny the fact that under him the USSR made great. We remind that under Stalin the Soviet Union carried out industrialization, due to which the country was able in the shortest possible time to turn from a semi-backward agrarian country into a power capable of defeating Nazi Germany that had all the cutting-edge technology of the time at its disposal. Stalin's administrative abilities were manifested in the time of peace as well: on the crest of the wave the Soviet Union made its greatest achievements in science, economy, space exploration, etc.

In 1935, Stalin delivered a speech[1] before the graduates of military academies, and then the country first heard the thesis: "Cadres decide everything!" Why is it so that after almost 100 years, looking back into Russian reality, we again refer to this slogan that has become proverbial? Why can we accurately refer much of what was said in that speech to the personnel issues of today?

Stalin's address to the graduates from the Red Army academies (1935). Thesis 1: "The task was to transfer this country from mediaeval darkness to modern industry and mechanized agriculture. A serious and difficult task, as you see. The question that confronted us was: Either we solve this problem in the shortest possible time and consolidate Socialism in our country, or we do not solve it, **in which case our country – weak technically and unenlightened in the cultural sense – will lose its independence and become a stake in the game of the imperialist powers".** [All the citations from Stalin's address are taken from the following source: Stalin J.V. *Works. Volume 14. 1934–1940.* London: Red Star Press Ltd., 1978. Pp. 71-79.]

To answer this question, let us focus on four abstracts from this document, which suggest the existence of historical parallels between the Russia of the 2000s and the Soviet Union of the 1930s.

The goals set out before the top leadership of the Soviet Union in the mid-1930s were largely the same as in Russia in the early 2000s. After the "turbulent" 1990s, Vladimir Putin became president of the country that was, to put it mildly, in a state of collapse: its economy was ruined, its

[1] The full text of Stalin's address is given in the Appendix.

N.V. Starikov: "It is the treachery of the elites that led to the collapse of our statehood. Moreover, it happened twice in the course of the 20th century: in 1917 and in 1991. And this terrible lesson must be learned, so as the Russian tragedy would never be repeated"[2].

people faced demographic crisis and socio-psychological maladjustment and had no trust in the authorities; and besides, there was that "boiling cauldron" of military action in Chechnya followed by the terrorist attacks that took place even in the capital. According to many experts[3], the period of the "turbulent" 1990s was strategically initiated by the West for the purpose of eliminating Russia as a geopolitical rival.

So the question was whether the trends prevailing in the 1990s would continue and lead to a permanent loss of state sovereignty, or a person would emerge, whose political will could bring order to the management system and prevent the imminent crisis of the Russian statehood.

Stalin's address to the graduates from the Red Army academies (1935). Thesis 2: "…Well, then, there were comrades among us who were frightened by the difficulties and began to call on the Party to retreat. They said: "What is the good of your industrialisation and collectivisation, your machines, your iron and steel industry, tractors, harvester combines, automobiles? **You should rather have given us more textiles, bought more raw materials for the production of consumers' goods, and given the population more of the small things that make life pleasant".**

Of course, we could have used the 3,000,000,000 rubles in foreign currency obtained as a result of a most rigorous economy, and spent on building up our industry, for importing raw materials, and for increasing the output of articles of general consumption. That is also a "plan", in a way. But with such a "plan" we would not now have a metallurgical industry, or a machine-building industry, or tractors and automobiles, or aeroplanes and tanks. We would have found ourselves unarmed in the face of foreign foes. **We would have undermined the foundations of Socialism in our country. We would have fallen captive to the bourgeoisie, home and foreign.**

We chose the plan of advance, brushing aside those comrades as people who could see more or less what was under their noses, but who closed their eyes to the immediate future of our country".

[2] Starikov N.V. Anatomy of betrayal by the elites. *N. Starikov's blog from February 3, 2017*. Available at: https://nstarikov.ru/blog/74668

[3] L.G. Levashov *(colonel general, doctor of history, president of the Academy of Geopolitical Problems)*: "In the early 1980s, when President Reagan assumed office as the U.S. President, CIA Director Casey put forward a program that, in fact, facilitated the collapse of the Soviet Union. Based on this 70-page report, a ten-year program on the collapse of the USSR and the liberation of its territories for the subsequent resettlement of Americans was adopted. This is how it all started. And the rest was just strategy, how everything had to be done… Unfortunately, we failed to resist the implementation of the program, although Andropov gave orders in this respect. Under Gorbachev, the program was paid no attention whatsoever. Today, we can say with certainty that our adversary implemented a deliberate program to destabilize and destroy the Soviet Union as a country and state. This is very important for understanding the current situation in Russia". (Source: *Literaturnaya gazeta,* 1991, no. 31, August (6562) (03-08-2016). Available at: http://lgz.ru/article/-31-6562-03-08-2016/avgust-1991/)

V.V. Putin: "As we have noted on past occasions, the current dynamic shows us that the reserves and resources that served as driving forces for our economy at the start of the 2000s **no longer produce the effects they used to...** We must simultaneously ensure higher growth rates in the economy and carry out structural reforms to make it more efficient"[4].

The industrialization carried out by Stalin in the first half of the 20th century can be compared to a change in the economic model of modern Russia, which has not yet been implemented, but which, according to many experts (S.S. Gubanov, S.Yu. Glazyev, V.M. Polterovich, B.Yu. Titov, E.V. Balatsky, Yu.Yu. Boldyrev, and others) and the President himself, is required as an essential condition of national security.

But despite years of talk about the need to change the course of economic development *(Insert 1)*, oil and gas prices remain the dominant factor in the Russian economy. This suggests that **in the modern ruling elite, as well as 100 years ago, there are a lot of people who give priority to "raw materials for the production of consumer goods", who turn a blind eye to Russia's near future and say that its development is a "dangerous dream".**

In his key thesis, Stalin made a correct conclusion based on the historical experience of different countries. Therefore, this thesis remains a key-note for countries engaged in global competition.

Stalin's address to the graduates from the Red Army academies (1935). Thesis 3: "... Having emerged from the period of dearth of technique, we have entered a new period... Without people who have mastered technique, technique is dead. In the charge of people who have mastered technique, technique can and should perform miracles... realise that of all the valuable capital the world possesses, the most valuable and most decisive is people, cadres. It must be realised that under our present conditions "cadres decide everything".

V.M. Polterovich: "To promote economic development, the government should primarily initiate projects aimed to build human capital, and to upgrade education. We have a shortage of experts in many specialties. **The main reason lies in the inefficiency of educational programs. The current education reform is focused on the formal indicators** – the number of foreigners studying in Russia, the number of square meters per student, and so on. But these things are minor. What really matters, is educational programs. In Russia, **they are not keeping pace with the progress in technology and science"**[5].

The same can be said about Russia[5]. Many experts today talk about the unique importance of human capital, noting that "the main wealth of our country is not oil or

[4] Putin V.V. Speech at the Meeting of the Economic Council Presidium. *Official website of the Russian President*. Available at: http://www.kremlin.ru/events/president/news/51996.

[5] Polterovich V.M. The question concerning the system that generates growth cannot be ignored. *Website of Moscow School of Economics at Lomonosov Moscow State University, February 24, 2015*. Available at: http://mse-msu.ru/v-m-polterovich-voprosa-o-sisteme-porozhdayushhej-rost-ne-obojti-intervyu-zhurnalu-ekspert-yug/

Insert 1

Excerpts from the Presidential Addresses to the Federal Assembly of the Russian Federation

Date	Excerpt
Vladimir Putin's first presidency (May 7, 2000 – May 7, 2004.)	
July 8, 2000	The current growth is only to a small extent connected to the renewal of the economic mechanism. In many ways, it is the result of a favorable **external economic** situation…**We cannot be happy with this situation.**
April 18, 2002	I am certain that to ensure a worthy living standard for our citizens, to ensure that Russia remains an important and full member of the international community, a strong competitor, our economy should grow at much faster rates. … A favorable state of the foreign economy no longer ensures the necessary rates for the development of the economy and its competitiveness… **The government has predicted rates of 3.5% to 4.6% for the next few years. Such a low assessment of Russia's capabilities does not help much. What's more, it does not lend itself to active policies. It does not envisage measures designed to make use of the capabilities of the Russian economy.** This primarily concerns the potential possessed by enterprise, the scientific and technical sphere, and in modern administration technology.
Vladimir Putin's second presidency (May 7, 2004 – May 7, 2008)	
May 26, 2004	**We must grow faster than the rest of the world** if we want to take the lead within today's complex rules of global competition. **We must be ahead of other countries in our growth rate, in the quality of our goods and services and level of our education, science and culture.** This is a question of our economic survival. It is a question of ensuring that Russia takes its deserved place in these changing international conditions
May 10, 2006	**We have spoken on many occasions of the need to achieve high economic growth as an absolute priority for our country.** The annual address for 2003 set for the first time the goal of doubling gross domestic product within a decade. The calculation is not hard to make: **to achieve this goal our economy needs to grow at a rate of just over seven percent a year…** I want to stress that if we do not address certain issues, do not improve our basic macroeconomic indicators, do not ensure the necessary level of economic freedom, do not create equal conditions for competition and do not strengthen property rights, we will be unlikely to achieve our stated economic goals within the set deadline.

End of Insert 1

Date	Excerpt
Vladimir Putin's third presidency (May 7, 2012 – present)	
December 12, 2012	A lopsided raw materials economy, as has been pointed out on many occasions, is not just vulnerable to external shocks. Most importantly, it does not allow for developing and putting to adequate use human potential**; it is incapable of giving most of our people the opportunity to make use of their strengths, talents, labor and education, which means, by definition, that it breeds inequality.** Finally, the capacities of the raw materials based economy model are exhausted while Russia's development needs require an annual GDP growth of no less than 5 or 6 percent over the next decade.
December 4, 2014	We will only succeed if **we work towards prosperity and affluence, rather than hope for an opening or a favorable situation on foreign markets…** The quality and the size of the Russian economy must be consistent with our geopolitical and historical role.
December 1, 2016	**The main reasons for our economic slowdown are to be found above all in our internal problems, and above all in the lack of investment resources, modern technology, professional human resources, insufficient competition, and shortcomings in our business climate… If we do not address the underlying problems of the Russian economy, if we do not launch new growth factors at their full force, it will stagnate for years, and we will have to constantly scrimp and save, to delay development. We cannot afford that…** To move up to a higher development level in the economy and social sector we need our own advanced research and scientific solutions. We must focus on the sectors where a powerful technological potential is accumulating for the future, that is, digital and other cross-cutting technologies that now determine all spheres of life. The countries that generate such technologies will get a lasting advantage and an opportunity to generate huge technological revenues. Those who fail to do this will be placed in a dependent and disadvantaged position.

Throughout all his terms in office and in all his Addresses to the Federal Assembly, the President points out the unsatisfactory growth rates of the Russian economy, stresses the need to find new and innovative sources to power it and improve management efficiency. However, these goals have not been achieved so far, since the personnel system does not focus on the actual implementation of the tasks set by the President.

Stalin's address to the graduates from the Red Army academies (1935). Thesis 4: "The slogan "Cadres decide everything" demands that our leaders should display the most solicitous attitude towards our workers, "little" and "big", no matter in what sphere they are engaged, cultivating them assiduously, assisting them when they need support, encouraging them when they show their first successes, promoting them, and so forth... We have not yet learned to value people, to value workers, to value cadres".

gold, but human resources, and the training they receive and the knowledge they possess will determine the movement of the economy and the ways in which we can overcome our current backwardness"[6]. The President himself confirms this: "The basis of our entire policy is to take care of people and increase human capital as Russia's most important resource"[7].

In the previous issue[8] we provided evidence of the consequences of poor governance and of an irresponsible attitude toward the situation in fundamental science. To "report" on formal indicators rather than to "appreciate and cultivate the staff" – it is part of a system crisis of public administration, and this is manifested not only in science but also in other sectors: economy, healthcare, education...

V.V. Putin: "Four years ago, in the May 2012 presidential executive orders, I set objectives for the economy, social sector, demography, science and education and other areas. We took upon ourselves great commitments before the public at that time and we must work now without trying to use current difficulties and outside limitations as an excuse. Let me repeat now, as I already said last year in this same hall, if I recall correctly, **that we must assess the results of our work not by the number of instructions deemed completed and the volume of reports written up. This, we know, we are all perfectly good at. But what we need is for people to really see tangible changes for the better"**[9].

In mid-2016, four years after publication of the May Presidential Decrees, the Government reported the implementation of "about 70% of the total number of the orders and 88% of the number of instructions that are to be executed to the present time". However, as noted by the representatives of the All-Russia People's Front, "out of our 162 opinions on the government reports about the fulfillment of the relevant instructions, we confirmed the feasibility of removing **control only for 24 instructions**. The numbers are as follows:

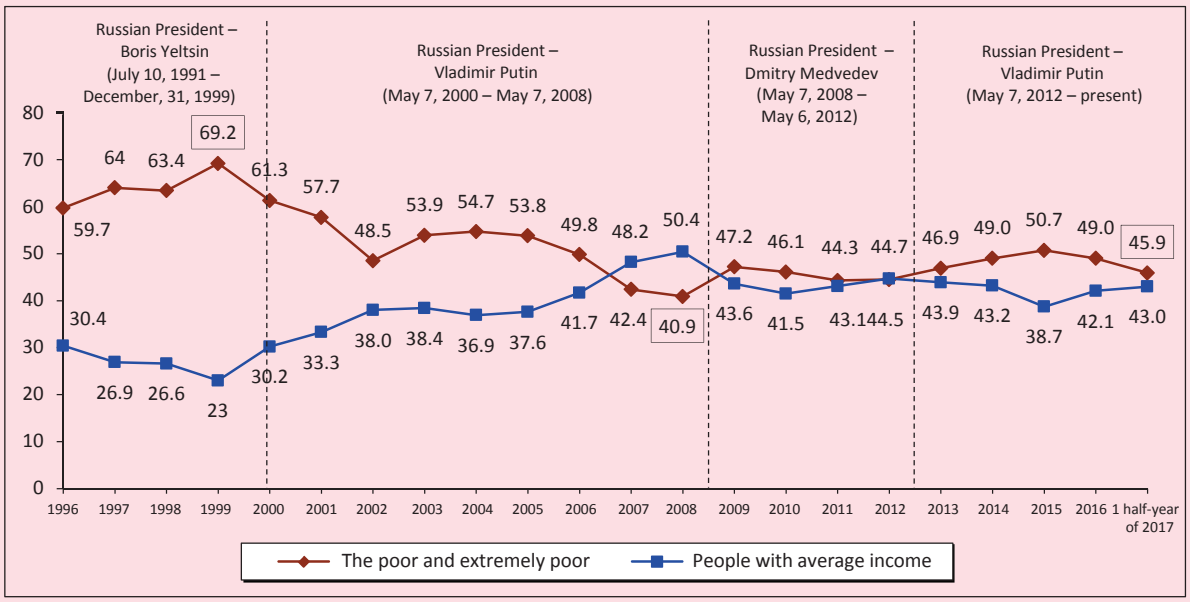
[6] Grishin V. *From the speech at the plenary session of the 7th international scientific-practical conference "Abalkin readings"*. Available at: http://nrnews.ru/news/obshestvo/92050-eksperty-reu-podgotovili-prakticheskie-rekomendacii-po-razvitiyu-rynka-truda-v-rossii.html

[7] Address to the Federal Assembly of the Russian Federation, December 1, 2016. *Official website of the Russian President*. Available at: http://www.kremlin.ru/events/president/news/53379

[8] Ilyin V.A. Nekrasivaya istoriya [What a Shame]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and social changes: facts, trends, forecast], 2017, no. 2, pp. 9-21.

[9] Putin V.V. Speech at the Meeting of the Commission for Monitoring Targeted Socioeconomic Development Indicators, May 16, 2016. *Official website of the Russian President*. Available at: http://www.kremlin.ru/events/president/transcripts/51917

Change in people's self-identification in the Vologda Oblast (percentage of respondents)*



* Distribution of answers to the question "Which group do you belong to, in your opinion?"

we believe that 24 of the instructions were actually executed, the rest were not executed to a certain extent"[10].

According to the experts of the National Research University "Higher School of Economics" (NRU HSE), in order to make formal reports on the implementation of the May decrees, the Government uses three strategies: changing the methodology of calculation index; increasing the number of agencies that approve the target indicators (which helps increase the review period, which is currently not regulated), and shifting responsibility for execution of the orders to regions[11].

Perhaps this is not a complete list of tools and mechanisms by which the Government "successfully" reports the achievement of strategic indicators. However, in any case, it corresponds neither to national interests nor the responsibility placed by the President on the Cabinet of Ministers. The people that do not actually implement the responsibilities entrusted to them still remain in office.

The consequences of inefficiency of management personnel ultimately affect the population. It is for a reason that in 1999 – 1st half of 2017, the proportion of people who say they belong to the category of "the poor and extremely poor" decreased (from 69 to 46%). But is it possible to say that one in two poor people is a successful result of nearly 17 years of governing the country's economy, which is objectively one of the richest in terms of natural resources and human potential?

[10] Volkova O., Nikol'skaya P., Tkachev I., Mogilevskaya A. The promises of the third term: How the May Decrees of the President are being executed. *RBC website*. Available at: http://www.rbc.ru/economics/17/05/2016/573a034a9a7947d18967193a

[11] *Ibidem*.

During the period from 2008 to 2016, the percentage of "the poor and extremely poor" increased significantly (by 8 p.p., from 40 to 49%; *Figure*).

Thus, we can say that in the 21st century the effectiveness of public administration personnel in Russia is critically important in the following three aspects: as a general trend in the global development in the transition to an innovation economy, as a necessary condition of preserving the country's sovereignty in the global competition, and, finally, as the only possible way to ensure a decent and fair standard of living and quality of life for the people.

It is no coincidence that the question "What kind of personnel does the Russian economy need?" became a title of Abalkin Readings held in May 2017.

L.I. Abalkin, a well-known Russian economist, believed by some experts to be "the first opponent" of the Gaidar reforms[12], characterized the modern system of public administration and pointed out its inefficiency and a low level of strategic thinking and planning on the part of its representatives. According to him, quality and efficiency must become a mindset, a benchmark that determines the direction of thought and helps assess what has been achieved. In real life, such attitudes form an important link in the long-term strategy. The strategy itself not just plots the socio-economic development of the country, but also produces relevant policies. And the task is to reconstruct social consciousness on their basis, to transform these guidelines into everyday economic thinking of economic leaders and working population[14]... In our time, in the age of technological revolution one cannot work effectively without a clear outlook or strategic thinking and vision. Experience shows that reducing the scope of thinking to the tasks at hand causes many negative phenomena"[15].

> **L.I. Abalkin:** "Current governmental policy in the field of economy and management is full of internal contradictions and lacks efficiency. It can be proven by numerous examples. The Pension Fund, conceived as the source of "long money", now receives government loans. "Monetized" benefits require more money for their implementation than before. Huge foreign exchange revenues are not allocated to the promotion of domestic production. With the reduction in the number of workers, the number of management staff has doubled. Officials usurped state power and made it the source of illicit profit... **We need a strategic outlook, the hallmark of which is the priority of consistency over a series of uncoordinated individual measures"**[13].

Indeed, the historical experience of the Soviet Union and the modern experience of foreign countries during their "economic

[12] Umer akademik Abalkin – glavnyi protivnik Gaidara [Academician Abalkin, the main opponent of Gaidar, passed away]. *Gazeta "Nedelya",* 2011, May 2. Available at: http://weekjournal.ru/economics/42096/

[13] Abalkin L.I. Put' k uspekhu – sistemnost' i sotrudnichestvo [The way to success is through consistency and cooperation]. *Natsional'nye proekty* [National projects], 2007, no. 8 (15), pp. 12–13.

[14] Abalkin L.I. *Novyi tip ekonomicheskogo myshleniya* [A new type of economic thinking]. Moscow: Ekonomika, 1987. Pp. 29–30.

[15] *Ibidem*, p. 35.

miracle" years[16] prove that government must be based on a clear and scientifically substantiated strategy and on its strict observance by all the links of the management hierarchy. We cannot say that Russia lacks strategic documents developed at the national level. In recent years (beginning from the mid-2000s), the country has adopted more than 100 documents of a general nature[17] and those regulating the relations in separate economic sectors like industry[18], agriculture[19], social sphere and so on[20]. In addition, we should not forget about the oral appeals of the President to officials at various levels during his Addresses to the Federal Assembly, live TV phone-in sessions, meetings with representatives of various public circles, etc. These appeals, in fact, provide strategic and tactical guidance a well.

However, the large number of strategic guidelines is more than "compensated for" by the fact that they are not being executed. Absence of personal responsibility of the officials for the implementation of strategic and tactical objectives leads to a continuous

M.G. Delyagin: "How is it possible to develop a vision of the future, when we have the entire socio-economic policy shaped by the liberals? They look at us with the eyes of the West, and treat Russia as if it were a cutlet – an object of consumption and nothing more. The fact that they shape socio-economic policy is only one problem. Another problem is that you just aren't interested in the vision of the future for a cutlet in your fridge. This future will be very short – it extends no further than your bathroom, and it is unlikely that you are going to share this vision with your cutlet... When the image of the future is missing, there is a desire to prolong a shaky stability. You see, it has been possible to do so for 16 years. And maybe it will be possible to prolong it for a lifetime, since it has been possible for so long a time? "Ah, linger on, thou art so fair!" **But in order to understand why what "lingers on" cannot be stretched into eternity we need a culture of thinking"**[21].

[16] "In the last 70 years only a few countries managed to work an "economic miracle" and achieve rapid economic growth of over 7% per year – for 15–30 years. These countries include five Asian "tigers" and Malaysia, Western European countries that were previously lagging behind (Spain, Greece, Ireland), and war-ravaged European economies (France, Germany). Despite radical differences almost all these countries, aiming to build modern market mechanisms, carried out institutional reforms on the uniform principles... Almost all the countries that achieved "economic miracle" used indicative planning in one form or another". (Source: Polterovich V.M. Instituty dogonyayushchego razvitiya (k proektu novoi modeli ekonomicheskogo razvitiya Rossii) [Institutions of catching-up development (on the project of a new model for economic development of Russia)]. Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz [Economic and social changes: facts, trends, forecast], 2016, no. 5, pp. 34-56.)

[17] For example: national security strategy, the strategy for socio-economic development, presidential decree on long-term state economic policy, etc.

[18] For example: the strategy for innovative development of the Russian Federation for the period till 2020, the strategy for development of ferrous metallurgy of Russia for 2014–2020 and for a long term till 2030, the strategy for geological industry development till 2030.

[19] For example: food security doctrine of the Russian Federation, the Strategy for development of food and processing industry of the Russian Federation for the period till 2020, strategy for sustainable development of rural territories of the Russian Federation for the period till 2030.

[20] The entire list is given here: http://strategy2030.midural.ru/content/perechen-federalnyh-strategicheskih-dokumentov

[21] Delyagin M.G. The liberals treat Russia as if it were a cutlet – an object of consumption... *Business online newspaper "Biznes-Online"*. Available at: https://www.business-gazeta.ru/article/327971

Insert 2

Proportion of people who do not feel confident about the immediate future, broken down by socio-demographic groups (percentage of respondents)*

Population group	2007	2011	2013	2014	2015	2016	First six months of 2017	Dynamics (+/-) First six months of 2017 compared to…		
								2016	2011	2007
Sex										
Men	40.1	60.0	46.3	46.5	56.8	57.9	62.3	+4	+2	+22
Women	48.5	62.8	51.7	49.6	53.1	62.6	60.0	-3	-3	+12
Age										
Under 30	35.1	47.3	41.1	40.6	47.1	52.5	58.9	+6	+12	+24
30-55	44.7	63.9	47.9	47.6	54.4	59.7	59.9	0	-4	+15
Over 55	53.1	69.7	58.8	54.2	59.9	66.2	63.7	-3	-6	+11
Education										
Secondary and incomplete secondary	41.2	66.5	53.6	55.2	63.6	60.5	68.3	+8	+2	+27
Secondary vocational	47.6	64.2	49.6	49.4	50.8	64.4	59.6	-5	-5	+12
Higher and incomplete higher	45.4	54.2	44.2	40.0	49.2	56.3	54.7	-2	+1	+9
Income groups										
20% of the poorest people	44.6	69.7	66.2	59.8	64.3	60.5	64.6	+4	-5	+20
60% of the people with median income	47.7	63.3	50.1	48.0	57.6	59.6	60.7	+1	-3	+13
20% of the most prosperous people	39.2	50.0	35.3	29.5	39.4	59.3	57.8	-2	+8	+19
Territories										
Vologda	52.6	61.2	35.3	37.7	45.3	63.8	56.5	-7	-5	+4
Cherepovets	52.3	54.0	45.8	41.3	49.0	65.2	58.8	-6	+5	+7
Districts	37.5	65.5	57.9	57.7	63.0	55.9	64.8	+9	-1	+27
Oblast	**44.7**	**61.5**	**49.3**	**48.2**	**54.7**	**60.5**	**61.0**	+1	-1	+16

* The question is asked once a year, in February. Data of the public opinion monitoring conducted by ISEDT RAS in the Vologda Oblast.

For the period from 2007 to the first half of 2017, the proportion of those who do not feel confident about the immediate future has increased **in all socio-demographic groups (by 4–27 p.p.).**

We find it particularly disturbing that the proportion of those who lack confidence about their future has increased **in the younger generation (people under 30 years of age)**. In this group, in 2007 the share of such people was 35%, in 2011 – 47%, in 2016 – 53%, in the first half of 2017 – 59%.

It should also be noted that in all groups the proportion of those who are not confident about the future remains very significant (55–68%).

Insert 3

Dynamics of the consumer sentiment index in different socio-demographic groups*, (points)

Population group	2007	2011	2013	2014	2015	2016	First six months of 2017	Dynamics (+/-) First six months of 2017 compared to…		
								2016	2011	2007
Sex										
Men	107.8	90.3	91.0	87.6	76.8	78.7	82.8	+4	-8	-25
Women	104.4	89.1	89.8	87.6	77.3	76.9	82.0	+5	-7	-22
Age										
Under 30	115.2	95.0	94.5	93.0	82.9	83.7	85.9	+2	-9	-29
30-55	107.1	89.1	91.4	87.5	75.2	76.8	83.5	+7	-6	-24
Over 55	95.7	86.0	85.6	84.2	76.0	75.4	79.0	+4	-7	-17
Education										
Secondary and incomplete secondary	100.2	85.6	83.4	80.5	73.6	74.7	76.8	+2	-9	-23
Secondary vocational	105.9	87.9	88.7	86.9	76.9	78.4	83.7	+5	-4	-22
Higher and incomplete higher	113.1	95.5	99.2	96.3	81.1	80.2	86.9	+7	-9	-26
Income groups										
20% of the poorest people	88.2	74.8	71.2	69.8	62.5	64.8	70.4	+6	-4	-18
60% of the people with median income	105.5	89.0	90.8	87.0	77.0	76.7	81.4	+5	-8	-24
20% of the most prosperous people	124.7	105.3	108.9	107.5	91.0	91.5	94.8	+3	-11	-30
Territories										
Vologda	104.2	90.9	92.3	90.8	75.9	77.1	80.8	+4	-10	-23
Cherepovets	114.9	98.9	97.7	95.3	83.3	78.4	84.2	+6	-15	-31
Districts	102.3	84.4	85.3	81.7	74.2	77.5	82.3	+5	-2	-20
Oblast	**105.9**	**89.6**	**90.3**	**87.6**	**77.1**	**77.7**	**82.4**	**+5**	**-7**	**-24**

* Data of the public opinion monitoring conducted by ISEDT RAS in the Vologda Oblast.

According to the surveys conducted in the first half of 2017 **in all social strata**, the consumer sentiment index (CSI) is less than 100 points, which, according to the technique[22], means that **pessimistic forecasts concerning the prospects of economic development and their own financial situation predominate among the people**. It should also be noted that in the short-term dynamics the index fluctuations are negligible (2–7 points), while in the long term there is a **significant reduction in the CSI (by 20–30 points).**

[22] The CSI calculation technique: From the share of positive responses the share of negative ones is subtracted, then to the obtained value 100 is added so as not to have negative values. Therefore, fully negative answer would give a total index 0, and positive – 200, the balance of the former and the latter is expressed by the index value of 100, which is, in fact, a neutral mark.

review of the forecast indicators, as we have already said in one of our articles[23].

The fact that the Government fails to achieve strategic national goals may proceed from an inability, incompetence or a conscious and elaborate decision to act in the interests of personal and immediate needs. In both cases, state governance of major economic sectors cannot be considered effective if it focused exclusively on immediate issues. This leads to the fact that society – the ultimate "consumer" of national wealth of these critical sectors – develops uncertainty about the future of the country, of themselves and their families.

This is proven by the data of sociological surveys *(Inserts 2 and 3)*: **today, uncertainty about the future and pessimism with regard to economic development can be observed not in some socio-demographic categories of the population (for example, among people with low income or pensioners), but in all social strata of Russian society). In other words, it is a long-term and complex trend of psychological transformation encompassing an increasing number of people, including urban residents, people with high income, people with tertiary education, and young people. The reason lies in a lack of strategic thinking in the ruling elites and, accordingly, inefficient public administration.**

Lack of strategic thinking is associated with numerous cases of abuse of power by the officials who pursue their personal interests and also with an extreme lack of professionalism in the reform of the scientific-educational sphere, the main "supplier" of highly qualified personnel, which is the major driver of successful economic development. According to experts, "the main source of the problem consists in insufficient qualification of those responsible for reforming science... Our officials do not possess basic techniques to carry out institutional reforms. And one of the main mistakes that they make and repeat from reform to reform is the so-called shock therapy. For instance, a draft law of June 28, 2013 (on reforming state academies) is a telling example of shock therapy. The goal this law pursued had nothing to do with promoting science in Russia. The result is well-known to us. The compromise that we have now is achieved in a desperate struggle rather than in a designing process. This leads to enormous costs"[24].

Russian law is arranged in such a way that it allows major corporations to avoid tax payment and use their profit from the exploitation of national resources, as a rule, in their private interests. For example, over the past 10 years (2006–2016), tax burden on the ten largest corporations of Russia decreased twofold (from 8 to 4%). And this happened despite the fact that, on average, almost in the same period (2008–2016) the share of dividends that state-owned corporations directed to the federal budget amounted to less than 2% *(Tab. 1)*.

[23] Ilyin V.A. Ekonomicheskaya politika Pravitel'stva prodolzhaet protivorechit' interesam osnovnoi chasti naseleniya strany [Economic policy pursued by the Government is still inconsistent with the interests of the majority of Russia's population]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and social changes: facts, trends, forecast], 2015, no. 4, pp. 9-20.

[24] Polterovich V.M. Reformatoram nauki nedostaet kvalifikatsii [Reformers of science lack the necessary qualifications to cope with the task]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and social changes: facts, trends, forecast], 2015, no. 3, pp. 28-31.

Table 1. Dynamics of the share of dividends that the federal budget received from state-owned corporation in 2008–2016

Indicators	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total for 2008–2016
Dividends, billion rubles	53.2	10.1	45.2	79.4	212.6	134.8	220.2	259.8	919.0	1934.3
To budget revenues, %	0.6	0.1	0.5	0.7	1.7	1.0	1.5	1.9	6.8	1.9

Table 2. Profit tax* debt burden of Russia's major companies

Company	2006		2011		2016	
	Billion rubles	To the earnings, %	Billion rubles	To the earnings, %	Billion rubles	To the earnings, %
Tatneft	13.7	3.4	19.3	3.1	34.8	6.0
NKMK	19.2	11.7	12.4	3.6	15.5	3.0
Sberbank	26.2	7.1	79.8	8.0	135.6	4.8
Magnitogorsk Iron and Steel Works	12.7	7.3	0	0	15.2	4.1
Transneft	26.0	12.8	44.3	6.6	68.5	8.1
Gazprom	211.2	8.5	326.3	6.5	288.0	4.7
Rosneft	125.4	10.0	90.0	3.3	116.0	2.3
Gazpromneft	32.4	5.9	40.0	3.9	49.8	3.2
Severstal	17.3	5.1	13.5	2.9	6.8	1.7
Lukoil	75.4	4.1	96.8	2.5	64.9	1.2
Average for 10 major companies	*56.0*	*7.6*	*72.2*	*4.0*	*79.5*	*3.9*

* To ensure comparability, the tax burden is calculated only in respect of profit tax.
Sources: financial statements of the companies; ISEDT RAS calculations.

At the same time, state-owned corporations continue to evade the Government Decree (that has the status of a by-law) that binds them to direct 50% of net profit to dividends. So, Gazprom's board of directors following the results of 2016 advised to use 190.3 billion rubles (20% of net profit according to the IFRS) for dividends, the board of directors of Rosneft – 63.4 billion rubles (31.5% of net profit according to the IFRS). Thus, in aggregate, the state budget did not receive over 300 billion rubles from the largest state-owned corporations (285 billion from Gazprom and 37 billion from Rosneft; *Tab. 2*).

Facts of corruption that are being disclosed again and again are accompanied by the fact that "the rank of officials detained for bribery is growing slowly but surely. A few years ago it was mainly doctors who were caught when taking a box of chocolates or the employees of the military enlistment office – when taking envelopes with money; now it is the members of the highest echelons of power[25].

It is important to note that the number of those arrested on charges of corruption in various regions of Russia is actually hundreds of people *(Tab. 3)*. **This means not only that the fight against corruption is effective and built on the system level, but also that corruption has penetrated deeply into the ranks of the people in power, and it does not happen overnight".**

[25] Arbitrazh Putina [The arbitration of Putin]. *Nezavisimaya gazeta, 2016, November 17.* Available at: http://www.ng.ru/editorial/2016-11-17/2_6861_red.html

Table 3. Some indicators of crime rate in the Republic of Komi and Primosky Krai

Indicator	2014	2015	2016	1 quarter of 2017	Total for 2014 – 1 quarter of 2017
Komi Republic					
Investigated: bribe taking (Article 290 of the Criminal Code of Russia)	88	45	61	21	215
Investigated: bribe giving (Article 291 of the Criminal Code of Russia)	31	29	15	9	84
Total number of corruption cases closed	97	84	85	26	292
Number of suspects arrested on corruption charges	124	108	113	36	381
Primorsky Krai					
Number of criminal cases initiated on corruption charges	582	296	288	79	1245
Number of corruption cases taken to court	134	162	256	71	623
Number of defendants in the criminal cases taken to court	144	189	177	90	600

Source: Antikorruptsionnyi katok [Anti-corruption road-roller]. *Zhurnal "Ekspert"* [the journal "Expert"], 2017, May 8. Available at: http://expert.ru/expert/2017/16/antikorruptsionnyij-katok/
Source of the data for reference: Federal State Statistics Service database. Available at: www.gks.ru

Hundreds of officials proven guilty of violations of the law, are, first of all, an indicator of **moral degradation of the ruling elites throughout the power vertical: at the federal, regional and municipal levels.** Each of them went through government training. And each of them was recommended by someone, promoted by someone, and someone considered them worthy to occupy a managerial position... It means that from the organizational point of view their system of training is streamlined, but without personal responsibility of officials either for the implementation of their direct management functions or for the morale of the personnel at all levels of governance, it cannot be effective, and it virtually works against Russia's national interests.

In fact, we have what we have. There are no clear criteria of morality and responsibility to the country and its citizens. The elites are dominated by a sense of impunity, and we can only hope that it could be eradicated not only through system and decisive actions of defense and law enforcement agencies, but also through the legislative initiatives of the President, efforts of civil society, the Accounts Chamber and many other institutions. It is a top priority task, which requires system solutions and a comprehensive approach.

V.A. Fadeev: "Criminal cases of high officials are in public, they are reported by the national media. **But there are thousands of cases that are not such high-profile ones.** For example, the famous case of Gayzer, the head of the Komi Republic. In September 2015 he was arrested and accused of organizing a criminal community. Together with him, 14 people were arrested, almost the entire top of the Republic. Everyone knows about this case. It is in the limelight. But as for other anti-corruption cases in the Komi Republic, few people outside the republic know about them: **in 2015, 108 people were arrested on similar charges, 113 people – last year, 36 people – during the 1st quarter of this year.** And, by the way, the Komi Republic is not a very populous region..."[26]

[26] Fadeev V.A. News on Channel One Russia of April 9, 2017. *Official website of Channel One Russia*. Available at: https://www.1tv.ru/news/issue/2017-04-09/21:00#10

The Saint Petersburg International Economic Forum (SPIEF–2017), held in May 2017 proved very revealing, because its "most representative meeting became a **shocking manifesto of the economic and financial bureaucracy of the Russian Federation**. During the hour and a half long discussion of Russia's prospects, none of these bureaucrats has spoken about the interests of the people, falling incomes, reducing the internal market or about the stagnation of the pension system. Speeches delivered by ministers Maxim Oreshkin, Anton Siluanov and Central Bank Head Elvira Nabiullina actually proved that they do not attach even the slightest importance to the welfare of the citizens"[27].

Thus, the problems in public administration have a negative impact on the implementation of national interests. This applies to all strata of Russian society and, in particular, it is reflected in Russia's scientific and educational potential, a key resource of the modern economy.

Similar problems arise in the case when the Medvedev Government has no understanding of what kind of nation we are building. And no one has ever put this task before him and no one will. By and large, this understanding is absent even in the Constitution that "was designed so as to suit Yeltsin, to suit future privatization and the collapse of Russia"[28]. Accordingly, it is impossible to talk about strategic thinking and vision of the future; this fact leads to numerous flaws in the system of administration.

> **N.V. Starikov:** "Imagine the Constitution of an independent state in which it is written that international treaties and acts have priority over domestic legislation. What does that suppose to mean? **If somebody has decided something out there, so we have to do it here, is that it? Why? Because it is written in the Constitution.**
>
> There is one more contradiction: it is written that the Constitution is the supreme document, which is in force on the territory of Russia. **And yet, what is higher: the Constitution or legislative acts signed by some European Parliament?**
>
> A second question concerns a ban on state ideology. What is ideology? It is a goal. **The Constitution contains the official ban: there is no goal. Accordingly, for what purpose does our state exist? There is nothing about it in the Constitution.** Hence a very large number of problems: alcoholism and the feeling of being lost... **Because our people, an entire civilization have no goal and it is expressly written in the Constitution"**[29].

Thus, according to Article 135 of the Constitution, in order to introduce amendments in it, a federal law on the Constitutional Assembly must be adopted. "Since 1993 there is no such a law, although recently there have been two cases when the Constitution was amended: when the presidential term was extended and when the Crimea and Sevastopol joined Russia as its constituent entities. In order to introduce such changes it was only necessary to carry out a voting procedure in both houses of Parliament...

[27] Solov'eva O. Problemy naseleniya ne interesuyut finansovo-ekonomicheskuyu byurokratiyu [Thee financial-economic bureaucracy is not interested in the problems of the people]. *Nezavisimaya gazeta,* 2017, June 2. Available at: http://www.ng.ru/economics/2017-06-02/4_7001_problems.html

[28] Starikov N.V. We definitely need to change the Constitution! *Information portal Politikus.ru*. Available at: http://politikus.ru/video/64771-nikolay-starikov-nam-obyazatelno-nado-menyat-konstituciyu.html

[29] *Ibidem.*

N.V. Starikov: "We are concerned about **why for 23 (!) years since the adoption of the Constitution, a working version of the most important federal constitutional law is still not developed and adopted?** The text of the Constitution itself was drafted and adopted in a matter of months. The law on the Constitutional Assembly is not adopted so far. Have we all of a sudden run out of competent lawyers and experts on constitutional law? Or is it the question of political will? Most likely, it is the latter..."[30]

Besides, it is important to note a simple fact that in all that time the question regarding the Constitutional Assembly was withdrawn from discussion. The media and politicians are willing to discuss any issues but this one"[31].

According to experts, "the world is in almost complete uncertainty, and the lack of strategy in such circumstances is a tactical advantage. Because you can go at any moment in any direction, you are absolutely adaptive. But this adaptability is a trap: in the tactical sense it is a win, and in the strategic sense – an absolute loss, because it is not just that you don't know where you are heading, but that you sincerely don't want to know it. It is the countries like Haiti or Lithuania that can live by the maxim: "Things will somehow turn out all right", but not such a large and diverse country like Russia"[32].

In this regard, we should point out the exceptional relevance of the Soviet experience of management, when the slogan: "Cadres decide everything!" was not just words, but a guideline that was put into action. **Without the moral and official responsibility of government officials to society and to the President it is impossible to perform the tasks set by the head of state. The past 17 years prove it.**

A. Bashkatova: "The President listened [during the live TV phone-in] to people's complaints and made it clear that the Kremlin is on the side of ordinary people in word and deed... And though Putin did not put it explicitly, we can assume that he is preparing to play the role of that one person who will solve the accumulated problems in the next six years. **The President appeared before the listeners and viewers as the last hope for an equitable solution to domestic economic problems.** The tsar is good, it is the boyars who are bad – that was one of the main implications of his speech... The Kremlin leads the people to the idea that with the burden of all these unresolved issues the President cannot leave the country to a new successor. Putin did not say anything explicit concerning the possibility of his participation in the next presidential election. But yesterday's live TV phone-in once again demonstrated to the electorate that so far **it is only Putin who is able to solve all the painful problems of the population in the next six years"**[33].

It is for a reason that after the live TV phone-in with Vladimir Putin held in June 2017 his press secretary Dmitry Peskov noted that traditionally a lot of questions people want to ask during the phone-in session deal with "everyday issues, when people

[30] Starikov N.V. It is time to adopt a law on the Constitutional Assembly. *N. Starikov's official blog, March 6, 2017.* Available at: https://nstarikov.ru/blog/76003

[31] *Ibidem.*

[32] Delyagin M.G. The liberals treat Russia as if it were a cutlet – an object of consumption...

[33] Bashkatova A. Retsessii net, a bednost' est' [There is no recession, but there is poverty]. *Nezavisimaya gazeta,* 2017, June 15. Available at: http://www.ng.ru/economics/2017-06-15/1_7009_recessia.html

are asking the President for help". It is still those questions that local authorities can and must solve. **"Still, unfortunately, people often say that it is sometimes easier for them to get through to the President than to the government of their own regions"**[34]. And it is not the first time that we have to admit: "The unchanging nature of the questions that Russians ask the President during his annual live TV phone-ins (about the state of roads, tariffs, administrative barriers to business, the inability to "reach out" to officials, etc.), suggests that **the pressing problems of people are not solved efficiently by the competent authorities: people from different regions of Russia have to apply directly to the head of the state with their complaints of authorities of lower levels"**[35].

It is the work of the "competent authorities", rather than the President, that people are not satisfied with; this is why experts more and more often say that the format of live question-and-answer session with the head of state is still in demand, but it is turning into a "ritual"; that it is necessary only "for those who organize it"[36]. And this is confirmed by a decrease in the number of question addressed to V. Putin[37]: in 2015 – 3.25 million, in 2016 – 2.83 million, in 2017 – 2.6 million. And it happens despite the fact that in addition to traditional communication channels in 2017 there appeared new opportunities for the people to ask the President a question[38].

A strong feeling of social injustice prevailing in the Russian society may result in a risk of Russia's "running into the same trap" like it did 100 and 25 years ago. **Since global evolution demands that the country acquire new knowledge and technology, then it is only those who follow this principle will be able to survive and maintain their sovereignty in the near future. While the government does not realize this and continues to "patch the holes" and consider the situation in the country from the "static" rather than "dynamic" perspective, the future of Russia will remain at risk.**

And if this goes on, we can not rule out the most pessimistic forecasts of experts: "...Since we are clearly facing the so-called "Anti-Russia Project", whose goal is a geopolitical destruction of Russia, then the forecasting of Russia's development scenarios becomes more defined. There have been no significant changes in the liberal model of the country

[34] V Kremle rasskazali o "boli" pri chtenii obrashchenii rossiyan k Putinu [The Kremlin told about the "pain" one feels when reading the appeals of Russians to Putin]. *Gazeta.ru, 2017, June 14.* Available at: https://www.gazeta.ru/politics/news/2017/06/14/n_10175351.shtml

[35] Ilyin V.A. Vybory v Gosudarstvennuyu Dumu – 2016. Ekonomicheskaya politika Prezidenta v otsenkakh naseleniya [State Duma Election 2016. Economic Policy of the President Assessed by the People]. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz* [Economic and social changes: facts, trends, forecast], 2016, no. 3, p. 34.

[36] The format of live TV phone-in with the President has become outdated? (comments of political analyst Konstantin Kalachev and director of the Institute for Applied Political Studies D. Dobroselov). *Information resource "Kommersant".ru."*. available at: https://www.kommersant.ru/doc/3325508

[37] Statistics of the official website of the program "Live TV phone-in with Vladimir Putin". Available at: http://moskva-putinu.ru/#page/history

[38] Questions can be asked via telephone calls, SMS and MMS, on the project website, via the mobile app., via social networks (in 2017 "VKontakte" and "Odnoklassniki"). In addition, in 2017, with the help of social networks you can send not only text questions but also ask the President in your video message. Also in 2017, people had an opportunity during the broadcast to host their own video feed with the TV phone-in studio for users of the app "Moskva-Putinu" and for those who on their mobile devices installed "OK Live", the first Russian application for online broadcasts that are distributed free of charge in AppStore and GooglePlay.

L.I. Abalkin: "The ratio of tactics to strategy can be transformed as the ratio of statics to dynamics, to which completely different approaches are applied: statics is the problem of division. Between the center and regions, between national defense and healthcare, between science and ecology, etc. To share, that's all. And if someone gets more, it is only due to the fact that someone gets less. That is, of all the rules of arithmetic, we use only two – to take away and to share. **As soon as we move on to the strategy, to dynamic problem-solving, then, in principle, it is possible to find a solution when everyone gets more. Not at the expense of each other, but by increasing material volumes, improving efficiency, and by resource conservation"**[39].

for many years, and even in the crisis years of 2014–2015. The situation only proves the adherence to the liberal model. Accordingly, degradation processes that are turning into crisis ones are also becoming permanent. HR policy is conservative to the limit. Introspection in management is almost completely suppressed, the control center has fallen into its own trap of false information. It appears that the system of initial values and purposes has finally erased from its list the interests of the country as a whole and the majority of the population, sustainability of development, the country's standing in the world, its success in a classic set of national development goals... Therefore, the latest historical process in Russia has taken a more definite shape. If we consider it from the qualitative aspect, we will not find surprising the most likely conservative options, according to research. This scenario implies the prolongation of the liberal model, and it is balancing on the threshold of sustainable development..."[40]

Whether these pessimistic forecasts of experts will be implemented, or whether Russia will be able to fully realize all of its advantages in the competition – these are priority issues on today's agenda, and a key condition for its successful solution is the political will of the President, the major person responsible for the efficiency of personnel in public administration.

[39] Abalkin L.I. Strategy and tactics of socio-economic reforms at the present stage (a speech at the plenary session of the First Russian scientific-practical conference "Strategy and tactics of socio-economic reforms", Vologda, January 22–24, 1997).

[40] Sulakshin S.S., Bagdasaryan V.E. et al. *Rossiyu zhdet revolyutsiya? Voprosy perekhoda k postliberal'noi modeli Rossii (algoritm i stsenarii)* [Does revolution await Russia? Russia's transition to a post-liberal model (algorithm and scenarios)]. Moscow: Nauka i politika, 2016. Pp. 669–670.

Appendix

Cadres Decide Everything

Joseph Stalin's Address to the Graduates from the Red Army Academies on May 4, 1935

Comrades, it cannot be denied that in the last few years we have achieved great successes both in the sphere of construction and in the sphere of administration. In this connection there is too much talk about the services rendered by chiefs, by leaders. They are credited

with all, or nearly all, of our achievements. That, of course, is wrong, it is incorrect. It is not merely a matter of leaders. But it is not of this I wanted to speak today. I should like to say a few words about cadres, about our cadres in general and about the cadres of our Red Army in particular.

You know that we inherited from the past a technically backward, impoverished and ruined country. Ruined by four years of imperialist war, and ruined again by three years of civil war, a country with a semiliterate population, with a low technical level, with isolated industrial oases lost in a sea of dwarf peasant farms – such was the country we inherited from the past. The task was to transfer this country from mediaeval darkness to modern industry and mechanized agriculture. A serious and difficult task, as you see. The question that confronted us was : Either we solve this problem in the shortest possible time and consolidate Socialism in our country, or we do not solve it, in which case our country – weak technically and unenlightened in the cultural sense – will lose its independence and become a stake in the game of the imperialist powers.

At that time our country was passing through a period of an appalling dearth of technique. There were not enough machines for industry. There were no machines for agriculture. There were no machines for transport. There was not that elementary technical base without which the reorganization of a country on industrial lines is inconceivable. There were only isolated prerequisites for the creation of such a base. A first-class industry had to be built up. This industry had to be so directed as to be capable of technically reorganizing not only industry, but also agriculture and our railway transport. And to achieve this it was necessary to make sacrifices and to exercise the most rigorous economy in everything; it was necessary to economize on food, on schools, on textiles, in order to accumulate the funds required for building industry. There was no other way of overcoming the dearth of technique. That is what Lenin taught us, and in this matter we followed in the footsteps of Lenin.

Naturally, uniform and rapid success could not be expected in so great and difficult a task. In a task like this, successes only become apparent after several years. We therefore had to arm ourselves with strong nerves, Bolshevik grit, and stubborn patience to overcome our first failures and to march unswervingly towards the great goal, permitting no wavering or uncertainty in our ranks.

You know that that is precisely how we set about this task. But not all our comrades had the necessary spirit, patience and grit. There turned out to be people among our comrades who at the first difficulties began to call for a retreat. «Let bygones be bygones», it is said. That, of course, is true. But man is endowed with memory, and in summing up the results of our work, one involuntarily recalls the past. Well, then, there were comrades among us who were frightened by the difficulties and began to call on the Party to retreat. They said: «What is the good of your industrialisation and collectivisation, your machines, your iron and steel industry, tractors, harvester combines, automobiles? You should rather have given us more textiles, bought more raw materials for the production of consumers' goods, and given the population more of the small things that make life pleasant. The creation of an industry, and a first-class industry at that, when we are so backward, is a dangerous dream».

Of course, we could have used the 3,000,000,000 rubles in foreign currency obtained as a result of a most rigorous economy, and spent on building up our industry, for importing raw materials, and for increasing the output of articles of general consumption. That is also a «plan» in a way. But with such a «plan» we would not now have a metallurgical industry, or a machine-building industry, or tractors and automobiles, or aeroplanes and tanks. We would have found ourselves unarmed in the face of foreign foes. We would have undermined the foundations of Socialism in our country. We would have fallen captive to the bourgeoisie, home and foreign.

It is obvious that a choice had to be made between two plans : between the plan of retreat, which would have led, and was bound to lead, to the defeat of Socialism, and the plan of advance, which led, as you know, and has already brought us to the victory of Socialism in our country.

We chose the plan of advance, and moved forward along the Leninist road, brushing aside those comrades as people who could see more or less what was under their noses, but who closed their eyes to the immediate future of our country, to the future of Socialism in our country.

But these comrades did not always confine themselves to criticism and passive resistance. They threatened to raise a revolt in the Party against the Central Committee. More, they threatened some of us with bullets. Evidently, they reckoned on frightening us and compelling us to turn from the Leninist road. These people, apparently, forgot that we Bolsheviks are people of a special cut. They forgot that neither difficulties nor threats can frighten Bolsheviks. They forgot that we had been trained and steeled by the great Lenin, our leader, our teacher, our father, who knew and recognised no fear in the fight. They forgot that the more the enemies rage and the more hysterical the foes within the Party become, the more ardent the Bolsheviks become for fresh struggles and the more vigorously they push forward.

Of course, it never even occurred to us to turn from the Leninist road. Moreover, once we stood firmly on this road, we pushed forward still more vigorously, brushing every obstacle from our path.

True, in pursuing this course we were obliged to handle some of these comrades roughly. But that cannot be helped. I must confess that I too had a hand in this.

Yes, comrades, we proceeded confidently and vigorously along the road of industrialising and collectivising our country. And now we may consider that the road has been traversed.

Everybody now admits that we have achieved tremendous successes along this road. Everybody now admits that we already have a powerful, first-class industry, a powerful mechanised agriculture, a growing and improving transport system, an organised and excellently equipped Red Army.

This means that we have in the main emerged from the period of dearth in technique.

But, having emerged from the period of dearth of technique, we have entered a new period, a period, I would say, of a dearth of people, of cadres, of workers capable of harnessing technique, and advancing it. The point is that we have factories, mills, collective farms, state farms, a transport system, an army; we have technique for all this; but we lack people with

sufficient experience to squeeze out of this technique all that can be squeezed out of it. Formerly, we used to say that «technique decides everything». This slogan helped us to put an end to the dearth of technique and to create a vast technical base in every branch of activity, for the equipment of our people with first-class technique. That is very good. But it is not enough by far. In order to set technique going and to utilise it to the full, we need people who have mastered technique, we need cadres capable of mastering and utilising this technique according to all the rules of the art. Without people who have mastered technique, technique is dead. In the charge of people who have mastered technique, technique can and should perform miracles. If in our first-class mills and factories, in our state farms and collective farms, in our transport system and in our Red Army we had sufficient cadres capable of harnessing this technique, our country would secure results three times and four times as great as at present. That is why emphasis must now be laid on people, on cadres, on workers who have mastered technique. That is why the old slogan, «Technique decides everything», which is a reflection of a period already passed, a period in which we suffered from a dearth of technique, must now be replaced by a new slogan, the slogan «Cadres decide everything». That is the main thing now.

Can it be said that our people have fully grasped and realised the great significance of this new slogan? I would not say that. Otherwise, there would not have been the outrageous attitude towards people, towards cadres, towards workers, which we not infrequently observe in practice. The slogan «Cadres decide everything» demands that our leaders should display the most solicitous attitude towards our workers, «little» and «big», no matter in what sphere they are engaged, cultivating them assiduously, assisting them when they need support, encouraging them when they show their first successes, promoting them, and so forth. Yet we meet in practice in a number of cases with a soulless, bureaucratic, and positively outrageous attitude towards workers. This, indeed, explains why instead of being studied, and placed at their posts only after being studied, people are frequently flung about like pawns. People have learned to value machinery and to make reports on how many machines we have in our mills and factories. But I do not know of a single instance when a report was made with equal zest on the number of people we trained in a given period, on how we have assisted people to grow and become tempered in their work. How is this to be explained? It is to be explained by the fact that we have not yet learned to value people, to value workers, to value cadres.

I recall an incident in Siberia, where I lived at one time in exile. It was in the spring, at the time of the spring floods. About thirty men went to the river to pull out timber which had been carried away by the vast, swollen river. Towards evening they returned to the village, but with one comrade missing. When asked where the thirtieth man was, they replied indifferently that the thirtieth man had «remained there». To my question, «How do you mean, remained there?» they replied with the same indifference, «Why ask – drowned, of course». And thereupon one of them began to hurry away, saying, «I've got to go and water the mare». When I reproached them with having more concern for animals than for men, one of them said, amid the general approval of the rest : «Why should we be concerned about men? We can always make men. But a mare...just try and make a mare». Here you have a case, not very

significant perhaps, but very characteristic. It seems to me that the indifference of certain of our leaders to people, to cadres, their inability to value people, is a survival of that strange attitude of man to man displayed in the episode in far off Siberia that I have just related.

And so, comrades, if we want successfully to get over the dearth of people and to provide our country with sufficient cadres capable of advancing technique and setting it going, we must first of all, learn to value people, to value cadres, to value every worker capable of benefitting our common cause. It is time to realise that of all the valuable capital the world possesses, the most valuable and most decisive is people, cadres. It must be realised that under our present conditions «cadres decide everything». If we have good and numerous cadres in industry, agriculture, transport, and the army – our country will be invincible. If we do not have such cadres – we shall be lame on both legs.

In concluding my speech, permit me to offer a toast to the health and success of our graduates from the Red Army Academies. I wish them success in the work of organising and directing the defence of our country.

Comrades, you have graduated from institutions of higher learning, in which you received your first tempering. But school is only a preparatory stage. Cadres receive their real tempering in practical work, outside school, in fighting difficulties, in overcoming difficulties. Remember, comrades, that only those cadres are any good who do not fear difficulties, who do not hide from difficulties, but who, on the contrary, go out to meet difficulties, in order to overcome them and eliminate them. It is only in the fight against difficulties that real cadres are forged. And if our army possesses genuinely steeled cadres in sufficient numbers, it will be invincible.

Your health, comrades!

Source: Stalin J.V. *Works. Volume 14. 1934–1940*. London: Red Star Press Ltd., 1978. Pp. 71-79.

Ilyin V.A.

Significance of the Thesis "Cadres Decide Everything" as Applied to Modern 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 monitoring of public opinion concerning the state of the Russian society conducted by ISEDT RAS in the Vologda Oblast[1].

The following tables show the dynamics of several parameters indicating the social feeling and socio-political sentiment of the Vologda Oblast population in February – April 2017, and also on average for the latest six polls (August 2016 – June 2017). 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.

In June 2017 compared with April, the level of approval of the work of the President of the Russian Federation increased by 4 p.p. (from 64 to 68%). This corresponds to the annual average indicator for 2016 and is the highest level of endorsement of the head of state for the 1st half of 2017. At the same time, the share of negative assessments of the President's work over the past two months decreased by 4 p.p. (from 23 to 19%).

The level of support for the Chairman of the Government of the Russian Federation over the past two months did not change significantly and is about 48%, which is lower than in 2013–2016 (49–52%).

For reference: the nationwide level of approval of the RF President's performance remains stable. In April – May 2017 it was 82% according to VTsIOM and Levada-Center (the share of negative assessments was 12% according to VTsIOM and 18% according to Levada-Center).

The proportion of positive assessments of the work of the Chairman of the RF Government in April – May 2017 was 52–53% according to VTsIOM and 44–46% according to Levada-Center.

[1] The polls are held six times a year in Vologda, Cherepovets, and in eight districts of the oblast (Babayevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District and Sheksninsky District). The method of the survey is a questionnaire poll by place of residence of respondents. The volume of a sample population is 1,500 people 18 years of age and older.

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

More 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	2016	Aug. 2016	Oct. 2016	Dec. 2016	Feb. 2017	Apr. 2017	June 2017	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to…		
														2016	2011	2007
RF President																
I approve	75.3	58.7	55.3	64.1	69.1	67.8	68.7	68.4	67.3	65.7	63.6	67.5	66.9	-1	+8	-8
I don't approve	11.5	25.6	29.4	22.3	17.5	18.8	19.6	19.7	19.3	21.1	23.6	19.3	20.4	+2	-5	+9
Chairman of the RF Government*																
I approve	-*	59.3	48.9	54.2	58.1	52.3	52.7	49.4	50.4	50.4	47.5	47.9	49.7	-3	-10	-
I don't approve	-	24.7	32.8	27.6	21.7	27.6	27.7	30.6	30.1	29.8	32.8	32.1	30.5	+3	+6	-
Governor																
I approve	55.8	45.7	44.4	40.1	39.3	37.7	38.4	39.1	40.2	38.9	36.7	40.6	39.0	+1	-7	-17
I don't approve	22.2	30.5	33.2	38.9	36.2	39.3	40.0	39.3	38.5	37.8	41.1	38.9	39.3	0	+9	+17

* Included in the survey since 2008.

In April – June 2017, the assessment of success of the President's actions in addressing the key problems of the country slightly improved (by 2–3 p.p.):

✓ the share of the Vologda Oblast residents who think that the President successfully copes with the task of strengthening international positions of Russia: from 52 to 55%;

✓ the share of the Vologda Oblast residents who think that the President successfully copes with the task of restoring order in the country: from 47 to 50%;

✓ the share of those who believe that the President is successful in protecting democracy and strengthening citizens' freedoms: from 37 to 39%;

✓ 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: from 26 to 29%.

It should be noted that with regard to all the above issues (except "restoring order in the country"), the highest estimates are observed for the period from August 2016 to June 2017 (the latest six polls).

However, we can express concern about the level of people's support for the activities of the President on economic recovery and on promoting the welfare of people. In June 2017 it was 29%, which is lower than in 2011–2015 (30–34%), and significantly lower than in 2007 (47%). People twice as often express dissatisfaction at the President's work to solve financial problems of the population, and the proportion of those sharing this view has remained stable over the latest six surveys (57–60%).

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	2016	Aug. 2016	Oct. 2016	Dec. 2016	Feb. 2017	Apr. 2017	June 2017	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to…		
														2016	2011	2007
Strengthening Russia's international standing																
Successful	58.4	46.2	45.7	50.4	51.7	51.2	50.1	51.4	51.9	54.5	52.4	55.3	52.6	+1	+6	-6
Unsuccessful	24.9	33.7	36.2	32.4	31.3	29.9	30.3	28.8	31.1	26.5	27.7	25.8	28.4	-2	-5	+3
Success index	*133.5*	*112.5*	*109.5*	*118.0*	*120.4*	*121.3*	119.8	122.6	120.8	*128.0*	*124.7*	*129.5*	*124.2*	*+3*	*+12*	*-9*
Imposing order in the country																
Successful	53.2	36.6	39.4	48.0	50.2	49.2	50.0	49.7	50.2	49.5	47.3	49.9	49.4	0	+13	-4
Unsuccessful	34.0	50.0	47.5	39.1	37.9	36.7	35.1	35.6	36.7	36.8	38.8	35.8	36.5	0	-14	+2
Success index	*119.2*	*86.6*	*91.9*	*108.9*	*112.3*	*112.6*	115.4	114.1	113.5	*112.7*	*108.5*	*114.1*	*113.1*	*0*	*+26*	*-6*
Protecting democracy and strengthening the citizens' freedoms																
Successful	44.4	32.4	31.8	37.5	40.4	36.6	36.7	35.7	36.2	38.6	36.8	39.1	37.2	+1	+5	-7
Unsuccessful	37.0	48.3	51.0	45.4	41.5	44.3	45.0	44.7	44.3	41.3	43.5	39.7	43.1	-1	-5	+6
Success index	*107.4*	*84.1*	*80.8*	*92.1*	*99.0*	*92.3*	91.7	91.0	91.9	*97.3*	*93.3*	*99.4*	*94.1*	*+2*	*+10*	*-13*
Economic recovery and increase in the citizens' welfare																
Successful	47.2	30.7	31.3	34.8	34.2	27.2	26.7	26.4	27.2	26.1	25.8	28.5	26.8	0	-4	-20
Unsuccessful	39.1	56.1	56.8	53.4	52.3	59.4	60.4	60.9	61.1	59.1	57.3	57.2	59.3	0	+3	+20
Success index	*108.1*	*74.6*	*74.5*	*81.4*	*81.8*	*67.8*	66.3	65.5	66.1	*67.0*	*68.5*	*71.3*	*67.5*	*0*	*-7*	*-41*

* Ranked according to the average value of the index of success for 2016.

Over the past two months, the structure of Russians' preferences concerning political parties did not change significantly. The United Russia Party is supported by 32–34% (which is lower that in 2015 – 39%), LDPR – by 11%, the Just Russia Party – by 4–5%. There was a decrease in the proportion of people who think that no political party reflects their interests (by 6 p.p., from 35 to 29%).

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	2016	Election to the RF State Duma 2016, fact	Aug. 2016	Oct. 2016	Dec. 2016	Feb. 2017	Apr. 2017	June 2017	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to …		
																	2016	2011	2007
United Russia	30.2	60.5	31.1	33.4	29.4	32.8	38.8	35.4	38.0	36.5	36.3	34.5	33.9	31.8	33.8	34.5	-1	+3	+4
LDPR	7.5	11.0	7.8	15.4	7.2	7.6	6.2	10.4	21.9	10.5	12.8	13.9	10.2	10.7	11.1	11.5	+1	+4	+4
KPRF	7.0	9.3	10.3	16.8	11.3	9.7	7.1	8.3	14.2	7.5	9.0	8.7	7.2	6.2	8.5	7.9	0	-2	+1
Just Russia	7.8	8.8	5.6	27.2	4.6	3.5	3.6	4.2	10.8	4.7	6.1	4.9	4.3	4.8	5.1	5.0	+1	-1	-3
Other	1.8	–	1.9	–	0.6	0.3	0.2	0.3	–	0.4	0.3	0.3	0.1	0.5	0.3	0.3	0	-2	-1
No party	17.8	–	29.4	–	34.9	34.4	31.8	29.4	–	26.1	23.7	30.1	30.7	34.8	29.1	29.1	0	0	+11
It is difficult to answer	21.2	–	13.2	–	10.2	11.7	12.2	12.0	–	14.3	11.8	7.7	13.6	11.2	12.1	11.8	0	-1	-9

Over the past two months, assessments of social well-being of the population did not change significantly. The percentage of people describing their mood as positive is 69–71%, the share of those who believe that "everything is not so bad; it is difficult to live, but possible to stand it" is 77–79%.

Positive changes are noted in the self-assessment of income. So, in April – June 2017, the proportion of people who subjectively belong to the category of "the poor and extremely poor" decreased by 4 p.p. (from 47 to 43%), which is the lowest figure for the latest six surveys and for the period from 2011 to 2016.

Together with an assessment of the current financial situation, people's forecasts concerning the prospects of economic situation in the country and their personal well-being became more positive: the consumer sentiment index increased by three points (from 81 to 84 p.), which is also the best value for the latest six surveys.

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

Answer option	2007	2011	2013	2014	2015	2016	Aug. 2016	Oct. 2016	Dec. 2016	Feb. 2017	Apr. 2017	June 2017	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to…		
														2016	2011	2007
Mood																
Usual condition, good mood	63.6	63.1	68.6	69.4	68.7	68.0	68.8	70.2	70.4	67.2	68.6	71.0	69.4	+1	+6	+6
I feel stress, anger, fear, depression	27.8	28.9	26.2	24.9	25.9	26.2	25.8	24.3	26.1	28.5	25.5	23.2	25.6	-1	-3	-2
Stock of patience																
Everything is not so bad; it's difficult to live, but it's possible to stand it	74.1	74.8	79.3	80.8	78.4	78.0	78.3	79.5	81.1	78.2	77.3	78.7	78.9	+1	+4	+5
It's impossible to bear such plight	13.6	15.3	14.2	12.6	14.5	15.6	15.5	14.9	14.9	16.1	16.4	14.8	15.4	0	0	+2
Social self-identification*																
The share of people who consider themselves to have average income	48.2	43.1	43.9	43.2	38.7	42.1	43.2	42.3	43.7	42.5	42.8	43.5	43.0	+1	0	-5
The share of people who consider themselves to be poor and extremely poor	42.4	44.3	46.9	49.1	50.7	49.0	49.5	48.9	47.4	47.2	47.3	43.2	47.3	-2	+3	+5
Consumer sentiment index																
Index value, points	105.9	89.6	90.3	87.6	77.1	77.7	79.4	80.8	79.4	82.0	80.8	84.3	81.1	+3	-8	-25

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

Improving social mood over the past two months occurred in six socio-demographic groups. First of all, we should note the increase in the share of positive evaluations among people 55 years of age and older (by 7 p.p., from 60 to 67%), among people with higher education (by 6 p.p., from 72 to 78%), and among those who according to their own assessments of their income, fall within the category of 20% of the poorest inhabitants of the oblast (by 9 p.p., from 49 to 58%).

The decline in the assessments of social mood in April – June was noted only in one group (although it is very significant) – among people under 30 years of age (by 5 p.p., from 81 to 76%).

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

Population group	2007	2011	2013	2014	2015	2016	Aug. 2016	Oct. 2016	Dec. 2016	Feb. 2017	Apr. 2017	June 2017	Average for the latest 6 surveys	Dynamics (+/-), the latest 6 surveys compared to…		
														2016	2011	2007
Sex																
Men	65.9	64.5	69.9	68.9	69.5	68.8	67.3	71.6	73.3	66.9	67.6	72.5	69.9	+1	+5	+4
Women	61.7	62.0	67.5	69.8	68.0	67.4	70.0	69.0	68.1	67.4	69.4	69.9	69.0	+2	+7	+7
Age																
Under 30	71.3	70.0	75.5	75.1	77.1	76.4	74.5	76.3	80.8	70.9	80.5	75.4	76.4	0	+6	+5
30–55	64.8	62.5	69.2	69.5	67.2	67.4	67.1	68.9	71.8	66.7	70.1	72.0	69.4	2	+7	5
Over 55	54.8	58.3	62.4	65.4	65.5	64.0	67.7	68.3	62.8	65.8	60.4	67.4	65.4	+1	+7	+11
Education																
Secondary and incomplete secondary	58.4	57.4	60.6	62.5	63.6	62.1	61.7	64.7	62.8	61.4	64.9	65.8	63.6	+1	+6	+5
Secondary vocational	64.6	63.6	68.1	70.4	70.1	68.4	68.5	72.1	72.7	67.7	69.3	70.2	70.1	+2	+6	+5
Higher and incomplete higher	68.6	68.3	77.4	76.2	72.7	74.3	76.8	74.6	76.9	73.1	71.7	78.0	75.2	+1	+7	+7
Income groups																
20% of the poorest people	51.6	45.3	46.2	50.8	51.8	52.5	56.3	55.5	57.5	44.6	49.1	57.1	53.4	+1	+8	+2
60% of the people with median income	62.9	65.3	71.9	72.3	71.0	69.4	70.4	71.8	70.7	70.8	70.6	72.9	71.2	+2	+6	+8
20% of the most prosperous people	74.9	75.3	83.3	84.8	82.0	80.9	78.5	79.3	83.5	86.3	79.9	81.3	81.5	+1	+6	+7
Territories																
Vologda	63.1	67.1	75.0	76.4	73.9	69.9	69.2	71.0	73.6	67.9	70.6	74.0	71.1	+1	+4	+8
Cherepovets	68.1	71.2	75.3	76.3	70.6	71.7	74.0	72.7	74.0	73.7	74.1	76.1	74.1	+2	+3	+6
Districts	61.6	57.1	61.6	61.8	64.6	64.8	65.7	68.1	66.6	63.1	64.3	66.6	65.7	+1	+9	+4
Oblast	63.6	63.1	68.6	69.4	68.7	68.0	68.8	70.1	70.4	67.2	68.6	71.1	69.4	+1	+6	+6

It is necessary to analyze in detail the tangible improvement in the social sentiment among people older than 55, among persons with higher and incomplete higher education, and among those who, according to their self-reported income relate to 20% of the poorest inhabitants of the oblast. Based on national studies and commentaries by experts from VTsIOM and Levada Center, we can draw the following conclusions.

First, the dramatic improvement in social mood in May 2017 among people older than 55 may be associated with a **sharply increased interest in the celebration of Victory Day** [May 9, it commemorates the victory of the Soviet Union over Nazi Germany in the Great Patriotic War 1941–1945. – Translator's note]. According to Levada Center 76% of Russians were going to celebrate Victory Day on May 9, 2017, and this is the highest figure for the period from 2000 to 2017 (for comparison: in 2015 this figure was 65%, and in 2016 – 63%[2]). The growth of excitement around one of the main national holidays (especially for people of older age categories) may be associated in turn, with the April events, among which the principal one was a terrorist attack in Saint Petersburg (55% of Russians pointed that out. For comparison, the next most important events for people were Easter (28%), rising prices (20%), and the resumption of hostilities in Donbass (14%)[3]).

Second, the growth of positive sentiments in June 2017 among people with higher education (who are more often, in comparison with other categories of population, interested in political and economic life in the country and abroad) also cannot be considered outside the context of the April events. **They could affect the informational messages in the media**, in particular, concerning the situation in the international arena. Thus, VTsIOM experts note that "April was indeed a difficult time for Russian society: it began with a terrorist attack in the Saint Petersburg subway and during the month there were tensions in Syria, North Korea and Eurovision. As for May, it was, though a complicated, but still a more peaceful and optimistic period: Victory Day, no signs of price hike or the depreciation of the ruble. This eventually allowed the indicators of social feeling to win back April's losses"[4]. "In conditions when the pressure of adverse circumstances is protracted, public consciousness is ready to greedily soak up any positive news. In recent months there were many such events: the emerging growth in industrial production and overall GDP, the strengthening of the ruble (society perceives it as a sign of economic growth), the rapid decline of tension around Syria and North Korea, etc. All these factors stimulate emotional uplift"[5].

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[2] Celebration of Victory Day. *Press release of Levada-Center of May 5, 2017*. Available at: http://www.levada.ru/2017/05/05/deklaratsii-o-dohodah-chinovnikov/

[3] Memorable events. *Press release of Levada-Center of April 28, 2017*. Available at: http://www.levada.ru/2017/04/28/zapomnivshiesya-sobytiya-10/

[4] Social feeling of Russians: a monitoring. Press release 3398 of June 19, 2017. *Official website of VTsIOM*. Available at: https://wciom.ru/index.php?id=236&uid=116274

[5] Happiness exists! Press release 3362 of April 26, 2017. *Official website of VTsIOM*. Available at: https://wciom.ru/index.php?id=236&uid=116179

Third, among low-income groups the improvement of the social mood in the first half of the year, most likely, is **"seasonal".** It is associated with the ability to use additional resources to maintain their standard of living and meet the psychological needs of employment and leisure (both are associated with the approach and the beginning of the summer season and an opportunity to work at their dachas). A corresponding trend was observed in 2015 and in 2016, although a sharp increase in positive emotions was observed not in June, but in April (in 2015 – from 38 to 56%, in 2016 – from 43 to 51%). In 2017 the rise in positive emotions occurred later (in June, from 49 to 57%), and this may be due to the attacks in Saint Petersburg and the abnormally cold and rainy climate in the spring and summer, which compromised the productivity of the entire dacha season.

Proportion of people describing their mood as "normal, fine", in certain socio-demographic groups (retrospective analysis; percentage of the number of respondents)

Population group	2015			Dynamics + / –		2016			Dynamics + / –		2017			Dynamics + / –	
	Feb.	Apr.	June	Apr. to Feb.	June to Apr.	Feb.	Apr.	June	Apr. to Feb.	June to Apr.	Feb.	Apr.	June	Apr. to Feb.	June to Apr.
Over 55 years of age	60.7	63.7	65.9	+3	+2	61.5	63.7	59.8	+2	-4	65.8	60.4	67.4	-5	+7
Higher and incomplete higher	65.8	73.1	70.6	+7	-3	72.9	71.5	73.3	-1	+2	73.1	71.7	78.0	-1	+6
20% of the least well-off	38.3	55.6	57.1	+17	+2	42.6	51.3	52.0	+9	+1	44.6	49.1	57.1	+5	+8

Conclusion

Thus, according to the results of the sociological survey conducted in June 2017, in the dynamics of public opinion we observe some very significant, positive changes. First and foremost, they are about an improving self-assessment of people's incomes (a decline in the share of "the poor and extremely poor"), a growth of optimistic expectations regarding the standard of living (an increase in the consumer sentiment index), as well as improving social mood in some socio-demographic groups (among people over 55; persons with higher education; 20% of the poorest).

The analysis shows that an increase in positive sentiment in June could not be considered apart from the April events, memorable, first of all, by the terrorist attack in Saint Petersburg. VTsIOM experts, commenting on the improvement of social mood, which they registered in May 2017, spoke about the combination of two factors: on the one hand, a relatively calm situation in the international political arena, on the other hand, the strengthening of the ruble exchange rate that is perceived by society "as an indicator of economic growth"[6].

[6] Social feeling of Russians: a monitoring. Press release 3398 of June 19, 2017. *Official website of VTsIOM*. Available at: https://wciom.ru/index.php?id=236&uid=116274

However, we cannot say that VTsIOM assessments are dominated by optimistic expectations. Rather, they should be called "careful". So, Head of VTsIOM Research Department S. L'vov notes that "receiving signals about the changes in the markers of social well-being, we still need to wait for in the next wave of the study, instead of concluding that this trend is sustainable and long term. It often turns out that the sum of factors, such as the updated fears, high-profile events, price fluctuations, general information background, etc., can momentary "bend" the trend line of social well-being in one way or another"[7].

"The economy continues to be the main concern factor for our fellow citizens… It is a trend that reflects the specifics of unanimous reactions of our society to the current crisis (the economy is not getting rid of "extras" and reduce the income of "all")"[8]. It is for a reason that the President during his annual live TV phone-in began his conversation with the people "by answering the main question: did the economic crisis come to an end?", "highlighting the most pressing issues that have yet to be resolved… Real incomes have been declining over the last several years, and what is even more alarming is the growing number of people below the poverty line with incomes below the minimum living wage"[9].

It should be noted that, traditionally, the "seasonal" factor plays its part. At least, a retrospective analysis of public opinion dynamics shows that it could affect the improvement of the social mood in the most socially vulnerable population groups, whose self-reported income refers them to the category of 20% of the poorest inhabitants of the oblast. VTsIOM experts say: "One should forget that private life remains the main "generator" of happiness. This suggests that people continue to retreat in their "inner world" of family, trying to distract themselves from the problems of the "outside world", which continue to be perceived as very painful"[10].

Thus, it is premature to talk about the fact that positive changes observed in the dynamics of public opinion in June 2017 will become a stable trend. Autumn months will become a real "test", when the holiday and dacha period ends, climatic conditions deteriorate and utility tariffs increase, traditionally. This is the time when we will be able to say with more confidence that the changes in the dynamics of public opinion reflect the effectiveness of the work of the authorities in maintaining the material status of broad segments of the population and social protection of vulnerable population groups.

[7] *Ibidem.*

[8] Toward the "Direct Line with Vladimir Putin": critical issues that Russians are worried about. Press release 3396 of June 15, 2017. *Official website of VTsIOM.* Available at: https://wciom.ru/index.php?id=236&uid=116269

[9] Transcript of the Direct Line with Vladimir Putin, June 15, 2017. *Official website of the Russian President.* Available at: http://kremlin.ru/events/president/news/54790

[10] Toward the "Direct Line with Vladimir Putin": critical issues that Russians are worried about. Press release 3396 of June 15, 2017. *Official website of VTsIOM.* Available at: https://wciom.ru/index.php?id=236&uid=116269

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About the Role of Input-Output Balance in Government Regulation of the Economy*

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Abstract. March 30, 2017, a notable event took place in Russia: the Federal State Statistics Service (Rosstat) published the basic input-output balance (IOB) for the national economy for 2011 and the tables that show the resources and utilization of products for 2012–2014. Economists have been waiting for this event for more than 20 years. The latest IOB was made in 1995. The present paper summarizes theoretical foundations of input-output balance and basic methodological approaches to its construction. It is shown that input-output balance is the basis for government regulation of the economy in industrialized countries. The paper evaluates the situation with the availability of necessary statistical information to build the "input – output" tables for the Russian economy. The author highlights possible areas, in which input-output balance can be used in government regulation of the economy. It is proved that input-output balance contains all the main macroeconomic indicators of the country (region) in its sectoral and national economic context. It is established that IOB is an important analytical tool for the study of inter-industrial interaction in the economy, for carrying out structural analysis of a wide range of indicators (structure of production, formation of resources, purchasers' prices, intermediate consumption, use of goods and services, value added, and others). It helps analyze

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exchange of the products in current production (intermediate) consumption and the products that enter final consumption. In addition to the study of the structure of the economy, input-output balance provides an opportunity to calculate important economic and sectoral proportions. On the basis of IOB it is also possible to calculate cost-effectiveness ratios in individual industries and the whole national economy. These ratios include labor productivity, capital productivity, and return on assets ratio. Relevant practical examples are provided for all the directions considered. It is shown that variants and forecast calculations are a significant part of interdisciplinary research. Input-output models help carry out variants calculations of the state of the economy taking into consideration changes in both personal and social needs, and in production capabilities. The author presents the results of variants calculations of economic development with the use of IOB of Russian and foreign researchers. The paper substantiates the main difference between forecast and variants calculations, which consists in using dynamic matrices of direct costs ratios. The paper classifies basic methods of forecasting direct costs ratios, summarizes the types of inter-sectoral socio-economic forecasts (demographic, social and environmental forecasts, forecasts of dynamics and structure of production, development of specific sectors, natural resources, etc.). It is concluded that the use of analytical and forecasting opportunities of input-output balances provides a strong basis for government regulation of the economy.

Key words: input-output balance, government regulation of the economy, analysis, modeling, forecasting.

One of the fundamental problems of the Russian economy is found in its weak and ineffective system for managing socio-economic processes, which results in a low level of socio-economic development and in Russia's lagging behind foreign countries in terms of competitiveness, innovative activity and people's well-being.

Modern economy is characterized by a complex industrial structure. The All-Russia Classifier of Types of Economic Activity OK 029-2014 (OKVED 2), which is in effect as of February 1, 2014, contains more than 2600 groups [18]. The sectors actively interact with each other, carrying out production and distribution of goods using fixed assets and labor force; and the redistribution of incomes takes place.

Consideration of these processes is of great importance for the development of management actions. Regulation of the economy should be based on a methodology that allows us to look inside this "black box" and explore its internal structure. In order to analyze major inter-industry connections, structural changes and proportions in the economy, to assess the effect of implementation of control actions and their effectiveness, and to identify drivers and conditions of development, it is advisable to use input-output models.

The aim of the study is to systematize various trends in the use of input-output models in government regulation of the economy. With the use of fundamental works of domestic and foreign scientists, we solved the following problems: we generalized theoretical and methodological foundations for constructing input-output models and disclosed their structure. In this case we studied the experience of designing input-output tables and the evolution of their use in different countries.

An input-output model (input-output tables) is a set of interrelated economic indicators, characterizing in detail the production and use of goods and services and the income earned in the production process broken down by detailed types of economic activity, products and services [15].

An input-output model contains three quadrants *(Fig. 1)*. The first quadrant that includes intermediate consumption shows the value of all goods and market services consumed in a production order. The second quadrant presents the final use of goods and services, gross accumulation and exports of goods and services. The third quadrant contains the cost structure of gross value added (GVA). Important cost components of GVA (in rows) are the remuneration of employees, gross profit, gross mixed income, production-related taxes and subsidies, consumption of fixed capital, taxes and subsidies on products.

Figure 1. An input-output model

<table>
<tr><td colspan="3" rowspan="3">Sectors and GVA</td><td colspan="8">Intermediate demand</td><td colspan="3">Final demand</td></tr>
<tr><td colspan="8">Consumer sectors</td><td rowspan="2">Final consumption</td><td rowspan="2">Accumulation</td><td rowspan="2">Net export</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td rowspan="8">Producer sectors</td><td>Agriculture</td><td>1</td><td colspan="8" rowspan="8">I quadrant</td><td colspan="3" rowspan="8">II quadrant</td></tr>
<tr><td>Mining</td><td>2</td></tr>
<tr><td>Industry</td><td>3</td></tr>
<tr><td>Construction</td><td>4</td></tr>
<tr><td>Trade</td><td>5</td></tr>
<tr><td>Transport and communications</td><td>6</td></tr>
<tr><td>Services</td><td>7</td></tr>
<tr><td>Other</td><td>8</td></tr>
<tr><td rowspan="3">GVA</td><td colspan="2">Wages and salaries</td><td colspan="8" rowspan="3">III quadrant</td><td colspan="3" rowspan="3"></td></tr>
<tr><td colspan="2">Entrepreneurship profit</td></tr>
<tr><td colspan="2">Taxes</td></tr>
</table>

Source: compiled by the author with the use of [14].

Theoretical basis of input-output models was developed by W.W. Leontief. In the 1930s, he successfully implemented this method in designing the first input- output tables for the U.S. for 1919 and 1929 for 44 economic sectors [21]. By the mid-1950s, W. Leontief's ideas have gained worldwide recognition, and input-output tables were developed for the United States, France, the Netherlands, Norway, and Australia.

In domestic practice the method was first implemented in a full-scale input-output model of production and distribution of products in the national economy of the USSR for 1959. Basic input-output models (i.e. those formed on the basis of direct surveys of production and consumption) were developed further on a regular basis every five years: in 1966, 1972, 1977, 1982, and 1987.

Currently, the role of the input-output methodology that represents a powerful tool for quantitative analysis of linkages in the real economy has long been recognized in most countries of the world [42]. Development of input-output tables became part of the regular work at statistical agencies in the countries that wish to pursue meaningful industrial and regional policy [13]. Assessments of input-output tables performed at formal and informal levels with different frequency and different quality are available for 94 out of the 193 countries in the UN [44]. Moreover, state statistics agencies of the top 20 countries (which account for about 80% of world GDP) produce these tables on a regular basis. In developed countries, input-output tables were built into the system of national accounts long ago (since 1968 in accordance with the recommendations of the UN manual of national accounting SNA-68; *Tab. 1*). For example, in the U.S. yearly input-output tables for 71 types of commodities for 1947–2015 are on the open Internet on the website of the Bureau of Economic Analysis (2007 available as a base table for 389 products). The development of such tables is a necessary element of the statistical base for EU member states. These tables are developed in Japan, China, Canada, and several other countries (including Ukraine, Belarus and Kazakhstan). In order to implement major research tasks (assessment of the prevalence of technology, carbon dioxide emissions, global chains of creation of value added) database of input-output tables are created by international organizations (WIOD, OECD, GTAP) as well.

In Russia, the latest input-output tables published by Rosstat date back to 2003. Their data are aggregated into 24 types of goods (the industry is represented by 13 types). However, despite such a high degree of aggregation, the tables give information about major proportions of production and consumption in the Russian economy that are consistent with the system of national accounts. However, after 2006 even these aggregated input-output tables ceased to be constructed.

Table 1. Developers of input-output tables

Country	Institute/organization	Accessible archive	URL
Germany	Federal Statistical Office	1999–2015	https://www.destatis.de/EN/Publications/Specialized/Nationalaccounts/NationalAccounts.html
France	France's National Institute for Statistics and Economic Studies	2005, 2010	http://www.bdm.insee.fr/bdm2/choixTheme?code=1#arbo:montrerbranches=theme1/theme2/theme145/theme343
UK	Office for National Statistics	1997–2014	http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Supply+and+Use+Tables#tab-data-tables
Canada	Statistics Canada	1980–2015	http://www5.statcan.gc.ca/subject-sujet/result-resultat?pid=3764&id=2745&lang=eng&type=ARRAY&sortType=1&pageNum=1&more=0
U.S.	Bureau of Economic Analysis	1947–2015	http://bea.gov/industry/io_annual.htm
Japan	Statistics Bureau	1990, 1995, 2000, 2005, 2011	http://www.soumu.go.jp/english/dgpp_ss/data/io/io05.htm
European Union	Eurostat	1990–2015	http://ec.europa.eu/eurostat/data/database
Russia	Federal State Statistics Service	1998–2003, 2011–2014	http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1135086739625
	Institute of Economic Forecasting, RAS	1980–2013	http://macroforecast.ru/statistics.html
International organizations	World Input-Output Database (WIOD)	2000–2014	http://www.wiod.org/new_site/database/niots.htm
	Organization for Economic Co-operation and Development (OECD)	1995–2011	http://www.oecd.org/trade/input-outputtables.htm
	Global Trade Analysis Project (GTAP)	1993–2015	https://www.gtap.agecon.purdue.edu/databases/default.asp

This fact forced research organizations (RAS Institute of Economic Forecasting, the Institute of Economics and Industrial Engineering of the Siberian Branch of RAS, the Institute for Macroeconomic Research, etc.) to carry out experimental estimation of input-output tables. The results of such assessments can be quite different; however, they can be neither confirmed nor refuted [15]. The real picture of the internal structure of an economy, including the clarification of parameters of non-observed economic activities by its types, can be done only with the help of designing basic input-output tables according to a comprehensive pattern on the basis of a large-scale survey of the Russian economy.

14 February, 2009, the Resolution of the RF Government No. 201-r, which ordered the Federal State Statistics Service (Rosstat) "for the purpose of forming official statistical information about the inter-sectoral linkages and structural proportions of economy of the Russian Federation, as well as improving the quality of statistical and predictive calculations of macroeconomic indicators" to

develop basic input-output tables for 2011 and to submit them in 2015 to the Government of the Russian Federation, as well as to develop basic input-output tables on a regular basis once every five years [17]. In pursuance of this resolution Rosstat organized a survey of costs in the Russian economy and developed basic input-output tables for 2011. At the end of March 2017, the materials were published in the public domain. The development of the next basic input-output tables for 2016 was launched last year. It can be argued that the work on regular creation of Russian input-output tables has been streamlined after the difficulties of the 1990s. The scientific community and public authorities have obtained a reliable source of information for a wide range of interdisciplinary studies.

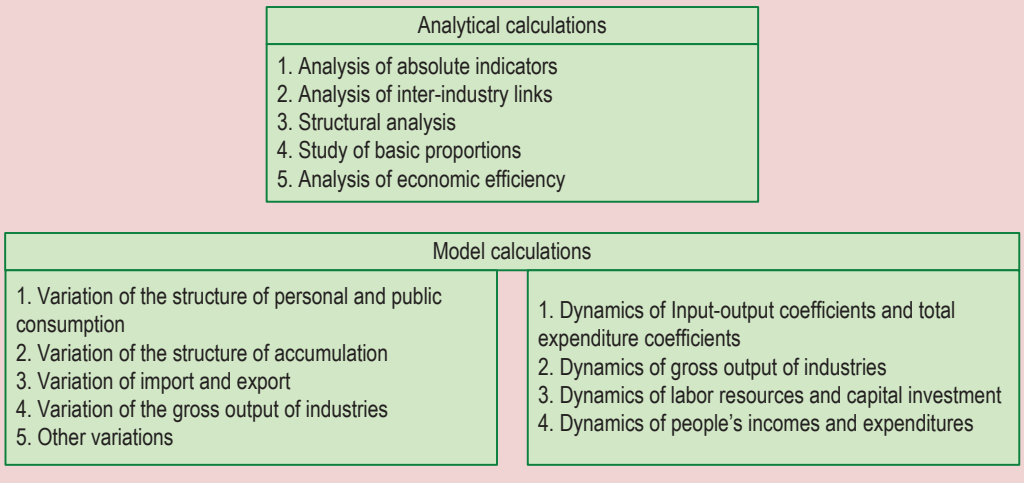
Practical application of input-output tables is considered in the works of many domestic and foreign scientists such as W.W. Leontief, E.F. Baranov, A.G. Granberg, M.N. Uzyakov, Yu.V. Yaremenko, V.S. Nemchinov, A.G. Aganbegyan, V.S. Dadayan, V.V. Kossov, M.Ya. Lemeshev, L.I. Danchenko, V.L. Ven, E.B. Ershov, V.Ya. Lumel'skii, I.N. Rabinovich, L.A. Khiatser, B.A. Shchennikov, A.I. Erlikh and others, as well as foreign economists, such as A. Ghosh, N. Rasmussen, R. Stone, V.D. Fischer, M. Holzmann, K. Masaaki, Y. Morimoto, H. Neudecker, V. Strnad, H. Tail, M. Hatanaka, I. Yamada, etc.

The entire range of application of input-output models in economic research can be grouped into two blocs: analytical and model (contingency and forecast) calculations *(Fig. 2)*.

Analytical calculations

An input-output table presents all key *macroeconomic indicators* (including those broken down by economic activities and institutional sectors):

Figure 2. Areas of application of input-output models



– gross output;
– intermediate consumption;
– gross value added;
– final consumption (households and government);
– gross accumulation;
– change of inventories;
– import and export;
– payroll;
– gross profit and gross mixed income;
– taxes (VAT, excise duties, customs duties and others), etc.

Analysis of these indicators is of great practical importance and is widely used in economic research [4, 9, 11, 12, 19, 34, 36, 47, 48, 50, 51, 53]. On the basis of these indicators it is possible to conduct dynamic and interregional comparisons and different calculations of relative indicators.

Input-output models are an important analytical tool for *the study of inter-industrial interaction in the economy*. It helps analyze the exchange of goods in current production (intermediate) consumption (quadrant 1) and goods coming in final consumption (quadrant 2).

The analysis is carried out on the basis of input-output coefficients[1] and total expenditure coefficients[2], which characterize the structure of material costs by individual sectors. The more intense relationships in the economy, the higher is the value of total costs, i.e., additional output induced with the help of inter-sectoral linkages. For example, the direct costs of production of 1,000 rubles of ferrous metals are 671 rubles, the total costs, taking into account the inter-industry interactions, are equal to 1,447 rubles.

The analysis of inter-industry relations is reflected in the works of many researchers. For example, J. Richter assesses the impact of the growth of tourist expenditures on the economy of Austria [54]; L. Beiriz considers the dependence of scientific research expenditures from the volume of foreign trade in automobiles and pharmaceutical products with major trading partners – the U.S. and China [24].

Input-output models also help carry out *structural analysis* on a wide range of economic indicators, such as:

– production structure in economic sectors;
– structure of formation of resources of goods and services;
– structure of purchasers' prices by type of goods and services;
– goods structure of intermediate consumption;
– industry structure of the intermediate demand (including that broken down by domestic and imported goods and services);
– structure of the use of goods and services (including that broken down by domestic and imported goods and services);

[1] Input-output coefficients are industry indicators that express the immediate cost of production of one industry to produce goods in another industry.

[2] Total expenditure coefficients are economic indicators that characterize both direct and indirect costs of one economic sector to produce products of another economic sector, i.e. that take into account economic turnover of raw materials throughout the entire chain of technological links.

– functional structure of the final demand (including that broken down by domestic and imported goods and services);

– product structure of functional elements of the final demand (including that broken down by domestic and imported goods and services);

– element-by-element structure of value added by economic sectors;

– sectoral structure of the elements of added value;

– cost structure of domestic and imported goods and services.

Examples of structural analysis with the use of input-output models can be found in the works of many researchers. For example, the works of R. Paniccia devoted to the structural analysis of the Italian economy at the regional level [23], the works of D. Nyhus on analyzing structural changes in the system of reproduction, energy intensity and environmental damage for the Chinese economy [27], and the works of A. Shirov on the problems of structural changes in the national economy of Russia [37].

In addition to the study of the structure of the economy, input-output models give an opportunity to calculate important *economic and sectoral proportions (Tab. 2)*.

On the basis of input-output models it is possible to calculate *economic effectiveness* ratios such as labor productivity, capital productivity, and profitability for individual industries and for the whole national economic complex *(Tab. 3)*.

Examples of assessing economic efficiency on the basis of input-output models can be found in the works of L. Safiullina (assessment of competitiveness of Russian regions [22]), M. Grassini (evaluation of the effectiveness of the Italian economy and its individual sectors [45]).

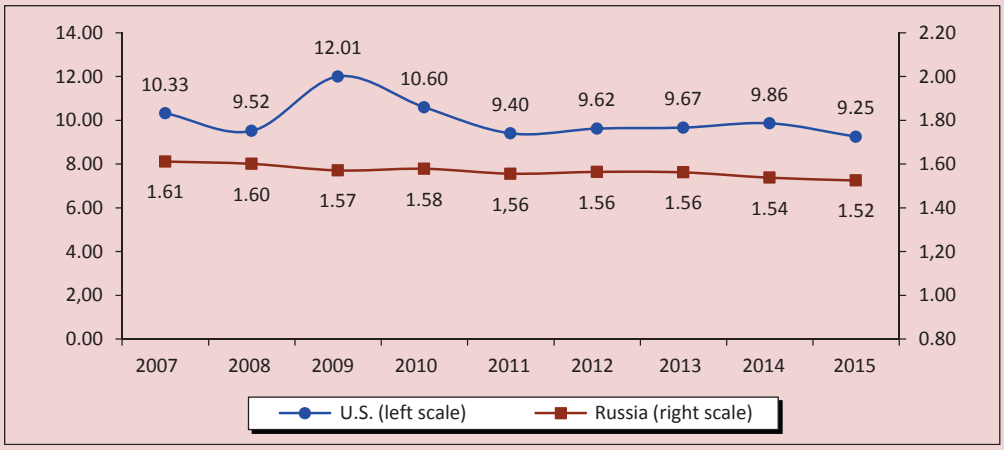
Table 2. Indicators of national economic and sectoral proportions

Characteristic of the indicator	Calculation formula
Ratio of production consumed to production produced	R/X
Ratio of resources to production output	N/X
Ratio of resources to consumption	R/N
Proportion of import in aggregate internal consumption	I/R
Proportion of local production in ensuring the consumption of products	(R – I)/R
Proportion of export in total production	W/X
Proportion of export in the total amount of resources	W/N
Proportion of value added in gross output	M/X
Proportion of material costs in the prime cost of goods	C/(C + V + A)
Proportion of amortization in the prime cost of goods	A/(C + V + A)
Proportion of labor remuneration in the prime cost of goods	V/(C + V + A)
Explanation: X – gross output; Y – volume of final product produced; W – export volume; I – import volume; R – consumption volume (R = X – W + I); N – amount of resources (N = X + I); C – material expenses; A – capital consumption (amortization); V – payroll; M – gross value added; S –accumulation fund.	

Table 3. Indicators characterizing the efficiency of the national economy and individual sectors

Characteristic of the indicator	Calculation formula
Material costs per ruble of gross output, rub.	C/X
Labor productivity, rub./person:	
– by gross output	X/L
– by product produced	(Y – A)/L
Yield of capital investments, rub./rub.:	
– by gross output	X/F
– by product produced	(Y – A)/F
Profitability, %:	
– by self cost	M/(C + V)·100%
– by the average annual value of fixed assets	M/F·100%
– by the sum of the values of the consumed capital and labor	M/(A + V)·100%
Explanation: L – number of people employed in economic sectors; F – average annual value of fixed assets; M – profit.	

Figure 3. Dynamics of the value added multiplier in the economy of the Russian Federation and the U.S.



Source: calculated by the author with the use of [16, 46].

We used the input-output methodology to calculate the value added multiplier[3], an indicator of the adaptability of the economy and the degree of processing of natural resources *(Fig. 3)* [11, 12]. In addition, this methodology is the basis for designing vertical integration of enterprises – a key tool to increasethe value added multiplier in the economy.

[3] This indicator is calculated by the ratio of total value of commodity weight to the cost of primary raw material resources involved in economic turnover and is calculated according to official data on the detailed development of production account of the SNA.

The analytical possibilities offered by input-output models led to their extensive use in the practice of economic analysis. A fundamental monograph on input-output models by R.E. Miller and P.D. Blair [49] notes that at present, input-output analysis is one of the methods most widely used in economics. It helps analyze absolute indicators of inter-industry linkages, structure and basic proportions of the economy and its economic efficiency.

Model calculations

Input-output tables can be easily turned into an economic-mathematical model. The model is based on the following basic input-output equation:

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

where x stands for the "vector of gross output"; A – for the "matrix of coefficients of direct costs; y – for the "vector of the final product".

The simulation uses the following equation:

$$(E - A)^{-1} \cdot y = x, \quad (2)$$

where E is the identity matrix; $(E - A)^{-1}$ is the matrix of coefficients of the total cost.

The use of input-output models even in their simplest forms allows us to perform variations calculations of the state of the economy and take into account its changes in both personal and social needs, and production capabilities. That is, with the help of this model it is possible to use two hypotheses of economic development options. The first one consists on the fact that the final product (final demand) is a driver of development of economic sectors (what happens to the economy, if final demand is changed). The second (opposite) hypothesis implies that the dynamics of production within an industry determines the growth of the final product (what will happen to the economy if the volume of production of goods and services is changed). The model calculations are focused on the achievement of certain final results in the production (increase or decrease in the volume of production) and social (improved standard of living) spheres. Of course, more complex models are used in practice, but their meaning remains the same – they help interconnect a variety of economic indicators.

If the tables contain an additional row that characterizes the cost of labor per unit of output by individual goods, then it is possible to calculate the total need for labor, which occurs when the final demand for certain types of products increases, considering not only direct costs but also indirect costs induced in related industries [15]. No less importance is attached to an opposite task to determine the extent of reduction in the aggregate demand for labor resources if demand for a particular product reduces given the decline in demand for products of related industries and, consequently, reduction in the manpower requirements. This kind of analysis is in demand when assessing the extent of unemployment that may occur, for example,

in a crisis or when major changes take place in the structure of production that requires reallocation of labor from some industries to others [15].

The works on the development of methodology and practical application of inter-industry simulation have a long history. The principles of input-output models, as we have already noted, were developed in the first half of the 20th century by W.W. Leontief; however, the practical use of input-output models began later. This is largely due to the extensive amount of calculations that are necessary to perform in order to build a forecast and high requirements to the completeness and quality of statistical data.

A great contribution to the development of input-output models was made by Soviet scientists. In the 1960s–1980s in the Soviet Union there was an upsurge in the development of input-output models. A lot of works on static and dynamic input-output models were published by A.G. Granberg [3] and E.B. Ershov [6]. During this period, F.N. Klotsvog, N.F. Shatilov, V.V. Kossov, Ya.M. Urinson, E.F. Baranov, Yu.V. Yaremenko, and others created their models. Currently, input-output models are developed at the Institute of Macroeconomic Research (L.A. Strizhkova), at RAS Institute of Economic Forecasting (M.N. Uzyakov, N.V. Suvorov, A.R. Belousov, etc.), at the Institute of Economics and Industrial Engineering, Siberian Branch of RAS (V.I. Suslov, B.V. Melent'ev, Yu.S. Yershov, and others), at the Council for the Study of Productive Forces, at the Institute for System Studies of RAS, at RAS Energy Research Institute (D.V. Shapot), and a number of regional institutes *(Tab. 4)*.

Variants calculations play an important part in the use of input-output models. Researchers consider various options for economic development in the implementation of certain scenarios – from assessing the effects of changes in the rates of social contributions to the country's withdrawal from the Eurozone *(Tab. 5)*.

We developed an inter-industry model of the economy that allows us, in addition to the analysis of key indicators and basic proportions in the economy, to carry out variants calculations of changes in the output of goods and services, the number of employees (by occupations), and the volume of payroll by industry and the whole economy under the reduction or increase in final demand for the products [11, 12]. The model allows us to see what will happen to the economy if demand increases in one of the sectors (e.g. in agriculture due to food import restrictions as a result of reciprocal sanctions). The model also shows the extent to which the output in individual industries and in the economy on the whole increases, the extent to which it will be necessary to increase the number of employees (broken down by professions, i.e. how many managers, workers, lawyers etc. will be required for this) and the payroll fund.

Table 4. Input-output models of development of the Russian economy

Developer	Model	Essence
Center for Macroeconomic Analysis And Short-term Forecasting	Model for long-term development of Russia's economy	Short-, medium-, and long-term analysis of the economic situation and scenario forecasting of economic dynamics of Russia
E.B. Ershov and Yu.V. Yaremenko	Model for inter-industry interactions [40]	Forecasting the structure of production – material inter-industry proportions
Institute for Macroeconomic Studies	Tools of input-output models [32]	The core of the tools used in the implementation of scenario and forecast calculations is a system of input-output models (static and dynamic input-output models of price; price model based on input-output tables; natural cost input-output model) and cross-sectoral model of financial flows that helps more fully consider the openness of a market economy and forecast VRD assessments
RAS Institute of Economic Forecasting	Macroeconomic input-output model of the Russian economy RIM [30]	Analysis and forecast of development of the Russian economy from the point of view of its structure. The model consists of three blocks: the block of production and distribution of products, the block of prices and revenues, and the block of estimated parameters. Production is simulated for 25 economic sectors (including 15 industrial branches). Import is also allocated in the composition of resources. Components of final use are as follows: household consumption, government agencies and nonprofit organizations, gross investment in fixed capital, change in inventories, and export
Institute of Economics and Industrial Engineering, Siberian Branch of the Russian Academy of Sciences	Optimization interregional inter-industry models SIRENA and SIRENA-2 [35]	Study of the influence of territorial factors on the trend of development of the national economy, study of the concept of development and location of productive forces, assessment of the possibilities and consequences of the convergence of regional levels of economic development and welfare

The main point in which forecast calculations differ from variants calculations is the use of dynamic matrices of coefficients of direct costs by the former. The problem of their analyzing and forecasting at present is successfully solved with the help of a sufficiently large number of techniques [1, 10, 31, 33, 39, 43, 52]:

– simple and poorly formalized methods (extrapolation, expert reviews, method of applying matrices, analysis of variance, etc.);

– technology and economic methods (methods of technological and merchandizing shifts, regulatory method, correlation, regression and factor analysis);

– formalized economic and mathematical methods: analysis of time series (smoothing methods, autoregression, finite difference equations), methods for studying dependencies, linear programming method, RAS method, and others.

The system of inter-industry socio-economic forecasts includes demographic, social and environmental forecasts, forecasts of dynamics and structure of production, development of sectors, development of natural resources, etc. *(Tab. 6)*.

A promising direction in the use of input-output models is to analyze the effects of economic decisions: evaluation of investment

Table 5. Examples of calculations of economic development with the use of input-output models

Author	Variants calculations
V. Potapenko	Studying the options for development of the pension system in Russia [38]. Assessment of the impact of changes in the rates of social contributions [20]
A. Yantovskii	Studying economic effects for Russia, Belarus, Kazakhstan and Ukraine in the creation of the Single economic space [8]
N. Suslov	Assessment of the macroeconomic effects of the implementation of major investment projects in the energy sector and the impact of changes in the technologies of energy consumption or changes in external economic conditions in the energy markets through the use of the interregional input-output model of the Russian economy [34]
V. Gil'mundinov	Assessment of the impact of inflation targeting in the modern Russian conditions [2, 41]
K.Veib	Modeling technological change in the sector of renewable energy production (solar energy, wind energy, energy produced by burning biomass, hydro and geothermal energy) [24]
D. Mullins	Analyzing the functioning of the gasoline production sector in South Africa and determining the optimal level of gasoline consumption for sustainable economic growth in the absence of its own energy resources and strong dependence of domestic prices on world markets [22]
M. Plikh	Modelling economic dynamics in the implementation of the project for extraction of shale gas in Poland [26]
D. Mead	Study of the macroeconomic consequences of expanding gas production in the U.S. [27]
R. Horst	Studying the dynamics of economic activity and employment in the whole economy and for individual states in terms of reducing military expenditure of the U.S. budget [27]
R. Bardacci	Assessing the impact of Italy's exit from the Eurozone [25]
U. Lekhr	Measuring and modelling the energy efficiency in the economy and assessing the impact of its decline on economic dynamics [24]
A. Ozina–Emsina and V. Ozolin	Evaluation of changes in the structure of foreign trade and relevant industry developments in Latvia and other Baltic States in the period of economic growth 2004–2007 associated with the accession to the European Union, and in the period of recession (2008–2010) [22]

Table 6. Examples of forecast calculations of economic development with the use of input-output models

Author	Forecast calculations
Team of researchers at RAS Institute of Economic Forecasting	Long-term forecast of Russia's economic development for 2007–2030 according to two scenarios [5]. Forecast of socio-economic development of the Vologda Oblast up to 2020 [7]. Forecast of socio-economic development of the Ivanovo Oblast [29]
K. Savchishina	Long-term forecast of indicators of the budgetary sphere and the influence of budgetary performance on the macroeconomic dynamics of the Russian Federation [22]. Analysis and calculation of economic dynamics of the Republic of Belarus in the medium term (2012–2016) [22]
A. Baranov	Forecast of development of the Russian economy in 2012–2015 for moderately optimistic (inertial) and pessimistic development scenarios of the global economy [41]
V. Gil'mundinov	Analysis and long-term forecast of the impact of financial and trade shocks on economic development of the Russian Federation [2]
N. Bagautdinova	Forecast of development of the regional economy based on the implementation of potential of industrial enterprises [28]
D. Mead	Forecast of multifactor productivity in the inter-industry modeling of the U.S. economy [27]
G.F. Verduzco	Analysis and a long-term forecast of development of the economy in Mexico [27]
L.Chezzi	Evaluation and forecast of macroeconomic impact of the implementation of the European agreement on budgetary balance [23]

projects taking into account government support, the effectiveness of federal target programs; substantiation of establishing special economic zones.

Thus, the paper may be useful to those people who make management decisions. Input-output models are also an important tool for analyzing and developing scientifically substantiated variants of scenarios of development of economy and simulation of the effects of their implementation on the socio-economic system. It is possible to use gross output, labor productivity, intermediate consumption, the rate of accumulation of fixed capital, labor remuneration, volume of external and interregional trade, employment, unemployment, and others can be used as control variables. The use of analytical and predictive capability of input-output models provides a solid foundation for state regulation of the economy. Their application helps carry out an in-depth analysis of major inter-industry connections, structural changes and proportions, link the needs and resources in the framework of the whole social production, coordinate the development of related industries and manufacturing, ensure the proportionality and coherence of all elements of the national economy, and calculate different development scenarios.

The novelty of the present research that provides its contribution to the development of science consists in the fact that it systematizes traditional and identifies new approaches to the practical use of the input-output methodology in state regulation of the economy.

It is advisable to use input-output models to calculate the multiplier of value added (the indicator of adaptability of the economy and the extent of processing of natural resources) and to design vertical integration of enterprises (a key tool to increase the multiplier of value added in the economy).

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Innovation Course of Economic Development in the Northern and Arctic Territories in Russia and in the Nordic Countries

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Abstract. The policy of Russia in the Arctic is based on innovation modernization in the interests of national security, development of the smart use of natural resources, conservation of unique arctic ecosystems and local communities. The aim of the present research was to analyze specific features of innovation policy in Northern and Arctic territories of Russia and the Nordic countries. The article presents an original analysis of development of such a policy, which, in our opinion, can be carried out with the help of considering development scenarios of the Arctic zone and challenges of their implementation in the long term, with the help of studying the situation in the Northern territories and countries in national and global innovation activity rankings; with the help of studying approaches to the formation of innovation policy in the Nordic countries, the experience of which could be used by Russian Federation constituent entities that have similar geographical and geopolitical features. We considered two strategic scenarios of socio-economic development of the Russian Arctic zone and the innovative scenario deserves priority attention. Despite the government's efforts to diversify the Russian economy, it still remains resource-driven. So far, innovation developments in the primary industries supported by the ideology of import substitution has not changed the situation for the better. The present article highlighted the challenges that hinder the implementation of innovation trends in the Russian Arctic economy. However, the Arctic zone of the Russian Federation (the Russian Arctic) provides examples of successful implementation of innovation (in the Republic of Sakha (Yakutia), in Yamalo-Nenets Autonomous Okrug), as evidenced by national rankings. Russia's neighbors in the Arctic region such as Denmark, Iceland, Sweden, Norway and Finland, all of which entered a post-industrial phase of development over 30 years ago, are current leaders in global innovation rankings. It is of practical interest to study characteristic features of development and innovation in the Nordic countries, their experience and possibilities of its use under the Russian conditions. In conclusion, we note that the development and implementation of innovation technology, the use of foreign experience, international cooperation tools and perspective areas of intellectual service in the Arctic economy can serve as a response to system and rapid transformations that occur in the Arctic region at present. The material of the article can be used in the educational process in universities, it is also relevant for government officials, researchers, geographers, and economists, who deal with forecasting and territorial development in the Northern regions.

Key words: Arctic, Nordic countries, development strategies, innovation, economic development, science, international cooperation.

The Arctic is a Northern polar region of Earth, it includes northern edges of the continents Eurasia and North America, the Arctic ocean with its islands, and the adjacent Atlantic and Pacific oceans. The Nordic countries have different approaches to defining the boundaries of their Arctic zones, and they are still not identified clearly [9].

The land territories of Russia that comprise the Arctic zone are established by the Decree of the President of the Russian Federation as of May 2, 2014 No. 296[1].

At the beginning of the 21st century, countries located inside (Denmark, Iceland, Canada, Norway, Russia, the U.S., Finland, Sweden) and outside the Arctic zone (India, China, Japan, Singapore, South Korea), and their associations (the European Union) developed a strategy for the study of the Arctic and the Far North and now support it with funding. The basis of the documents is formed by concepts for sustainable socio-economic development, effective and integrated use of mineral, water, biological tourism and recreational resources, the study and modernization of coastal zones for the purpose of development of ports and coastal infrastructure, documents on the development of Arctic navigation, environmental issues, international cooperation in the framework of the Arctic Council, the Barents Euro-Arctic Council (BEAC), and the European Union (EU). The Nordic countries focus on scientific research, knowledge transfer, exchange of experience on the work in extreme conditions of the Arctic [8, 14, 16, 19-22].

The Arctic countries make efforts to diversify the economic base of the Northern territories and expand their economic structure. This can be achieved in the framework of innovation policy implemented on the principles of strategic planning of public-private partnership in cooperation with industrial enterprises, research-educational and public organizations and with the help of international cooperation.

Formation and development of innovation policy in the Arctic zone of the Russian Federation (the Russian Arctic). This area covers over 9 million km^2, of which about 6.7 million km^2 is water area, which accounts for 45% of the area of the Arctic Ocean. The length of the Arctic coast of our country is the greatest among countries with Arctic zones. The continental shelf within the Arctic sector is 6.1 million km^2 or 41% of the entire water area of the Russian Federation. We emphasize that approximately 5.1 mln km^2 (70% of the sector) of this area is permanently covered with ice and 1.5 mln km^2 (23%) – with perennial ice [1].

The Russian sector of the Arctic has natural resource (worth several tens of trillion US dollars), scientific and production and technological potential that can in the long term ensure socio-economic and innovation development of the country. It is involved in the production of 12% of GDP and generates about 30% of Russia's exports. The Russian Arctic is home to more than 2.5 million people, which exceeds half of the total population of the Arctic [1, 4].

[1] *Ukaz Prezidenta Rossiiskoi Federatsii "O sukhoputnykh territoriyakh Arkticheskoi zony Rossiiskoi Federatsii" ot 2 maya 2014 g. № 296* [Decree of the President of the Russian Federation "About land territories of the Arctic zone of the Russian Federation" dated May 2, 2014 No. 296].

At present, from an economic point of view, the Arctic macro-region has single-industry resource-based specialization. The share of value added of extractive industries and businesses in the region reaches 60% (for comparison, in Greenland, in the Far North of Norway, Finland, Sweden and Iceland it is no more than 15%, in the polar regions of the U.S. and Canada – about 30%) [8].

The Russian Arctic, being an important region, is gradually becoming an independent public administration entity [15]. In 2008–2013, the following documents were developed and approved: the fundamentals of state policy of the Russian Federation in the Arctic for the period till 2020 and further perspective, the strategy for development of the Arctic zone of the Russian Federation and national security for the period till 2020 and a number of other documents[2].

Knowledge, presence, and growth are key points of Russia's strategy. The document is based on the principle of increasing and accumulating competitive and scientific knowledge, investment and productive capacity in the most promising areas, in the centers that form clusters of socio-economic efficiency in the Arctic zone.

The strategy puts forward two ways of development of the Russian Arctic in the long term: inertial and innovation. They differ in the nature of the hypotheses adopted in the formation of socio-economic trends; they also differ in internal and external factors and constraints, including random ones. They were designed in accordance with the policies of relevant ministries and departments of the Russian Federation, recommendations of the working groups of the Arctic Council, Arctic foreign policies and other documents [14].

The inertial scenario reflects the conflict of interests of the Arctic countries and the strengthening of their struggle for natural resources of the disputed areas, including the increased pressure against the presence of Russian companies in the Spitsbergen archipelago. This scenario reflects the prolongation of existing trends in key sectors of the Arctic economy and is based on conservative estimates of growth of key indicators. It is assumed that GRP growth rate in the territories included in the Arctic zone, real incomes, budget revenues, and productivity growth will be below the national average, and the expected structural shifts in the Arctic economy and the growth of investments will be slow. The contrasts between the development of the dynamic western and the depressed eastern sectors of the Arctic zone will increase[3].

The innovation scenario is based on optimistic estimates of development of the

[2] The foundations of state policy of the Russian Federation in the Arctic for the period till 2020 and further prospect: approved by the President of the Russian Federation in 2008; the strategy for development of the Arctic zone of the Russian Federation and national security for the period up to 2020: approved by the President of the Russian Federation in 2013.

[3] The strategy for development of the Arctic zone of the Russian Federation and national security for the period up to 2020.

core sectors of the Arctic economy taking into account the implementation of investment projects. The scenario focuses on ensuring cooperation between the circumpolar countries in the development of mineral and fuel deposits on the Arctic shelf, which will provide a more rapid pace of their development in comparison to the inertial scenario.

Characteristic features of this scenario are, on the one hand, consistent implementation of competitive advantages of the Russian Arctic on the basis of its natural resource potential; on the other hand, the manifestation of a new quality of economic growth based on expanding the economic base of Russia's Arctic territories through increasing the influence of new industrial and information and communication services and technologies in various sectors of the Arctic economy. Implementation of the innovation scenario involves the development of human potential, modernization of scientific and technological and institutional environment, industrial, energy, and transport infrastructure, creation of manufactures for deep processing of natural resources for the purpose of obtaining products with high added value. The pace of development of the Russian Arctic is expected to be above the national average due to the implementation of mega-projects in the resource and transport-communication areas (key attention is paid to the development of the Northern Sea Route, overland railways and motor roads).

The first place in structure of the Russian Arctic belongs to the gas complex (it produces more than 80% of Russian gas), the second – to the mining complex with its centers in Norilsky District of Krasnoyarsk Krai and in the Kola Peninsula. Therefore, when implementing the innovation scenario special emphasis is placed on the development of mineral and fuel deposits, including those on the continental shelf of the Arctic seas. In this case, innovation should be implemented with a strict observance of ecological safety measures (precautionary approach). This activity should, on the one hand, be adapted to the heterogeneity of economic space of the Russian Arctic, and on the other hand, dictated by the desire to maximize the use of its competitive advantages.

The experience of Russia and foreign countries shows that the development of shelf resources is a knowledge-intensive process. Russia inherited the system of Arctic studies from the USSR and to date it has almost lost its leadership in their progress, it especially concerns the developments in the interests of socio-economic development of the Far North and the Arctic. However, our government is taking system efforts to create science policy in the Arctic region. This is reflected, for example, in the promotion of a system for organization of scientific research and development, participation of Russian universities in projects of the Network University of the Arctic, involvement of Russia in programs of the

International Arctic Science Committee, the use of the scientific center on the Spitsbergen Archipelago, cooperation in the working groups of BEAC, the Arctic Council, the EU program "Northern Dimension" [2, 5]. The Resolution of the Government of the Russian Federation from April 9, 2010 No. 218 "On measures providing state support to the development of cooperation between Russian educational institutions of higher education, state scientific institutions and organizations implementing complex projects on high-tech production, in the framework of the sub-program "Institutional development of the research sector" of the state program "Development of science and technology for 2013–2020" aims to promote innovation activities in the Russian Arctic. In our opinion, the document needs to be improved, because the cost of the projects is the most important criterion for evaluating the efficiency of work on the projects.

Innovation activity in the conditions of the Arctic economy is subject to the impact of a significant number of challenges that have to be addressed. Innovation trends in the development of resources on the Arctic shelf are characterized by the fact that at the present stage Russia is lagging behind its dynamic neighbors by 30–40 years with regard to the duration, techniques and technology of production of hydrocarbons on offshore fields. Among the challenges we name macroeconomic, financial, climatic, environmental, energy, infrastructure, socio-demographic, personnel, legal, informational and other ones. It should be noted that investment in exploration and mining, especially offshore, are long-lasting.

In 2014, in respect of the Russian industrial and financial corporations, the EU, Norway, USA, Canada, Australia and other countries imposed sanctions, which apply to the oil and gas industry as well. The restrictive measures prohibit the sale, supply, transfer or export of technology, equipment and services if there is reason to believe that they will be used for exploration and production of oil and gas, including that on the Arctic shelf.

Despite this fact, leading foreign companies remain interested in the development of the Arctic coast and offshore resources and it is often being done with the involvement of innovation technology. According to Russian legislation, Rosneft and Gazprom – the companies with state participation operating in national interests and possessing technology and experience of work in harsh climatic conditions of the Far North – are permitted to work on the Arctic shelf. Over 80% of licenses for development of hydrocarbon deposits in the Barents and Kara seas within the boundaries of the Timan-Pechora and West Siberian oil and gas provinces are distributed between these two companies. They are involved in the resource exploration of the Shtokman field (Gazprom, Total), Novaya Zemlya areas in the Kara (Rosneft, British Petroleum) and Barents seas (Rosneft, ExxonMobil, ENI).

NOVATEK and Total are developing the Yuzhno-Tambeyskoye gas field on the Yamal Peninsula. Chinese investment funds are involved in the development of a project on the construction of the Belkomur railway. Vietnamese companies are allowed to explore and develope oil and gas fields in the Nenets Autonomous Okrug [3].

Innovation rating of the Arctic regions of the Russian Federation. In connection with the planned implementation of the innovation scenario, it is of interest to consider the innovation development rating of constituent entities of the Russian Federation. The rating is compiled by the Institute for Institute for Strategic Studies and Economics of Knowledge at the National Research University "Higher School of Economics". For this purpose, the following sources are used: official statistics (Rosstat), bibliometric and patent information, records of the Federal Treasury, open data of public authorities of constituent entities of the Russian Federation[4].

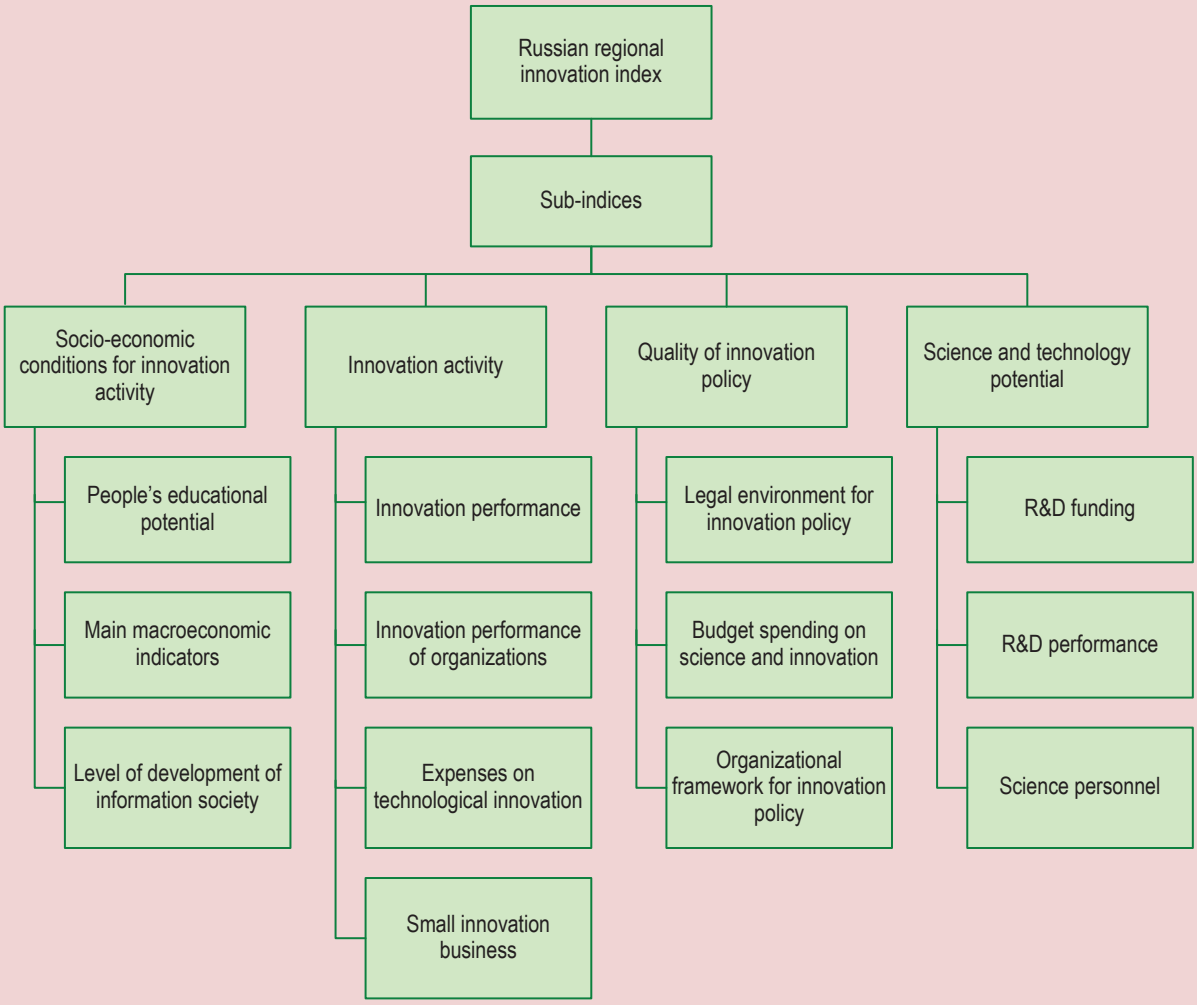
The structure of the Russian regional innovation index is presented in *Figure 1*. The index is based on sub-indices that characterize major areas of innovation activity: *socio-economic conditions, science and technology potential, innovation activity and its productivity, and the quality of innovation policy.*

Table 1 presents the position of constituent entities of the Russian Arctic in 2012–2014 in this ranking. Taking into account specific features of statistical observation, we cited the data for the entire subject relating to the Arctic zone of the Russian Federation.

Analyzing these data, we can note the stability of innovation activity in the regions of the Russian Arctic zone and point out that the changes in 2012–2014 were insignificant. The Republic of Sakha (Yakutia) and Yamalo-Nenets Autonomous Okrug (YNAO) are leaders in the positive dynamics, the former has moved up to the 16th place and the latter – to the 13th place. This may be attributed to the government's increased attention to science and technology policy, the high level of qualification of human resources, interaction between industry, small business and science, which aims to improve the efficiency of local nature management. The YNAO implements projects with international participation in the exploration of mineral resources and development of transport infrastructure, which promotes investment and the use of advanced technology in extreme climatic conditions of the Arctic. In Yakutia, multidisciplinary scientific-educational complexes involved in the development and implementation of advanced technology play an important role. Such complexes comprise technology parks, venture companies, state agency for coordination of innovation activities, the Arctic Innovation Center of the North-

[4] Gokhberg L.M. (Ed.). *Reiting innovatsionnogo razvitiya sub"ektov RF. – Vyp. 3 i 4* [Innovation development rating of RF constituent entities. Volumes 3 and 4]. Moscow: NIU VShE, 2015, 2016. 248 p.

Figure 1. Structure of the Russian regional innovation index



Source: Gokhberg L.M. (Ed.). *Reiting innovatsionnogo razvitiya sub"ektov RF. – Vyp. 3 i 4* [Innovation development rating of RF constituent entities. Volumes 3 and 4]. Moscow: NIU VShE, 2015, 2016. 248 p.

Eastern Federal University. For the purpose of designing a scientific and innovation system for sustainable socio-economic development of Yakutia, the state program "Scientific, technological and innovation development of the Republic of Sakha (Yakutia) for 2012–2019" has been in operation since 2011.

The main reasons hindering the development of innovation in the Arkhangelsk Oblast and in the Komi Republic, the regions whose positions in the analyzed rankings deteriorated by 25 and 11 points respectively, can be as follows: lack of financial resources (in contrast to the Republic of Yakutia,

Table 1. Ranking of the subjects of the Russian Arctic by the Russian regional innovation index (2012–2014)

Constituent entity	Rank		
	2012	2013	2014
Yamalo-Nenets Autonomous Okrug (YNAO)	39	34	26
Arkhangelsk Oblast	38	55	63
Komi Republic	30	36	41
Murmansk Oblast	40	43	37
Krasnoyarsk Krai	16	12	12
Republic of Sakha (Yakutia)	60	55	44
Chukotka Autonomous Okrug	77	75	73
Nenets Autonomous Okrug	80	79	80

Source: Gokhberg L.M. (Ed.). *Reiting innovatsionnogo razvitiya sub"ektov RF. – Vyp. 3 i 4* [Innovation development rating of RF constituent entities. Volumes 3 and 4]. Moscow: NIU VShE, 2015, 2016. 248 p.

where grants from the President of the Republic are allocated every year on the formation of innovation infrastructure and on research and technology transfer), lack of qualified personnel and the outflow of working population (according to government statistics, more than 100 thousand people have left the Arkhangelsk Oblast since 2000), depreciation of production facilities, poor development of transport and social infrastructure. In order to change the situation for the better, we believe it would be appropriate to study in more detail and to use the experience of innovation in Russia's successful regions including Yakutia and Yamalo-Nenets Autonomous Okrug. Here it is necessary to take into account similar geographical and climatic conditions, natural resource potential, research infrastructure and the industrial structure of the economy, and to complement the missing elements of the regulatory framework. We note that in the Arkhangelsk Oblast in 2015–2017 certain steps were taken to promote innovation activity in the real sector of the economy, which resulted in the creation of clusters in the timber industry and mechanical engineering.

The possibility of forming an innovation-oriented economy based on the implementation of projects in the mineral resources sector is shown by the experience of development and implementation of innovation policy in the advanced Nordic countries.

Approaches to shaping innovation policy in the Nordic countries. The Nordic countries occupy top positions in innovation ratings. Denmark, Sweden, and Finland are recognized as most-innovative economies in the 2013–2016 rankings in the Global Innovation Index, released by Cornell University, INSEAD and the World Intellectual Property Organization *(Tab. 2)*.

Table 2. Russia and the Nordic countries in the Global Innovation Index 2013–2016

Country	2013	2014	2015	2016
Denmark	9	8	10	8
Sweden	2	3	3	3
Finland	6	4	6	5
Iceland	13	19	13	13
Norway	16	14	20	22
Russia	62	49	48	43

Source: Global Innovation Index. INSEAD. Cornell University. World Intellectual Property Organization. 2013, 2014, 2015, 2016. Available at: https://www.globalinnovationindex.org.

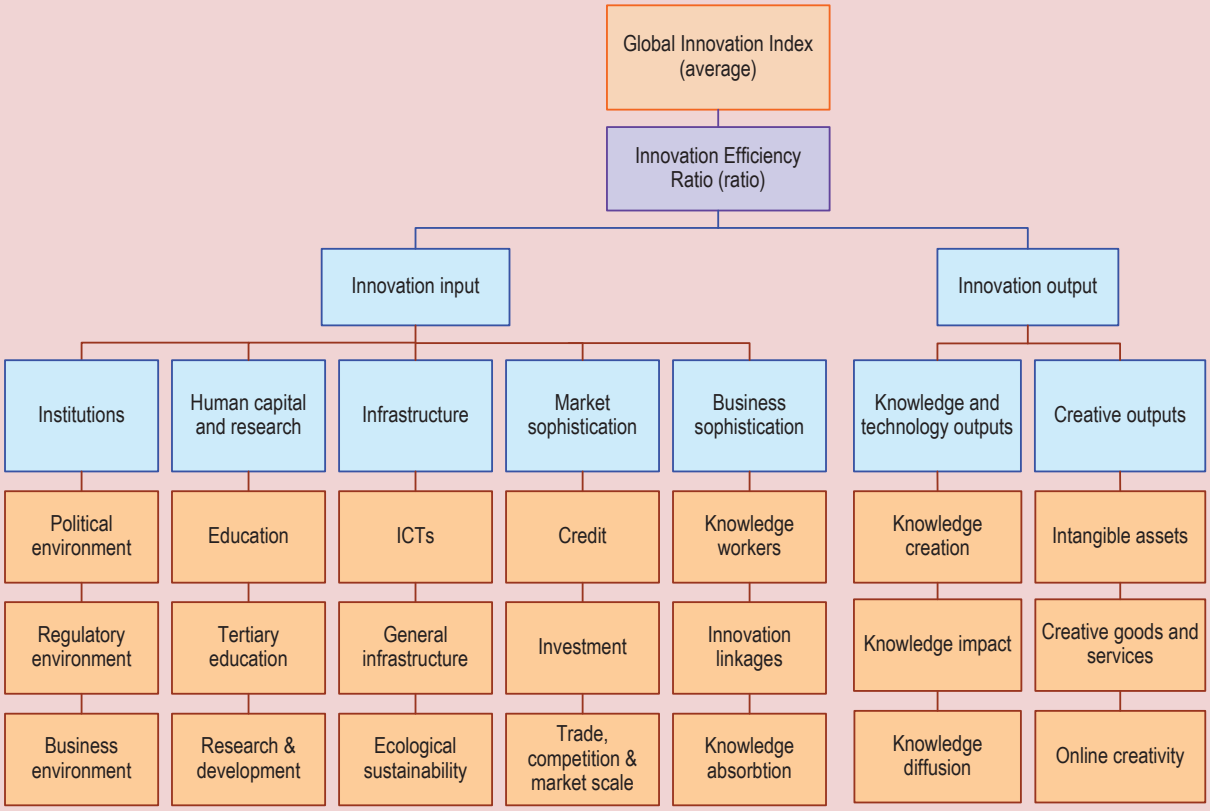
The same can be said about the positions of these countries in the Innovation Union Scoreboard of the European Commission and in the Global Competitiveness Index issued by the World Economic Forum and covering over 150 countries. This takes into account basic requirements (development of social institutions, health and education systems, infrastructure, macroeconomic stability), innovation and sophistication factors (business sophistication, current innovations), and efficiency enhancers (higher education, goods and services market efficiency, labor market efficiency, financial market development, technological readiness, domestic market size).

Figure 2 demonstrates the structure of the Global Innovation Index (2016).

The high level of innovativeness in the Nordic countries can be due to several reasons. Sweden, Finland, Norway, Denmark and Iceland form their national innovation policies taking into account their geographical position, encouraging the development of labor resources, developing the education system, scientific research and development. By embedding in the political and geographical processes on the European continent and by implementing the potential of regional cooperation, these countries have become leaders in fields that shape their international specialization. The economic and geographical status of "small countries" is an advantage of the Nordic countries [6].

The concept of "national innovation system" developed by Swedish professor B.-Å. Lundvall forms the basis of economic, scientific, technological and innovation policy in many EU countries. Idea of innovative development of regions and the concept of "learning regions" developed by Norwegian economic geographers B. Asheim and A. Isaksen. The concept of "knowledge society", which is now widely used, was coined by American economist M. Castells, and Norwegian researcher K. Sogner elaborated it and developed the concept of "innovation culture", this concept is a distinctive feature of the Nordic model of socio-economic development. The

Figure 2. The Global Innovation Index 2016



Source: *Global Innovation Index INSEAD. Cornell University. World Intellectual Property Organization, 2016*. Available at: https://www.globalinnovationindex.org.

Swedish school of the distribution theory and K. Wicksell's (1851–1926) theory of the "cumulative process" of inflation contributed to the development of global economic theory and practice. G. Myrdal (1898–1987) developed an institutional theory for overcoming economic backwardness. Swedish economists E. Heckscher (1879–1952) and B. Ohlin (1899–1979) revealed a correlation between national production costs with factor advantages of countries by explaining the principles that determine export production specialization of countries and serve as a basis for the theory of international division of labor. The development of socio-economic thought and practice was influenced by concepts of Swedish trade union leaders and social democrats. The developments of G. Rehn and R. Meidner still serve, though not indisputably, as a theoretical basis for regulating the labor market in a socially oriented market economy and are used in the concepts of the "welfare state" in Sweden and Finland. Labor resources have not

only the ability to obtain and analyze new information, but also the ability to acquire new competences, in other words – the self-education ability that enhances the creative nature of employment [10].

The government plays an important part in the process of creation and implementation of innovation. It consists in the formation of policies, programs and institutions that shape the goals, objectives, resources, and areas of innovation activities.

Innovation policies of the Nordic countries are based on government-controlled policy in the field of science. Most of the work in this direction is performed in Sweden by the Ministry of Education and Research jointly with the Ministry of Enterprise and Innovation, in Norway by the Ministry of Trade, Industry and Fisheries and the Ministry of Education and Research, and in Finland by the Ministry of Education and Culture and the Ministry of Economic Affairs and Employment.

The tradition of invention can be named as one of the reasons for the development of innovations in the Nordic countries. Their basic science and applied engineering made a significant contribution to the creation of technology that brings industrial society to a new stage of development.

The Nordic countries are world leaders by the UN Human Development Index [10], i.e. they have high indicators of development of higher and postgraduate education. According to the data for 2012, Norway and Denmark spend more than 4% of GDP on education, given an average global rate of about 3% (in Russia as well). However, despite the fact that the Arctic countries are paying serious attention to provide their circumpolar territories with qualified personnel, higher school in this region is developed unevenly. This can be explained, in particular, by the different degree of development of territorial and sectoral structure of the economy and infrastructure of the Northern territories [18].

In Sweden, with the government support (innovation systems management) focuses on the development of scientific-production centers and clusters. These include, for example, an innovative-technological cluster in Kista, an automotive cluster in the Gothenburg, the biotech cluster " resund" in the South of the country on the border with Denmark and in cooperation with its universities and enterprises. In these facilities, the governmental Triple Helix Model is formed. It is based on three high-tech development actors: the government, business and universities, which stimulate innovation that improves the quality of life and the state of the environment at the regional level. However, a risk of development of innovation system consists in the development of high-tech industries only in multinational companies (such as Ericsson, AstraZeneca, SKF, TETRAPACK, Volvo). The success of most companies in "old" industries (mining, food) is associated with the use of traditional technology. Commercialization

of research findings is characterized by insufficient development of stimulating tax policy in investment activities, which hinders the development of high-tech economic. However, Sweden and Finland are European leaders by the share of R&D expenditures in GDP [10].

In a comparative perspective we can point out that when executing the instructions of the President of Russia in 2012 the Government of the Russian Federation selected only the Arkhangelsk region among all the territories of the Russian Arctic and included the Arkhangelsk shipbuilding cluster in the federal list of innovative territorial clusters. The cluster is created on the basis of enterprises in Severodvinsk and includes the objects of federal and regional scientific and production infrastructure (engineering enterprises, institutions of higher and secondary professional education, centers for research, development and transfer of technology, centers for collective use of scientific equipment). The cluster specializes in designing and making the equipment for exploration and production of oil on the Arctic shelf (e.g., parts for the Prirazlomnaya offshore ice-resistant stationary platform and assemblies for floating nuclear power plants) and testing power devices used in marine shipbuilding and adapted to the arctic conditions (for example, electric podded azimuth thrusters AZIPOD for ice-class vessels).

Since 2016, the Arkhangelsk Oblast has been forming a timber industry innovation territorial cluster "PomorInnovaLes", which comprises more than 40 participants, including leaders of the lumbering and pulp and paper industry, as well as transportation and logistics, educational and research organizations. The purpose of the association of enterprises is to strengthen leadership in Russia on deep processing of wood and production of competitive products with high added value. The cluster includes, in particular, Arkhangelsk Pulp and Paper Mill, logging enterprises of the region, JSC Northern Shipping Company, JSC Arkhangelsk Sea Commercial Port, JSC Solombala Machine-Building Plant, OOO Arkhbiofarm, Northern Research Institute of Forestry, Northern (Arctic) Federal University named after M.V. Lomonosov, and others. In 2016 an agreement was signed between the companies of the cluster and the Natural Resources Institute Finland; the agreement reflects the need for joint work on sustainable use of forest resources in the Northern districts of the two countries. Priority is given to implementation of advanced technology in the forest inventory, road construction, landscape planning, cultivation of planting material with the best genetic characteristics to increase the social responsibility of business and development of bioeconomy. At the current stage of development of Russian clusters it is premature to analyze

their work; however, there is reason to expect improvements in the positions of the Russian Arctic regions in innovative development rankings. Formation of innovative regional clusters in Russia is stipulated by the Strategy for innovation development for the period up to 2020 and based on the international experience including that of the Nordic countries.

Strategic areas for development of innovation in Finland are determined by the Finnish Funding Agency for Technology and Innovation and by the Technical Research Centre of Finland in cooperation with the Academy of Sciences, with universities, and the business community. A specific feature of the national model for innovation support consists in the fact that it focuses on the development of infrastructure presented by research clusters under universities (e.g., the New Factory on the basis of Tampere universities). Against the background of competition with Asian and North American producers of electronics, Finland pays much attention to the development of R&D in information technology, telecommunications, electrical engineering (e.g. Nokia), which are currently the basis for the development of its economy.

In an innovative aspect, Norway differs from other countries of the Arctic region, because it focuses on exploitation of resources, around which the specialized areas of the high-tech sector of the national economy are formed. Innovation policy at the state level is formed by the Research Council of Norway, the company Innovation Norway, and the Industrial Development Corporation of Norway. The implementation of research projects and the use of differentiated taxation stimulate developments and their implementation by mineral developers, which reduces the cost of field development and contributes to the preservation of the environment. Research and investment are focused on providing safe deepwater drilling of oil and gas wells on the continental shelf, the development of monitoring systems of deposits of energy carriers. Success in these areas can stimulate the development of shipbuilding industry, clean technology, renewable energy, information and telecommunication technology. On the background of high development levels of human capital, markets for goods, labor and finance, Norway has relatively low levels of investment and development of related infrastructure [6]. This fact is often denoted as the Norwegian paradox, the essence of which consists in the following fact: economic performance is strong and incomes are high despite low innovativeness [17].

In Iceland, the innovation management system and related scientific research began to take shape after the financial crisis of 2008, when the government developed a plan to diversify the economy, involving, among other things, an increase in the share of manufacturing industries and the services sector in GDP. Currently, innovation policy

is developed by the Ministry of Education, Science and Culture, Ministry of Industries and Innovation and several other structures connected with universities and enterprises engaged in shipbuilding, alternative energy, fishery and biotechnology.

Over the last 20 years, due to the revision of its science and technology policy, Denmark has formed an institutional environment for innovative development. Currently, the Danish economy engages in vigorous creation and translation of new knowledge, application of venture capital and cooperation between economic agents. Innovation policy is managed by the Ministry of Higher Education and Science, the Agency for Education, Science and Innovation, the Danish National Research Foundation and others. The innovation strategy of Denmark (2015) declares the following key directions of innovation policy of the country: development of cooperation between business and research institutions, access to highly skilled labor force, development of technological services, and commercialization of research. At the state level, the research in the areas of alternative energy, transportation, environmental protection, improving the quality of urban environment, development of food industry, public health, information and communication technology is recognized as promising.

Thus, the purpose of the state innovation policy in the Nordic countries is to establish conditions conducive to the development of human potential to ensure sustainable and integrated socio-economic development of territories on the basis of accelerated transition to the balanced development of services and industries, creation of mechanisms providing support to scientific and technological progress, stimulation of existing clusters and creation of new ones.

The analysis of the experience of innovation development in the Nordic countries demonstrates national characteristics of their development and implementation that are due to a differentiated resource base: development strategies of these states, the structure of their economies, human capital, organization of science policy, intellectual resources, world trends in the development of markets for goods and services. Common features of innovation policy are as follows: promoting the development of knowledge-intensive industries, modernization of training and retraining systems, participation of education, science, public authorities and business in the development of infrastructure and promotion of research and development. This contributes to the early introduction of developments in production and their commercialization.

It should be particularly noted that the research approaches and findings concerning the Arctic region are used in determining the geopolitical aspirations and technological innovation policy of the Nordic countries. It provides breakthrough solutions with quick financial and organizational support,

thus the progress in research is achieved and its findings are quickly implemented into production [5].

In conclusion, we note that currently researchers and experts in various fields of science and practice are becoming more and more interested in the Arctic. The increased attention to the Arctic is connected with economic globalization, decreased production of mineral raw materials and fuel in the traditional areas, development of intercontinental transport routes, the need to ensure sustainable development in the vast regions and sea areas that have not been exploited previously. At the end of the 20th century and the beginning of the 21st century, the Arctic undergoes system and rapid transformation, which develop in conditions of lack of knowledge concerning their causes and consequences. An example can be found in climate change, which entails an unprecedented decrease in the seasonal minimal levels of sea ice, improvement of conditions for the exploration and exploitation of minerals, and clearing out the ice along transport routes [12].

The search for answers to the challenges of natural resource development in the Arctic zone is possible with the help of innovation policies when using the experience of neighboring circumpolar countries. The Nordic countries are world leaders in the development and application of innovative technology in all spheres of the economy and non-manufacturing sector. They top global innovation rankings. An important precondition of transition to an innovative type of development was the change in the paradigm of state economic policy in the early 1990s. This resulted in a gradual decline in the share of primary industries in GDP. As for international specialization, the Nordic countries shifted to the provision of services based on science-intensive technology and informatization. This is a qualitative difference between the vector of development of the Nordic countries and that of Russia. Studies show that the growth of industrial production in the Russian Arctic is facilitated mainly by extensive factors, such as increasing the volume of extraction of natural resources rather than the use of innovative technology [13]. Innovation policy in the constituent entities of the Arctic zone of the Russian Federation are developed, with rare exceptions, insufficiently and, as a consequence, Russia lags behind the Northern countries in innovative activity rankings, even though it is in similar geographical conditions.

The issue concerning the transfer of innovation activity experience of the Nordic countries to the Russian conditions cannot be solved unambiguously. On the one hand, it is important to consider similar geographical, climatic conditions and natural resource potential, population settlement, industrial and territorial economic system of the Northern regions of Europe and Russia. On the other hand, applying even the most

progressive foreign experience of economic development in another state is ineffective. It requires a deep study, taking into account national characteristics, knowledge of the quality and mentality of the local workforce, the institutional environment and regulatory framework that will undoubtedly vary in different countries.

A.N. Pilyasov considers the Arctic as a research laboratory, a territory of discoveries, a vast area for innovative search. He writes: "The Arctic zone of Russia is a major testing ground for the development of fundamental and applied research in various fields of knowledge... For this purpose, Arctic communities have numerous favorable conditions... Murmansk, the largest city in the Arctic, and other Russian Arctic cities can become intellectual platforms for a new economy based on knowledge and innovation" [7].

Today the status of the Arctic power is not given automatically, based only on specific geographic location. Priority efforts should be directed at research and innovation. Our country, relying on its own rich historical experience, using advanced technology of its neighboring circumpolar countries, is to radically upgrade the infrastructure, including science (especially in the sphere of offshore development and forecast of climate change), transport (especially land), housing and utilities sector. This may be achieved by using membership in international organizations, which provide opportunities for sharing economic experience in the high latitudes and competences of labor resources and participate in collaborative interdisciplinary research, development of academic and scientific mobility in the Northern universities, as well as creating conditions for attracting direct foreign investment. In the interests of development of the Russian Arctic territories it is necessary to give more attention, as is done in the neighboring countries, to the Arctic field of intelligent service. It covers economic activities, including polar hydrography, monitoring climate change and ice conditions, modernization and development of a network of ground and space satellite observations of climate and the condition of Arctic ecosystems. In such services around the world new jobs are created and scientific authority is earned, this service acts as a client and consumer of innovative research findings. We believe that it is most appropriate to synthesize advanced foreign experience and Russia accumulated knowledge in this very sphere.

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Gaining Efficiency of Public Administration – Key Objective for Modern Russia

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Abstract. The article proves that addressing the issues of socio-economic development of Russia, ensuring the population's high quality of life and national security is of particular importance. Analysis of domestic and foreign historical experience concludes that there are many factors which determine both the development of statehood and the decreasing public administration efficiency. Their consideration is extremely important for the reformation of public administration in modern Russia. We consider a series of technical approaches to assessing management effectiveness, which have established in the academic literature and practice, point to the drawbacks limiting their wider use. The present paper uses target and functional approaches which prove the inefficiency of public administration in the post-Soviet period, which led to the crisis in key sectors of the Russian economy, which is impossible to overcome without changing the government policy. Moreover, at the present stage, management is characterized by specific features reducing its efficiency; these include lack of coordination between the actions of authorities, contradictory management decisions made at different levels, lack of sound objective strategic planning and forecasting. In this regard, improving public administration based on the use of modern methods in order to improve its efficiency is becoming acute. In our view, an important

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role in this process belongs to the new industrial policy whose fundamental area includes stimulating the development of high value-added chains. The results of analysis demonstrate that the current level of integration of Russian economic entities lags behind the foreign levels, which is a factor limiting their competitiveness on world markets and their contribution to the socio-economic development of territories. We prove that the formation and development of integrated enterprises suggests the need to develop government policy which, with the help of stimulus measures should encourage enterprises to practice such integration. On the example of the Belgorod Oblast we demonstrate the efficiency of implementing project management in government activity; we prove that the activation of these processes requires a well-developed institutional and organizational environment.

Key words: public administration, public administration efficiency, development institutions, value added, vertical integration, project management, performance evaluation techniques.

Amid a series of acute socio-economic issues, the need to insure higher standard of living, quality of life, sustainable territories' development and national security, it is extremely important for modern Russia to address the issues of enhancing public administration efficiency. However, the current system of public administration, despite numerous attempts to reform it, still falls short of the set objectives and does not ensure full resolution of the growing number of issues. The scholars believe the causes of these issues are: conflicting philosophy of reforms and their instrumental organization, inefficient actions of the ruling elite in meeting the population's critical needs to improve their quality of life and ensure social justice; as well as officials' pursuit of own interests [6].

The destructive influence of these factors on public administration efficiency is evidenced by the world practice. In particular, the internal contradictions in the USA in the first half of the 19th century (between the agrarian bourgeois North and the slave-owning South), slave-owners' violent activities to impose their interests, inconsistent federal policy (the 1850 Kansas–Nebraska Act which ruined the previously established balance between the slave-owning and slave-free states), which, in fact, became the causes of the crisis of statehood and the coming of the Civil war in the country. Similar processes were observed in Japan in the 15th century: amid the weakening Central government, governors of japan provinces (shugo) began to take advantage of their power. These contradictions led to the beginning of a new epoch of feudal fragmentation – "the Sengoku period".

The officials' failure to address systemic economic issues resulting in the declining standard of living, lack of unity within political elites ultimately lead to a crisis

of statehood and aggravation of "social diseases" in the society (for example, the Nazis assumption of power in Germany in the 1930–s).

In light of this, the issues related to enhancing public administration efficiency in Russia are constantly raised by the country leaders. Thus, in 1999, Russian President Vladimir Putin in his election article, "Russia at the turn of millennium" pointed to the need to strengthen the role of the state, its institutions, civil society in economic modernization and the country's life in general [19]. In July 2016, during the meeting of the Presidential Council for Strategic Development and Priority Projects he reiterated that at the present stage "the most important thing is to improve the efficiency of managing both industries and the economy as a whole…with full responsibility personification for achievements or absence of results" [20]. In September 2016, Prime Minister Dmitry Medvedev at the Investment forum in Sochi said that "low efficiency of public administration system is one of the key factors hindering the country's development" [3].

These circumstances determine the relevance of the present study. The purpose for the study is to rationalize the need to develop priority directions for enhancing public administration efficiency using analysis of key trends in Russia's socio-economic development.

Despite countless research devoted to public administration efficiency, a unified approach to understanding the nature of public administration as a social institution has not yet been developed (*Tab. 1*).

In the narrow sense, public administration is equated with the activity of exclusively executive authorities. In the broader sense it is the activity of all government branches, government authorities and officials on regulation of social relations.

We maintain the broad approach, considering *public administration as practical, management and regulating influence of the state on public life in order to streamline, save or convert it based on the state's imperative power* [1].

Supporting the view of S.S. Sulakshin and A.V. Klimenkov that public administration should be considered as activity on the

Table 1. Approaches to interpretation of the nature of public administration

Approach	Outline
1. A broad approach	*Public administration* is direct *activity of all government branches,* government authorities and officials *on regulation of social relations*.
2. A narrow (administrative) approach	*Public administration* – activity of *executive authorities on practical use* of the public policy developed on the basis of appropriate procedures. It includes primarily *administrative, executive and management activity*.
Source: compiled by the author from [1, 4, 9].	

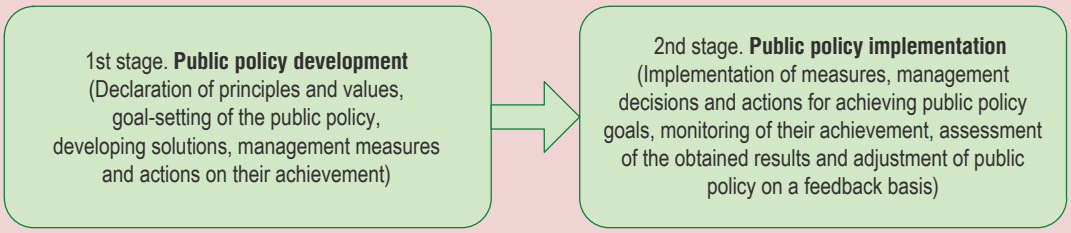
implementation of all management functions (goal-setting, planning, organization, motivation, control, etc.), it is possible to distinguish two basic stages of public administration: public policy development and its implementation (*Fig. 1*). In this regard, it is important to assess its efficiency at all stages of the management process.

In turn, critical analysis of economic literature on the subject suggests that the concept of "efficiency" is very polysemantic and there is no well-established definition. One can only refer to a certain uniform conceptual approach to its interpretation. Thus, in the work of D.S. Sin it is referred to as a complex phenomenon which includes the following components (*Fig. 2*).

Thus, efficiency is a complex, systematic and multi-component category which includes elements such as effectiveness, efficiency, innovation and quality transformations in the system as a result of management action.

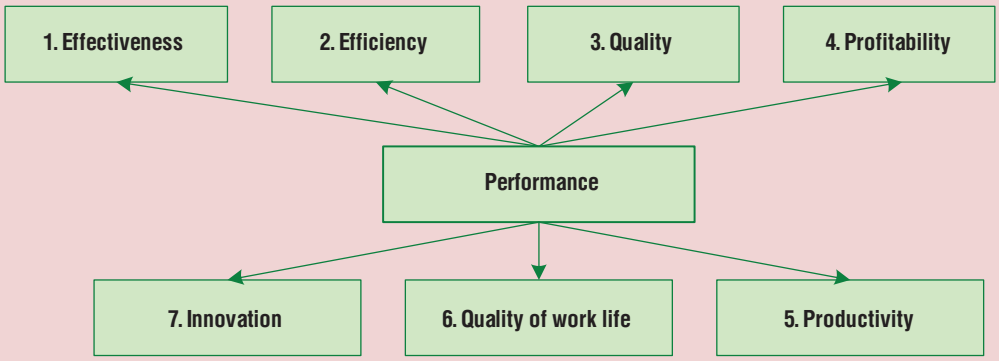
In this regard, *public administration efficiency is a system category reflecting the achievement of both economic and socio-political results of activities of government*

Figure 1. Stages of public administration



Source: compiled by the author from [8].

Figure 2. Main components of "efficiency"



Source: compiled by the author from [22].

authorities, which lie in resolving socially important objectives, ensuring the country's national security, raising the population's standard of living and the quality of life.

Critical analysis of domestic and foreign historical experience suggests that there is a number of factors which can lead both to growth, development and efficiency of public administration and to the fall of the statehood (*Tab. 2*).

Consideration of this historical experience is extremely important in reforming the system of public administration prevailing in contemporary Russia.

Table 2. Factors affecting public administration efficiency, statehood establishment, rise or fall at different stages of historical development

Development factors	Decline factors
1. *Political consolidation of forces under a single integrating leadership* (Ancient Egypt, end of 4th millennium BC; Ancient India, 2500–2000 BC; Kievan Rus, 14–15th centuries); *single religion* (Ancient China, second half of I Millennium BC). 2. *People's common identity* (Ancient Greece, 5–4th centuries BC); *inner harmony* (Ancient Rome, 2nd century AD; England under Henry I, 1100–1135); 3. *Elimination of external threats* (Ancient Egypt, end of 4th millennium BC); *strong army, expansion of country's territory* (Kievan Rus, 9–10th centuries.; Muscovy Russia under Ivan IV the Terrible, 1533–1584); 4. *Focus on internal unity, internal development, population's welfare* (Ancient Rome, 2nd century AD; Kievan Rus under Vladimir I, 980–1015 and Yaroslav the Wise, 1036–1054). 5. *Increasing role of the state in country's economy and governance* (reforms of Peter the Great, first half of the 18th century; Shuvalov's reforms, 1753; the USSR, 1930–1940). 6. *Adoption of various achievements and inventions* (Ancient Egypt, end of the 4th millennium BC; Ancient Sumer and the Akkadian Empire, around 7,000 years ago; Japan, around 500 BC); *change in the technological mode* (China in the 20th century). 7. *Development of legislation* (Ancient Babylon, around 1894–1595 BC); the USA in the second half of the 18th century – election of the first President and adoption of the Constitution). 8. *Active diplomacy* (Ancient Babylon, around 1894–1595 BC; Muscovy Russia in the 14–15th centuries). 9. *Development of economy, use of advantages of foreign trade* (Kievan Rus in the 10–1st half of the 11 century). 10. *Reforms, changes in the socio-economic and political life adequate to the demands of the time, use of best practice*s (Ancient China, second half of the 1st millennium BC, Zhanguo (Warring States); reforms of Alexander II of Russia 1855–1881).	1. Disunity, struggle between political forces (Ancient Egypt 11–6 centuries BC; Ancient Babylon, around 1894–1595 BC; the Russian Empire under Nicholas II, 1894–1917); *class and social contradictions* (Ancient China, last quarter of the 1st century BC; Ancient Greece, 5th century BC; the USA, the second half of the 19th century; Russia, 1990–s – beginning of the 20th century). 2. *Weakening of the Central government* (Ancient Egypt of the 11–6 centuries BC; the Russian Empire in the Time of Troubles (Smutnoye Vremya), 17th century; Japan, 15th century). 3. *Excessive social injustice, population's rebellion against the government* (Ancient Egypt of the 11–6th centuries BC; the Russian Empire under Michael Fyodorovich Romanov, 1613–1645; and Catherine the Great (1762–1796). 4. *Corruption* (Ancient Greece, 5th century BC), *lack of population's control over government's activity*. 5. Inconsistency and unclearly defined areas of reformation, failure to address key systemic issues of the country (reforms of Alexander I of Russia, 1801–1825, the USSR, 1970–s; modern Russia).
Source: compiled by the author.	

A whole set of international indices is currently used for assessing public administration efficiency at the national level (public administration integrated index, corruption perceptions index, index of economic freedom, global competitiveness index, reform quality and progress index, etc.) [5].

However, these techniques differ in some "narrow" aspects limiting their scope of practical use for assessing public administration efficiency, such as:

a) non-transparent subjective indices (data of various sources are used for their computation; most of these sources are in the public domain, which leads to non-reproducible calculations);

b) assessment of political processes taking pace in the country, rather than public administration efficiency itself;

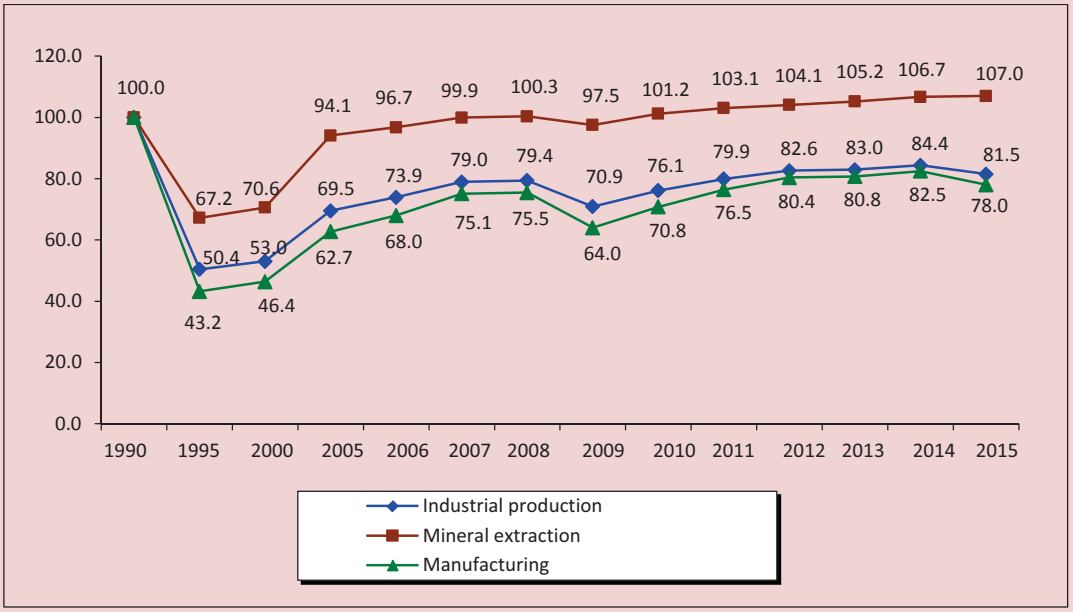
c) compression of a large amount of information into a single index, which prevents from identifying the specific causes of the country's particular assessment [23].

The Russian experience uses its own assessment techniques which were stated in President's Executive orders, RF Government resolutions[1] and other normative legal acts. The drawbacks of these techniques include a large number of indices and their incomplete coverage of the entire organizational management structure; use of indicators that cannot be directly attributed to the activities of a specific division of a government body and only reflect the development of a region as a whole (GRP, unemployment rate, etc.); absence of index hierarchy; non-balanced non-correlated indices; the problem of defining the threshold index values for establishing quality summary conclusions (good, satisfactory, unsatisfactory); uniform assessment of all regions according to the developed criteria [18].

Review of literature on the subject of our interest and current practice has helped distinguish two basic approaches to evaluating public administration efficiency: *target* (assessment of efficiency is carried out based on dynamics of progress towards target index values of socio-economic development; compliance with environmental and social development constraints; population's quality of life; effectiveness of projects and programs involving government authorities); and *functional* (assessment of efficiency is based on indices of performing basic management functions: system of target strategic planning and management; legislative, regulatory and methodological support; availability of informal institutions of market infrastructure; systems of training and qualification of government bodies employees) [4].

[1] See, for example: Decree of the President of the Russian Federation no. 1199 "On assessment of executive authorities activity efficiency of constituent entities of the Russian Federation", dated August 21, 2012; Government Decree no. 1142 "On measures on the implementation of the Decree of the President of the Russian Federation no. 1199 "On assessment of executive authorities activity efficiency of constituent entities of the Russian Federation", dated August 21, 2012", dated November 3, 2012.

Figure 3. Industrial production index in Russia, % to 1990



Source: data of the Federal State Statistics Service. Available at: www.gks.ru.

The present study of public administration efficiency is based on the target approach; however, it focuses both on quality implementation of main management functions and conditions for their implementation (i.e., functional approach).

Poor public administration in Russia in the post-Soviet period led to the situation where key economic sectors were affected by crisis phenomena, overcoming of which, in our view, was impossible without changing the public policy priorities. Thus, Russia has not yet been able to catch up with the early 1990–s index values in terms of volume of industrial production: in 2015, the index amounted to 82% of the 1990 level, in manufacturing – only 78% (*Fig. 3*).

Destructive phenomena in domestic industry, de-industrialization of economy is evidenced by a steady downward trend in the share of manufacturing in GRP, which amounts to 17% in Russian regions, 33% – in regions of China , 28% – in South Korea, 25% – in Indonesia [12].

A significant share of products refers to the lowest technological modes and are uncompetitive on world markets. Thus, the share of products from high-tech knowledge-intensive sectors in GRP[2] in the subjects

[2] Rosstat includes types of economic activity assigned to them according to international classifications in the list of high-tech industries (for example, pharmaceutics, manufacturing of radio, TV and communication equipment, medical equipment, measuring equipment, optical devices and equipment, clocks, aircrafts including space crafts).

Table 3. Share of products from high-tech knowledge-intensive industries in GRP in Russian regions

Territory	2005	2010	2012	2013	2015	2015 to 2005, percentage points
Russian Federation	**20.1**	**19.1**	**19.4**	**19.4**	**19.3**	**-0.8**
Central Federal district	*22.1*	*21.8*	*20.8*	*21.2*	*20.5*	*-1.6*
Northwestern Federal district	*23.1*	*22.7*	*23.1*	*23.3*	*24.4*	*1.3*
Republic of Karelia	18.4	17.4	18	18.1	18.3	-0.1
Komi Republic	13.2	10.3	10.7	12.2	13.1	-0.1
Arkhangelsk Oblast	18.8	16.9	16.9	18.4	18.9	0.1
Vologda Oblast	22.8	22.6	21.1	20.6	20.3	-2.5
Kaliningrad Oblast	22.6	22.4	23	25.6	26.4	3.8
Leningrad Oblast	14.3	13.7	12.2	12.2	13.5	-0.8
Murmansk Oblast	18.3	17.1	18.6	17.9	19.1	0.8
Novgorod Oblast	27.7	27.9	30.1	29.5	29.3	1.6
Pskov Oblast	24.1	23.1	23.2	23.4	21	-3.1
Saint Petersburg	28.8	29.6	30.9	30.2	31.7	2.9
Southern Federal district	*16.8*	*16.7*	*16.3*	*16.4*	*16.3*	*-0.5*
North Caucasian Federal district	*18.1*	*18.4*	*18.1*	*18.0*	*19.1*	*+1.0*
Volga Federal district	*23.1*	*23.3*	*22.8*	*23.2*	*23.2*	*+0.1*
Ural Federal district	*13.4*	*12.8*	*12.4*	*12.3*	*12.7*	*-0.7*
Siberia Federal district	*18.8*	*18.0*	*18.2*	*18.7*	*19.6*	*+0.8*
Far Eastern Federal district	*15.4*	*15.0*	*13.7*	*13.7*	*15.2*	*-0.2*

Source: data from Rosstat Unified Interdepartmental Statistical Information System. Available at: https://www.fedstat.ru/indicator/43525.

of the Russian Federation does not exceed 20–30%, whereas in the US, Japan, Germany, South Korea, and Taiwan this value amounts to approximately 40–50% [14] (*Tab. 3*).

The main products exported by Russia to world markets are mineral products. During 2000–2015, the share of mineral products in the exports structure continued to increase – from 53.8 to 71.3% (an increase of 17.5 p.p.), while the share of machinery and equipment decreased from 8.8 to 5.1% (3.7 p.p.)[3]. Thus, Russia remains a mineral mining power on global markets.

At the same time, other sectors of material production continue to accumulate endemic problems. In particular, in 2015, despite the measures of federal and regional authorities, the physical agriculture output did not exceed the level of 1990. The national average is only 95% of the level in the reference period. Among other territories, the largest decline is observed in the Far Eastern Federal district (by 43.5%; *Tab. 4*).

In 1990–2015, there was a steady trend in decreasing land areas under crops: on average,

[3] Share of engineering products in the total value of exports in Japan is around 65%, in the US and Germany – around 50%, in Sweden – 45%, in Canada – 42% [17].

Table 4. Index of agricultural production (in all types of households), % to 1990*

Territory	**1990**	1991	1998	2000	2005	2008	2009	2010	2011	2012	2013	2014	**2015**
Russian Federation	**100**	**95.5**	**55.1**	**60.7**	**68.1**	**80.2**	**81.4**	**72.2**	**88.8**	**84.5**	**89.4**	**92.5**	**95.3**
Central Federal district	***100***	*97.1*	*57.2*	*62.2*	*64.2*	*80.1*	*83.3*	*70.3*	*94.8*	*98.8*	*105*	*109.7*	***115.2***
Northwestern Federal district	***100***	*99.4*	*53.6*	*59.1*	*52.8*	*52.5*	*54.7*	*55.8*	*60.4*	*62.8*	*62.7*	*65.6*	***68.5***
Republic of Karelia	**100**	96.7	39.7	47.2	40.6	41.7	40.2	39.8	39.8	37.5	39.1	38.4	**37.9**
Komi Republic	**100**	104.9	68.3	68.3	57.1	58.2	56.6	58.4	63.6	64.5	61.2	60.7	**61.2**
Arkhangelsk Oblast	**100**	99.7	61.8	56.6	38.9	33.0	34.7	33.9	36.6	36.9	33.6	34.3	**29.2**
Vologda Oblast	**100**	96.8	64.1	72.3	61.1	57.7	56.3	52.1	57.6	54.8	51.1	50.2	**52.0**
Kaliningrad Oblast	**100**	100.0	46.4	48.1	47.8	53.7	59.0	59.1	59.2	62.3	64.8	71.2	**78.5**
Leningrad Oblast	**100**	98.8	49.3	59.7	61.8	64.0	66.9	68.7	74.7	80.7	83.7	85.8	**87.4**
Murmansk Oblast	***100***	92.3	32.2	37.0	26.6	32.6	32.9	32.1	32.7	32.7	26.8	22.2	**16.9**
Novgorod Oblast	***100***	98.7	53.2	57.5	53.6	50.7	59.7	75.1	88.1	92.5	84.1	93.6	**107.5**
Pskov Oblast	***100***	104.4	55.4	59.9	41.9	36.3	37.0	37.3	39.3	41.6	46.9	57.7	**66.5**
Southern Federal district	***100***	*88.0*	*42.0*	*50.8*	*70.1*	*90.7*	*83.6*	*82.9*	*93.9*	*85.1*	*89.0*	*93.6*	***95.0***
Volga Federal district	***100***	*99.3*	*64.5*	*70.1*	*77.0*	*89.2*	*89.0*	*65.8*	*92.3*	*86.5*	*90.2*	*94.0*	***95.4***
Ural Federal district	***100***	*94.4*	*56.3*	*61.3*	*69.3*	*75.5*	*78.9*	*71.1*	*88.8*	*75.8*	*82.1*	*82.0*	***84.9***
Siberia Federal district	***100***	*84.6*	*53.8*	*60.1*	*61.5*	*68.5*	*75.3*	*71.3*	*74.9*	*67.4*	*75.4*	*72.8*	***74.1***
Far Eastern Federal district	***100***	*93.7*	*47.2*	*43.8*	*44.6*	*49.2*	*50.7*	*51.7*	*55.6*	*54.1*	*48.6*	*58.2*	***56.5***

Source: compiled by the authors based on data from official website of Unified Interdepartmental Statistical Information System (EMISS). Available at: www.fedstat.ru. *Data on the North Caucasian Federal district are available only for 2011–2015, that is why they are not presented in the table.

they decreased by almost one third in Russia as a whole; in the Northwestern Federal district their decrease was even more rapid. Similar destructive phenomena were recorded in livestock breeding. Over the past 25 years the cattle population decreased by 2/3, in the regions the situation is even more pessimistic – the population declined 4–5 times.

Negative phenomena in domestic agriculture are one of the causes of current issues of rural areas. In most Russian regions since the early 1990-s the share of rural population has been rapidly declining. For example, in 1990–2015, it decreased by 20% in the Northwestern Federal district.

This suggests that without major policy changes the rural population in these territories will further be focused on migrating to cities with more favorable conditions for comfortable living (*Tab. 5*).

Table 5. Distribution of rural residents' responses to the question "Are You planning on permanently moving to the city on permanent residence in the next 2-3 years?", % of respondents

Variant	2010		2015		2015 to 2010, p.p.	
	All respondents	Including those aged 16–30	All respondents	Including those aged 16–30	All respondents	Including those aged 16–30
I will definitely move	6.8	14.0	14.0	26.6	**+7.2**	**+12.6**
I am thinking about moving	18.4	27.3	27.9	37.6	**+9.5**	**+10.3**
It is unlikely	26.0	26.8	27.2	18.9	+1.2	-7.9
No	48.8	31.9	30.9	16.9	-17.9	-15.0

Sources: Bondarenko L.V. Demograficheskaya situatsiya na sele i perspektivy razvitiya sel'skikh territorii [Demographic situation in the village and development prospects of rural areas]. *Ekonomika sel'skokhozyaistvennykh i pererabatyvayushchikh predpriyatii* [Economy of agricultural and processing enterprises], 2013, no. 3, pp. 53-57; Ushachev I.G. Strategicheskie podkhody k razvitiyu APK Rossii v kontekste mezhgosudarstvennoi integratsii [Strategic Approaches to Developing the AIC of Russia in the Context of the Interstate Integration]. *Ubidem*, 2015, no. 2, pp. 8-15.

In general, the business community as one of the "interest groups" admits that public administration in Russia is currently inefficient and does not meet the challenges our country is facing. An urgent objective is to enhance the role of the state, expanding the range of the applied tools. This in 2015 was pointed to by 59% of managers of industrial enterprises of the Vologda Oblast (*Tab. 6*)[4].

One of the key issues of public administration at the federal level is the inconsistency of government activities with the President's strategic policy. Thus, the Presidential Address to the Federal Assembly dated December 3, 2015 notes that one of the strategic goals of Russia's agriculture development is "by 2020 to fully provide internal market with domestic products...and become the world's largest supplier of healthy, organic, high quality food". At the same time, there has formed a regulatory institutional environment which fails to address this issue. The sector's enterprises, especially small businesses, try to avoid it just like before.

For example, according to the Order of Ministry of Transport of the Russian Federation no. 36 dated February 13, 2013, agricultural producers are required to install tachographs on goods vehicles beyond the region they are registered in. Statutory provisions of Federal Law no. 248 dated July 13, 2015 require manufacturers to receive special permits to transport oversized

[4] Since 1993, ISEDT RAS has conducted questionnaire survey of managers of industrial enterprises in the Vologda Oblast for identifying trends in the sector's development, assessing the efficiency and revealing the promising areas of improving public administration. Within the research, managers of iron and steel, lumber, engineering, food, chemical, consumer goods and construction enterprises are surveyed. The survey included: in 2016 – 68 managers, in 2014 – 67; in 2013 – 97; in 2012 – 95; in 2011 – 93; in 2010 – 85; in 2009 – 64; in 2008 – 57; in 2007 – 56 managers.

Table 6. Distribution of answers to the question "What role should the Russian state be playing in the economy in the next few years?", % of the total number of respondents

Assessment	Year					Change in 2015 to 2007, p.p.
	2007	2008	2010	2014	2015	
The state should strengthen its economic policy, expanding the range of applied tools	**43.6**	**44.6**	**41.2**	**45.5**	**58.8**	**+15.2**
The state must retain some influence on the country's economy but its role should be reduced	16.4	17.9	20	34.8	23.5	+7.1
The state should increase its direct participation in economy and intervene in economic policy	16.4	26.8	17.6	6.1	8.8	-7.6
The current degree of state involvement in the economy is optimal	3.6	8.9	5.9	0.0	7.4	+3.8
The state must withdraw from direct intervention in the economy and monitor compliance with the law of all economic actors	12.7	1.8	9.4	13.6	1.5	-11.2
Source: ISEDT RAS survey results among managers of industrial enterprises in the Vologda Oblast.						

equipment by regional and federal roads[5]. The permit is issued for 10 trips, valid during 3 months and costs 1,500 rubles. According to part 2 of Article 8.7 of the Code of administrative violations of the Russian Federation, Rosselkhoznadzor employees (Federal Service for Veterinary and Phytosanitary Surveillance) have a right to charge producers with penalties (up to 50,000 rubles) for poor soil fertilization. All this does not contribute to the industry development and revitalization of economic entities.

The decisions of the Russian Government often conflict with each other and with common sense. In particular, the objectives of sub-program no. 5 "Technical and technological modernization, innovative development" of the State agricultural development program in Russia approved by Government Decree of no. 1421, dated December 19, 2014, are "encouraging agricultural producers' purchase of high-tech machinery and equipment, increase in their innovation activity and expending the scale of industry development on an innovation basis". At the same time, Government Decree no. 81, dated February 6, 2016 "On the disposal fee for self-propelled vehicles and (or) trailers..." defines the penalty size higher than the final price for these products [24].

Similar policy is applied to other industries. In particular, in light of the sanctions imposed and the implementation of the import substitution policy the Government adopted "The Plan of priority

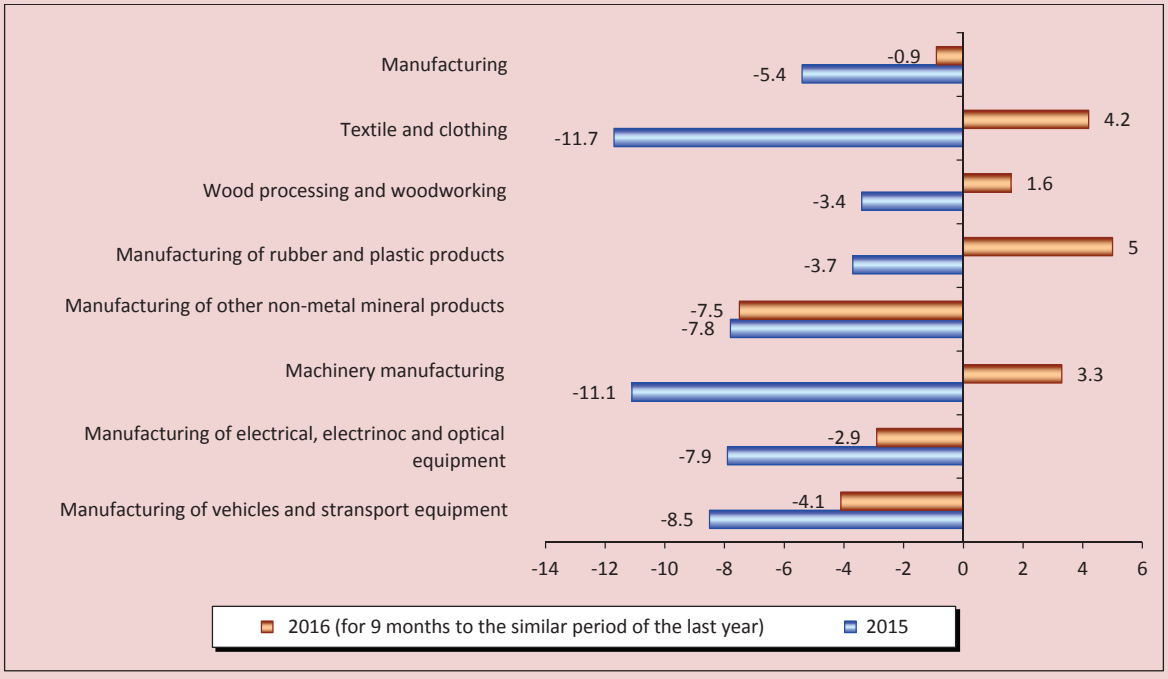
[5] Federal Law no. 248-FZ "On changes to Federal Law "On roads and road management in the Russia Federation and on changes to specific legislative acts of the Russian Federation" and specific legislative acts of the Russian Federation in terms of improving the standards controlling the movement of heavy vehicles, large vehicles and vehicles transporting dangerous goods", dated July 13, 2015.

measures to ensure sustainable economic development and social stability in 2015" (approved by Government Decree no. 98-p, dated January 27, 2015). But the anti-crisis plan was apparently aimed at "saving" the banking sector: for this purpose, about 1.7 trillion rubles was allocated, while only 4 billion rubles – on measures to provide import substitution and support non–resource exports, and 5 billion rubles – to support small and medium enterprises.

Over the years of implementing the country's import substitution policy (end of 2014–2016) production of strategically important products rose insignificantly and fell by a number of positions (*Fig. 4*).

It is possible to admit that the current state of public administration is characterized by lack of reasonable objective forecasting in when making strategic management decisions. Thus, the Ministry of Economic development of Russia during September–October 2016 adjusted the forecasting of Russia's socio-economic development in 2017–2018 3 times, considering the requirements of the Ministry of Finance and the Central Bank of the Russian Federation to the draft federal budget. Now the country's base development

Figure 4. Index of physical volume of industrial production by industry, % to the previous year



Source: compiled from Rosstat. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/industrial/#

Table 7. Forecasts of Russia's socio-economic development for 2016 and the planning period of 2017 and 2018 (base scenario)

Indices	2016	2017			2018		
	Evaluation	Forecast for September 16, 2016	for October 10, 2016	for October 17, 2016	for September 16, 2016	for October 10, 2016	for October 17, 2016
Urals oil price, dollars/ barrel	41	40	40	52	40	40	55
Inflation at the end f year, %	5.8	4.9	4	4	4.4	4	4
Dollar exchange rate,rubles	67.5	65.5	67.5	67.5	65	68.7	68.7
GDP, %	**-0.6**	**0.6**	**0.2**	**1.9**	**1.7**	**0.9**	**2.4**
Fixed investment, %	-3.7	0.3	-0.5	2.1	2.2	1.2	2.6
Real disposable income, %	-5.6	0.5	0.2	1.5	1	0.3	1.9
Real wage, %	0.3	0.6	0.4	2.9	1.9	1.2	3.1
Retail, %	-4.6	1.1	0.6	0.5	1.5	0.9	1.1
Industry, %	0.4	1.2	1.1	1.5	1.8	1.7	1.9
Exports, billion dollars	279	…	284	344	…	290	365
Imports, billion dollars	187	…	194	212	…	200	223
Current account, billion dollars	32	…	30	30	…	25	25
Unemployment, %	5.9	…	5.9	5.9	…	5.8	5.8

Source: Forecasts of Russia's socio-economic development for 2016 and the planning period of 2017 and 2018. Available at: http://economy.gov.ru/minec/about/structure/depMacro/20151026.; data from Ministry of Economic Development of Russia.

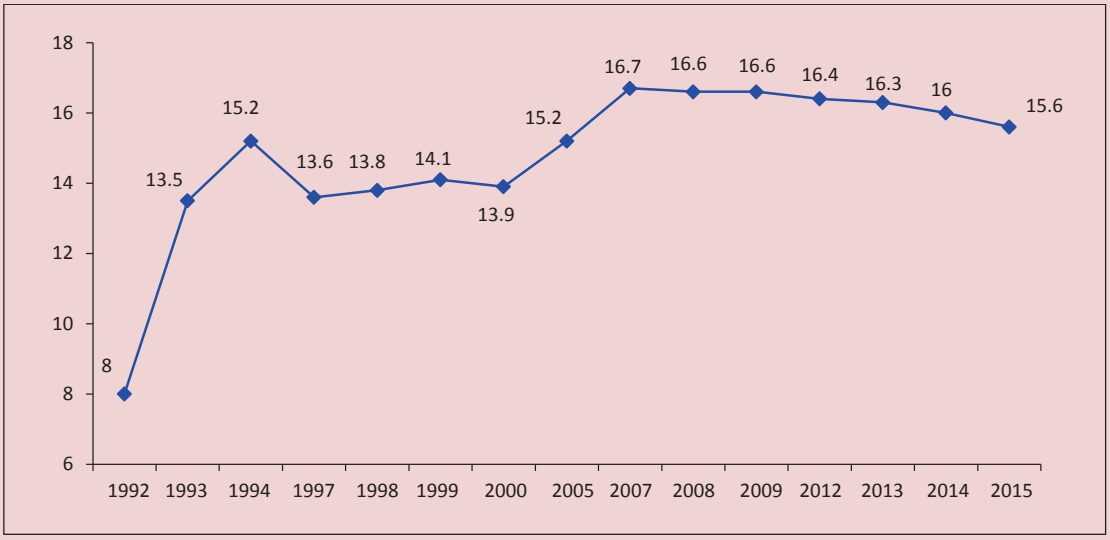
scenario implies GDP growth in 2017 by 1.9% (previous forecasts – by 0.2 and 0.6%; *Tab. 7*).

Against these processes in the economic sphere, enhancing crisis phenomena take place, as evidenced by the drop in real standard of living of Russians. The share of those who consider themselves middle class reduced to 51% in 2016 (10 percentage points compared to the figure in 2014). In absolute terms, 14 million people were "excluded" from the middle class[6].

Data from other studies are more pessimistic. For example, according to the research results of the Russian Presidential

[6] Source: Sberbank CIB Survey data on the third quarter of 2016, which is held among 2.3 million Russians aged 18–65 with an average income level in 164 cities with the population more than 100,000 people. These estimates were obtained based on how people identify themselves. Data are delivered quarterly and help trace the level of consumer confidence among middle class population.

Figure 5. R/P 10% ratio in the Russian Federation in 1992–2015



Academy of National Economy and Public Administration (RANEPA), the share of middle class population dropped by the end of 2015 from 20 to 15% in the total population[7].

Over the past 1.5 decades the gap between the incomes of the rich and the poor has been continuously growing. This is evidenced by dynamics of the R/P 10% ratio which indicates showing the ratio of the average income of the richest 10% to the poorest 10% (*Fig. 5*).

Thus, the country's public policy is unfortunately not aimed at the social.

Against this background, the declining public trust in state structures and social institutions is observed compared to estimates in 2015. This is evidenced by results of the study conducted by analytical center "Levada-Center" (*Tab. 8*).

According to the study, the credibility rating of the Russian government is the lowest over the past five years. In 2016, around one fourth of the respondents admitted that the Russian Government is "not credible". These data correlate with the results of the ISEDT RAS research.

Judging by the results of analysis, the priority activities in the field of improvement of public administration for enhancing its effectiveness are:

1) expanding direct government involvement in the development of territories,

[7] In this methodology, middle class population includes people who have at least 2 of 3 criteria: material wealth (income higher than the average wage in the region, savings enough for buying a car), professional qualities (higher education, affiliation to a group of specialists or entrepreneurs) and self-awareness (assessment of well-being, access to power and respect).

Table 8. Distribution of respondents' answers to the question: "To what extent are in your opinion the following institutions credible? (share of people who chose the variant "quite credible")

Government authorities and social institutions	Year					2016 to 2015, +/-	2016 to 2012, +/-
	2012	2013	2014	2015	2016		
Russian President	51	55	79	80	74	-6	+23
The Army	39	43	53	64	60	-4	+21
State Security services	33	36	46	50	46	-4	13
Russian Government	29	30	46	45	26	-19	-3
The Council of the Federation	21	24	39	40	24	-16	3
State Duma	20	25	37	40	22	-18	2
Police	20	18	21	29	24	-5	4
Prosecution Office	23	26	32	37	24	-13	1
Source: Institutional trust: press release. *Analytical center "Levada-Center"*, 2016, October 13.							

industries and complexes; improving the public policy in key areas of the socio-economic systems, developing knowledge economy (IT, biotechnology, genetic engineering);

2) increasing the availability of investment resources for enterprises implementing projects in modern economic sectors (6th technological mode) and in non-resource sectors by improving the monetary policy, recapitalization and increasing of the efficiency of development institutions;

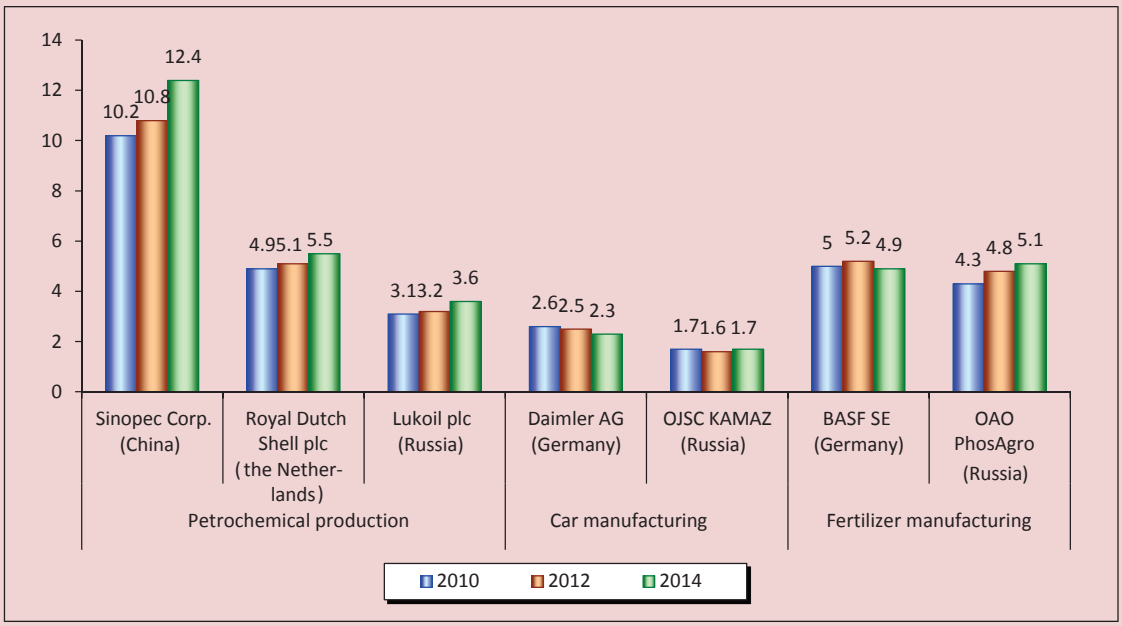
3) use of advanced methods of activity management in the public sector, new technology and best practices in implementation of state functions and provision of services (for example, implementation of the project management approach);

4) organization of effective interaction of authorities, business-structures and civil society institutions in achieving strategic objectives of public administration (establishment of a government structure under the President, which is endowed with special powers in the development and implementation of key reforms, which should include representatives of government, business and civil society; reducing the tax burden on new and dynamically developing industries, etc.);

5) transition to comprehensive assessment of legal acts at different levels, aimed at managing a particular field of activity;

6) improving the efficiency of interagency cooperation, cooperation of authorities at federal, regional and municipal levels (redistribution of tax revenue sources between different budget levels, reducing dependence of regional and local budgets on inter-budget transfers, etc.).

Figure 6. Value-added multiplier of foreign and domestic vertically integrated structures (VIS) in 2010–2014



Source: calculated by the author based on materials of companies' annual reports.

An important role in these processes belongs to the new industrial policy, the basic areas of which are: promotion of horizontal and vertical links, flexible organizational forms of high value added production chains; strengthening the role of national companies in the development of global value added chains [13].

However, the level of integration of Russian business entities lags behind the foreign level, as evidenced by the values of the value-added multiplier[8] (*Fig. 6*).

It should be noted that the average value of the multiplier in the Russian economy is significantly lower than in that in the developed countries: around 1.3–1.5 (according to calculations of S.S. Gubanov and other researchers) against 12.8 in the USA and 11–13 units in other developed countries [25].

These data indicate that the main process chains in the Russian economy are destroyed, and it is currently based on a large number of fragmented business entities within one enterprise manufacturing products of only few processing stages. The volume of Russian high-tech production with high added value is limited, it is uncompetitive on world markets

[8] Value-added multiplier – ratio of total weight of commodities manufactured by an enterprise to the value of primary raw material resources involved in economic turnover. It characterizes the depth of technological processing at an enterprise and the manufactured products from the point of view of value added.

compared to products of multinational companies manufacturing similar products.

Therefore, it is important for the government authorities to promote transformational changes in the economy through elimination of fragmentation, as well as restore technological chains of value added in priority sectors, since only in this case will it be possible to ensure industry's real re-equipment and neo-industrialization through innovation.

Formation and development of vertically integrated companies suggests the need to develop public policy which through economic incentives would encourage enterprises to create integrated economic entities.

The main methods of forming integrated structures, identified based on researching foreign experience (France, Italy, Germany, the USA, the UK, China, Japan, South Korea), include state purchasing of companies' controlling stake, financial instruments (state-owned banks control enterprises through financial mechanisms encouraging them to unite), state regulation (integration of industries and enterprises in groups), strict government regulation of competition (regulation, forcing the companies to merge or leave the market), etc.

In other words, the process of VIS formation and development should be supported by the authorities (primarily federal and regional) for creating favorable conditions for enhancing the efficiency of using the resource potential of business entities. In general, management of integration processes involves a wide use of methods and forms of target strategic management which considers all the actors involved in the VIS formation as a single entity with a common objective of functioning.

The need to modernize and shift the national economy to innovative development, as well as address the whole complex of issues of territories' development necessitates the enhancement of public administration efficiency through improving the system of management process organization in the public sector. Foreign experience indicates that the solution of these problems lies in the implementation of the project management approach in activities of the authorities.

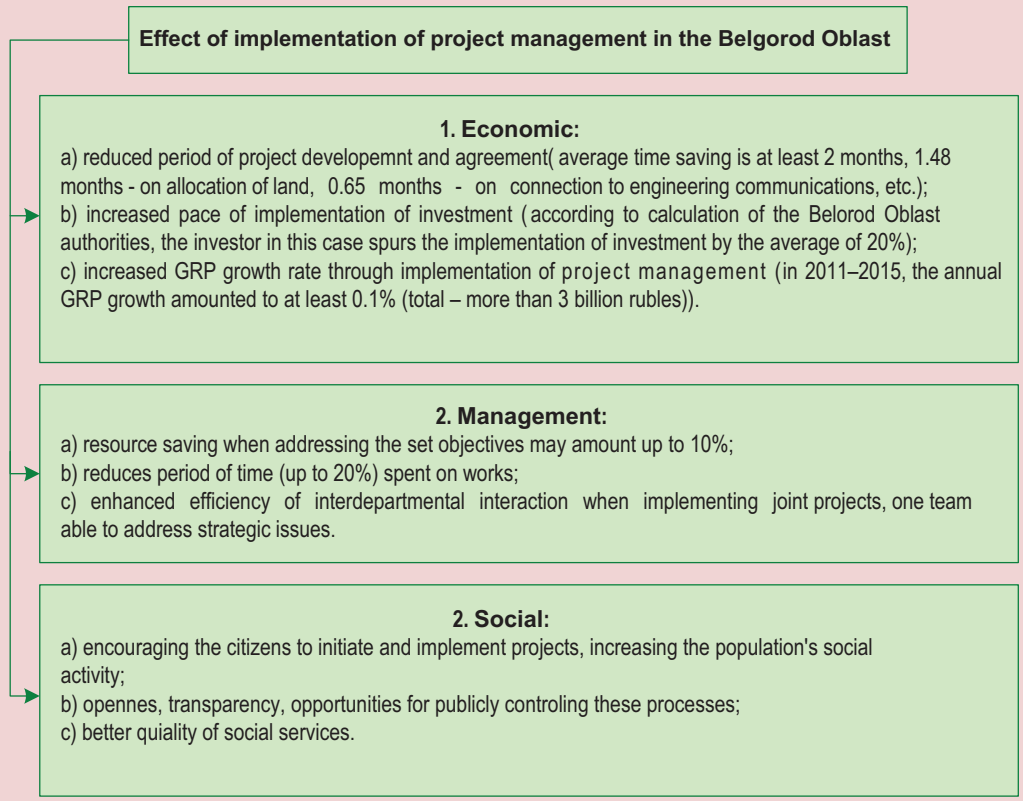
One of constituent entities of the Russian Federation where the practice of project management has greatly developed is the Belgorod Oblast. The introduction of project management in the region's government has caused a series of effects in the entire regional socio-economic system (*Fig. 7*).

The study of institutional legal and organizational support has helped recognize that the factors in such success of the Belgorod Oblast are:

1. High level of support from higher officials of the subject (Governor of the region).

2. Designation of a governing institution responsible for the implementation of project management.

Figure 7. Effect of implementation of project management in the Belgorod Oblast



Source: compiled from [15, 21].

3. Inclusion of all region's state and municipal authorities into a common framework.

4. Professional retraining of authorities.

5. Creating the environment for evaluation and selection of projects for implementation (expert commissions for their review, independent expert support).

6. Building a system of administration "from project implementer to chief authority".

7. Formalization of project management (project documentation, roles, processes, standard procedures).

8. Technological support for project activity (automated information system (AIS)).

9. Incentive policy aimed at employees' participation in projects and their successful completion. It is based on material stimulation financial incentives for government employees who successfully

completed their project, in the form of a project bonus fund in the region, with its assignment of ranks in project management (e.g., 1–4 rank project specialist who is a member of the project team, 1–4 rank project manager who is the project coordinator) [21].

Thus, when providing favorable conditions, project management can become one of development tools for effectively managing state programs, projects whose key implementation problem is low efficiency amid enormous budget expenditures. However, achieving such positive outcomes requires a well-developed institutional and legal environment at both federal and regional level.

The study suggests that, in general, the current public policy and public administration at practically all levels is inefficient, i.e. it fails to timely and fully address the country's internal socio-economic issues related to an increase in the population's quality of life and standard of living, solving socially objectives, facing Russia's challenges, ensuring national security in the changing geopolitical and geo-economic conditions.

In our view, it is impossible to overcome crisis phenomena in the economy without changing the priorities of the public policy in key economic sectors. The government should move to the policy of an active actor in the country's economy. In this case, public administration should be aimed at the development of the real sector of economy, implementation of projects on country's development and economic diversification, modernization of its key sectors, manufacturing products with high value added competitive on global markets. The main indicator of public administration efficiency should be the population's quality of life and standard of living, dynamic economy able to facie current challenges.

In this regard, scientific community is facing a number of issues whose successful solution will help provide recommendations on enhancing public administration efficiency.

They are as follows:

a) study of issues of territories' (countries', regions') management efficiency in the current and changing global geopolitical and geo-economic conditions;

b) study of opportunities, conditions and mechanisms of applying modern management methods (project management, benchmarking, crowd-sourcing, BPR (Business Process re-engineering), SMART technology, PPP (public-private partnership), etc.);

c) development of methodological techniques for assessing the effectiveness of public and municipal administration, state policy in various fields (including the use of economic-mathematical methods);

d) research into issues of enhancing the efficiency of strategic planning and management of socio-economic systems;

e) development of areas of improving public state policy in local self-government in Russia;

f) research into enhancing effective interaction of authorities, business-structures and civil society institutions for achieving strategic objectives of public administration.

In this case, it is important to develop the system of public administration efficiency monitoring of territories and industries based on the approved methodology and indicators which will ensure timely identification of the existing problems and develop scientifically substantiated proposals on enhancing public administration efficiency in Russia.

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Specific Features of Human Potential Development of a New Generation in Russia*

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Abstract: The article on the basis of comparative analysis of terms such as human capital and human potential chooses the latter as one reflecting the specific features of the state and development of the society and an individual most completely. With this in mind, the author identifies the priorities of a new generation in the process of perception and transmission of socio-cultural and science and technology achievements of the previous generations, as well as evaluates the moral state of the society. The author also shows specific features of the communication process amid present conditions and their impact on young people's human potential. The article assesses the role of ideology in social stability and favorable state of human potential. Education and upbringing are compared as complementary elements in the system of shaping a new generation. The author considers in most general terms some specific features of a crisis situation in our country and gives a descriptive definition of a justice crisis as its component. He substantiates the thesis that the present crisis state of science, education and healthcare is the result of their inconsistent and inadequate reformation. The article contains a number of propositions for building up human potential of a new generation.

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Key words: human capital, human potential, generation, economy, social stability, crisis, education, upbringing, science, healthcare, ideology, religion, justice, morality, culture, reforms.

Due to its ambiguity, the concept of generation is undoubtedly one of the main sense-making concepts in the conceptual framework of a number of fundamental and applied sciences: from biology and history, social and national psychology to conflictology, pedagogy, literature studies, cultural studies and many other disciplines. It is impossible to imagine everyday communication without this concept, even if it is not explicit, when we are talking about the change of epochs, patterns, traditions and ways of life, values, etc.

The figurative mechanistic representation of a generation as a link of a continuous historical (evolutionary) chain. The chain in which there are no identical links.

In the work "The German Ideology", K. Marx and F. Engels stated: "History is nothing but the succession of the separate generations, each of which exploits the materials, the capital funds, the productive forces handed down to it by all preceding generations, and thus, on the one hand, continues the traditional activity in completely changed circumstances and, on the other, modifies the old circumstances with a completely changed activity" (1, 29). Understanding culture as "super-nature", i.e. everything human-made, the author argues that the main in the relations between previous and subsequent generations is the dialectical unity of cultural value preservation and transfer with the creation of qualitatively new values.

At the same time, since the human community is an extremely complex historical-cultural and socio-biological phenomenon influenced by an indefinitely large number of multidirectional endogenous and exogenous factors, its historical development is non-linear, the resultant vector at each stage has a complex configuration. The choice of a non-linear model of the historical process as one of the elements of theoretical substantiation of the declared topic is the author's position which helps adequately comprehend what forms the socio-cultural state of the society can take in the changing historical conditions.

The non-linear model implies that the society represented at each successive historical stage of development by new generations can evolve either progressively, or regressively, with its individual social organisms being able stagnate and degrade. New generations are the least resistant to socio-psychological, economic and other deviations. It is obvious that in the social life of young people being at the very stage

of its formation and, therefore, most acutely perceiving social changes, there are predominant elements of non-conformist psychology in various forms. Hence, along with periods of constructive enthusiasm and positive social changes with young people's participation, periods of stagnation also take place, there emerge "lost" generations, "outsider people", times of spontaneous protests and activity of various young people's mass radical movements and organizations with relevant ideological attitudes.

Young people's critical attitude to the legacy left by previous generations, is dialectical, it is necessary and desirable to the extent that it stimulates the creative trend in using this legacy in the "changed conditions" of being on the way to progress. At the same time, both absolute denial of the legacy and radical rejection of "continuing legacy activities", as well as active obstruction of transfer of cultural values developed by previous generations to other social organisms can lead to cultural destruction.

The author points the great importance of perceiving by the new generations of cultural and material values, research and educational findings, legal principles and attitudes, i.e. everything that ensures full and safe physical existence; the most important, however, is inheritance and transmission of moral, ethical and spiritual values. It has at all times been the purpose and the meaning of life and work of philosophers and educators, spiritual leaders, preachers and teachers. And, at all times, their activity, which created new doctrines, dogmas, religion, etc., was either treated with misunderstanding and rejection, or, which is worse, was persecuted followed by physical destruction by the dominant society following conservative ideas and beliefs.

In this case, both individual doctrines and ideas and their combinations were denied. In different countries, during the periods of rule of a particular national religion, adherents of heresies, schisms, dissents, etc. were prosecuted; in the early modern period, however, ideological struggle took place within and between secular states. According to official statements, a number of these states managed to fight it by abolishing the national ideology. In other words, the ideas remained, but non-unified by an ideology.

Experience shows that, no matter how active the denial of an ideology was and even its legal prohibition as a "system of views and ideas which characterizes a particular social group, class, political party, society" (7, 236), its intensity, including time, spread far beyond individual countries and eras; the basic principles turned it not only into a national, but into a global phenomenon. Although ideologies varied in form and content from country to country and from epoch to epoch,

their essence was and still is integrated, characterized by a phrase from the Gospel: "Quo vadis, Domine?"

The answer to the question about the meaning and value of life of an individual and the humanity, about whether the methods of their gaining and direction to a target are chosen correctly represent an ideology inherent, with some differences, in any social group or humanity as a whole. It is obvious that, no matter how varied in time is the idea of what may be the answer to this question and to what extent are its changing and contradictory postulates that previously seemed transient and unchanging, the ideology, regardless of its official status was, is and will remain one of the main *factors in human formation*.

This thesis is one of the main elements of the author's attitude; and, given the ambiguous attitude of the Russian society to the issue of ideology and its values, in the present study attempts to define their role in the formation of "human potential" of the current new generation. Based on preliminary understanding of the stated problem, the author considers the concept of human potential expansion in most general terms as a *set of properties, qualities and abilities acquired in the process of evolution of a human as a "Homo sapiens" who creates super-nature culture and for this reason is the main factor in the development of both individual and human society as a whole* (author).

Arguments in favor of this option are set by comparing it with the already existing definitions of human potential with subsequent conclusions. Without going into detail in terms of consideration of conceptual framework formation and use, the author adheres to the thesis set forth in one of the modern works close to the stated topic of the current study, which contains universal statements: "Lax and inadequate definitions not only distort the basic meaning and essential characteristics, ... but also significantly complicate the interpretation and productive use of both" (5, 410).

Scientific, popular-scientific and journalistic writings often contain the phrase "human potential", which gives an impression of its conceptual certainty, while this certainty seems to be all relative, first of all, due to the fact that "human potential" is often considered synonymous to "human capital" which has long been used in the conceptual framework of economics. This is to a great extent due to prevalence of phrases such as "labor potential", "production capacity" etc., which give the impression of synonymic concepts to human capital and human potential because of their overall economic determinism. Against this background, lack of an adequate definition to *human potential*

itself is notable, as well as predominance of scientific works of its various descriptive variants.

For example, the modern "New economic encyclopedia" (2011) gives the following definition: "Human capital – evaluation of an individual's *potential ability* (highlighted by the author) to generate income. Human capital includes innate abilities, as well as education and acquired skills which enhance productivity. It usually implies the value created as a result of costs of training, education and healthcare" (6, 259). It is easy to notice that along with the economic determinant, this definition reveals the essence of human potential through an individual's potential, *which most likely means there is interdependence, rather than synonimity*.

Over time, according to the changing technological paradigms and socio-political transformations in different countries, in global economy, the number of objects of human capital increased significantly: high technology, innovation, new sources of energy – in industrial manufacturing; occupational safety, healthcare, corporate responsibility, etc. – in the social sphere. The content of the concept has changed significantly, which, however, remained within its functionality. This can be judged by the above presented modern definition of human capital.

The current situation is explained by non-sufficient elaboration of the conceptual framework; the statement *about the ratio of human potential and human capital as the general and the specific* is the most appropriate. In one form or another, this is confirmed in various publications on the subject. Fundamentally important is the recognition that human capital is an important, but not the only form of human potential, including both in the organization and functioning of the economy.

To confirm this thesis, it is appropriate to quote modern researchers who study the problem under review. One of the leading researchers in this area I.V. Soboleva, Doctor of Economics (RAS Institute of Economics), in her monograph "Human potential of the Russian economy: issues of preservation and development" (12) notes that focusing the research on the role of a human as a producer, on labor potential damages the economic analysis of the role of needs and consumption, concludes that "employment potential is only one of the subsystems of a bigger category – human potential. The statistical aspect of the differences between labor potential and human potential lies in the fact that the carriers of the former are only able-bodied citizens, while those of the latter – the entire population of the country, including those beyond the working age... The concept of

human potential views the population with all richness of its abilities, knowledge, skills, personal characteristics regardless of the extent to which they use or may use them in their productive activity. From this point of view, even when analyzing the working population it is possible to distinguish between its labor and human potential" (12, 12).

Keeping the previously formulated author's definition of human potential, it is also imperative to quote the definition from the monograph: "*Human potential of the economy can be characterized as a supply of physical and moral health, common cultural and professional competences, creative, entrepreneurial and civic activity accumulated by the population and implemented in various fields, as well as in the level and structure of needs"*. There is also an aphoristic conclusion: "If labor potential at an individual level corresponds to labor force, then human potential coincides with an individual. Of course, the boundary between the concepts "labor force" and "individual" is very flexible" (ibid.). It is easy to note that, maintaining economic determinism outward ("human potential of the economy"), the definition and the conclusion quite logically move the concept of labor potential to *the subsystem of human potential*, extending to sociological, psychological and philosophical categories. The monograph provides a list of specific scientific disciplines (except economics) with human potential as a research subject. These include psychology, medicine, ergonomics, social and historical anthropology, bioethics, social genetics, ethnography. However, it appears that this list is not complete due to the variety of categories covered by the concept of human potential.

E. Kotyrlo, a researcher from Ume University (Sweden), when identifying the difference between human capital and human potential in the fact that "the former is involved in production process, and the latter *may be* involved", emphasizes that "human potential has no age limits, health restrictions, but the age and sex structure, as well as the health condition of the society, measured through life expectancy are important indicators to make international, inter-regional and inter-area comparisons" (10.6.2011).

The reference in this quote to the fact that a number of indicators of human potential are essential for conducting international studies, is of significant practical importance for matching domestic techniques, practices and results of interdisciplinary research with the global ones, since the expanded understanding of human potential, which becomes more institutionalized in domestic conceptual framework, to a greater extent corresponds to the one generally accepted

concept of *opportunity* (capability) *for developing human abilities*. The concept of human ability development developed by the Nobel prize winner in Economics in 1998, Amartya Sen, became the basis for the proposed appropriate measurement technique – Human Development Index (HDI). This technique has been used since the early 1990–s in the development of the UN development programs and serves as one of the main instruments, including international studies.

To confirm the validity of the proposed variants of defining human potential and the relevant theses from works of various authors, the author gives an example of education as a sphere of social activity, in which economy itself is one of the main objects, but not the only one. Almost every able-bodied individual is aware by their own experience that education, especially special and professional, is necessary and required when determining their opportunities in full realization of their economic potential, i.e., gaining income. At the same time, education, both general and special, is often, according to the preferences and intentions of the recipient, able to be converted into revenues, but only indirectly or by giving them non-economic dividends in the form of personal improvement, their satisfaction with fullness, harmony and the meaning of life, successful socialization, etc.

As a rule, only partly is the economic element present in the implementation of the acquired systemic knowledge and creative skills in culture and art, sports, liberal arts, some sectors of fundamental research, the results of which can either become cost-competitive only in the vaguely distant future or not. The list goes on.

During the process of personal formation and development, which can be described in detail by human potential, the most important role belongs to education – the sphere of social activity closest to the human where an individual can, depending on life situations, serve as both object and subject of the influence of the social environment. The focus on the same object with the same objectives helps consider *education and upbringing as a unified system* in which education is the most systematically organized, institutionalized and respectively functioning part. Therefore, it is education, both special and professional, that can be capitalized (or not, see above). At the same time, education, having both formal and informal, infinitely variable ways and means of influence on the personality, plays a dominant role in generating, *first of all*, moral and ethical components of human potential.

The driving forces, the nature, the starting, intermediate and final states, formal and creative approaches, legal rules and traditions, freedom and moral constraints – all this and much more related to education, was and

remains an indefinitely large set of problems for humanology. In the present work, it seems sufficient to note that upbringing as a society-forming phenomenon manifests itself in all social strata and structures: family, formal and informal, temporary and sustainable associations, in manufacturing, civil and military service, in political, educational, humanitarian and other actions, in the media, religious and cultural institutions, etc.

The formation of sustainable ideas about morals, morality, ethics of interpersonal relations, which has been noted above, being a necessary and mandatory condition for maintaining social stability, is not always perceived as such in business relations nowadays. For example, a popular expression "It is business, nothing personal" has long been used by people an excuse for their selfishness and excessive pragmatism. In time, in public life, especially in business relations, mutual respect, the sense of justice, conscientiousness and ability to support those who need help become less important and are replaced by unscrupulous business acumen, attitudes and recommendations: "the end justifies the means", "it is your problem", etc.

These and similar attitudes and recommendations are the result of morality-free written and unwritten laws regulating economic relations. It is appropriate to refer to Marx's words used in his "Capital", which belong to an English publicist of the beginning of the 19th century T. Dunning that at a 100% profit, capital violates all human laws, at 300% – it is able to commit any crime even under threat of being sent to the gallows. In a mild form this statement correlates with the definition of "profit" given in Wikipedia. Part of it says: : "The amount of profit characterizes the success of entrepreneurship, *gaining profit is usually the main purpose and motive of all types of entrepreneurship"* (highlighted by the author). Apparently, doing business according to the aforementioned laws is implied "by default", and, unfortunately, modern business practice confirms the willingness and ability of capital, just like 200 years ago, to do anything for gaining maximum profits.

In the past decades, Russia experienced fundamental changes both in the structure of social production, and, which is perhaps more important, in new generation's motivation to participate in it. That is, fundamental changes in the structure of human potential as the most common characteristic of this generation took place. The mechanism of preserving and transmitting cultural values accumulated by previous generations is clearly broken. This statement may contain some signs of idealization of the recent past and nostalgic reasons, but even taking into account their possible presence, it is impossible not to

agree that the current set of developed values intended for transferring to the next generation is quantitatively and qualitatively inferior to what has been accumulated by the end of the 20th century and lost in subsequent years.

There is no point in listing the lost ground in science, underdeveloped modern technology and education, etc. To assess the prospects of the current state and future development of the nation and state, it is particularly important to promote socio-psychological transformations which can, amid current trends, lead to loss of identity of the population as a community. We are talking about the change in conceptual attitudes: *from permanent expanded reproduction of all types of benefits in the interests of all people to unlimited consumption of these goods by an insignificant part of population.*

Social and national psyche of the new generation are formed amid double social consciousness generated by the growing contradictions between the formally declared democratic principles, including statutory (a human is a supreme value, equality before the law, people are the only source of power, land and natural resources – are the basis for people's activities, etc.), and everyday life realities. In general, there is sufficient evidence to suggest that Russia constitutionally defined as a social state is quickly and consistently acquiring the features of a class state.

The abolition of any state or obligatory ideology pursuing a seemingly good purpose of expanding individual freedom was declared and rapidly carried out in a country where more than one generation lived amid command-and-control system and still retained survivals from the particular social psyche. One of traditional moderators of social relations, which previously ensured social unity and represented, although a significantly weakened, but one of the state bonds, ceased to exist in the absence of any adequate replacement.

It is hardly eligible to fully replace it with religion despite the state-supported revitalization of the country's recognized traditional religions. Religion is not capable to fill in the ideological gap primarily due to the secular nature of the state, as well as due to the fact that the Church lacks the necessary moral capacity to rise above antagonistic social contradictions and try to unite the society against the deepening crisis of justice.

The crisis of justice is no longer a clich ; it requires profound scientific analysis with a subsequent set of socio-economic and political measures at the state level to describe the current state of the country and society. V.V. Lokosov, Director of RAS Institute of Socio-Economic Studies of Population in one of his interviews said: "For the state to function normally, it is necessary that the difference between the average incomes of

the richest 10% to the poorest 10% do not exceed 8–10 times. According to Rosstat, the national average is 16. According to various expert estimates – from 25 to 40 times. For comparison: in the USSR, the gap was 4–4.5 times" (Moskovskii Komsomolets, 6.10.2016). As follows from the interview, "paid services in healthcare reached 48% (a few years ago – 20%). In higher education – 60%" ("Argumenty Nedeli", 6.10.2016). Naturally, the social nature of the state, its constitutional freedoms, etc. in this economic scenario are purely declarative; legitimacy is not ensured properly amid corruption which has spread on an unprecedented scale in all government institutions including law enforcement.

Human potential of a new generation is formed amid social and psychological dualism, as major government institutions designed to ensure and develop the positive focus and content of this potential are unable to appropriately address these issues. We are talking about "non-elite" systems of healthcare and education focused on ensuring physical and moral welfare of the majority of the population of our country. People working in these areas do everything they can to maintain good physical and mental health of the people and "preach the reasonable, the kind, the eternal", but under the current circumstances they first of all have to make the utmost efforts to physically survive. "Optimization" of these systems accompanied by the fast-growing paid services amid proportional decline in incomes has led to a reduction in the number of relevant institutions and, as a consequence, in the number of doctors and teachers. The reforms do not reduce the pace.

In July 2016, a great public outcry was provoked by a unmotivated statement of Deputy Prime Minister O. Golodets that two-thirds of the Russian population do not require higher education. And this is despite the fact that the number of experts with higher education employed in modern manufacturing is lower in Russia than in most developed countries, the share of modern domestic high-tech products in world exports is less than one percent. Without going in detail, the author notes the apparent discrepancy between these proposals and the next steps for their implementation with the global trend to increase the level of training and education of workers employed in high-tech industries, as well as the apparent contradiction with the focus on innovative breakthrough development of modern national industry and development "knowledge-based economy" in Russia.

The reaction of the public to the statement of Deputy Prime Minister was mostly protest, but at the same time, the stated ideas had their supporters. There have even been attempts to explain to the public the meaning of the

statement. Here is an example feedback to the statement: "Nowadays young people, as Olga Golodets is trying to explain, need "education for life". No matter what we call it, higher of would-be higher, it must help an individual not just fully realize their potential, but also feed them and their family and, ultimately, the whole country. This includes further education or self-education" ("Nezavisimaya gazeta", App. 20.07.2016). Consequently, education in this context primarily seeks to "fully realize one's potential", while ensuring "individual's development" has at all times been and still remains the main purpose of education – one of the most important functions of the state and society.

The above represents only one of a number of phenomena accompanying the long-term reformation of the Russian education, the sheer crudity and inconsistency of which, along with technological and economic costs cause inestimable damage to human potential of the new Russian generation and, consequently, to the future of the country.

Even more dramatic than the current situation in healthcare and education are the results of the reformation of the Russian Academy of Sciences, which, as it is now recognized not only by scientists, has led to the collapse of Russia's oldest scientific and educational institution, one of its state-constituting structures. (The present paper does not cover the complex history of the RAS reformation which is covered in the book "The Killing of RAS" by a famous writer V.S. Gubarev). According to the stated topic, it seems sufficient to note that this "reformation" has caused and is still causing considerable damage to the country's research and creative potential.

One of the main results of the "reformation" is that the already substantial outflow of young scientists abroad has increased significantly. In search of social recognition of their abilities, self-realization, decent living and working conditions most talented and enterprising young Russian scientists went abroad and successfully work there not for the benefit of the Russian science. Amid anti-Russian sanctions unbalanced intellectual exports from Russia becomes an acute issue.

For objective purposes, it should be noted that in 2016 the State program on assisting voluntary resettlement to the Russian Federation of compatriots living abroad, which was approved by the President back in 2006. The program is very expensive, has little results and causes resentment from many scientists and experts who stay in the country in challenging organizational and financial and try to preserve Russian and global science for future generations.

Russia's new generation, despite all the difficulties of the present period, of course, produces new knowledge, ideas, materials, technology, and productive forces – all the elements of human capital which are liquid and profitable. Unfortunately, a significant amount of this capital remains unrealized or leaves the country with natural resources. In exchange, Russia receives the already imported consumer product or produces its "CKD" (completely knocked down) version in its territory. Illiquid part of human potential passed on by former generations, their ethical principles and ideals disappear with these generations.

According to the stated topic of the present paper, the author comes to a conclusion that *the most common characteristic of human potential, evaluation of its quality is the balance between the economic and the social component; the main trend in its development at present is the growing prevalence of the economic component. The growing imbalance in favor of the latter is the main cause of the crisis in the social sphere, especially in science, education, and healthcare. The economy can be self-sufficient without any restrictions and obligations in relation to the social development of the country; in the long run, such imbalance in the development of two components of a unified state body may lead to deep systemic crisis with unpredictable consequences.* Therefore, many economists believe that it is now necessary for Russia to take into account the requirements (options) of social development on a normative basis when developing state economic programs and making individual decisions.

The acute issues of socio-economic development in Russia, search for ways of their solution became the focus of research of domestic scientists, economists and social scientists in general. An outstanding Russian economist, academician D.S. L'vov, whose works are classic and are deeply analyzed in the article of G.B. Kleiner "L'vov axiomatics". Projects and detailed development management documents are proposed in the monograph by V.I. Yakunin, S.S. Sulakshin, etc., "Social Doctrine of the Russian Federation. Model project". Scientists thoroughly and comprehensively cover the measures necessary for the formation of the state social policy, state the order of their execution, including in the form of programs and legal acts regulating social development. The number of researchers of this issue and the list of their works is increasing.

The final part of the paper once again emphasizes the special role of academician D.S. L'vov in the formation of the opinion about economy as an integral part of the state structure. Dmitry Semenovich who consistently advocated the introduction of moral principles into business relations,

defended *the idea of organic connection of social and economic goals and criteria*. He thought it necessary to develop and implement an integrated system of social regulation in Russia as a set of purposeful impacts on the economy and society ensuring sustainable social development. In his writings and numerous speeches, he argued that the drivers of the economy, along with competition and the accompanying individualism and pragmatism, are moral values and conscience. D.S. L'vov introduced the phrase "conscience economy" in the scientific circulation.

And no matter how much economic purists try to fight these ideas, exaggerated individualism and a purely economic conception of being are impossible and destructive in practice, as a human a social being. Hence the idea of a complex structure of human potential with its inherent moral component, as well as an important national and social objective of developing human potential of the new generation.

In terms of activities academic community, this may mean an initiative to develop joint large-scale research projects considering the specific features of Russian regions.

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Social Risks of International Immigration into Russia*

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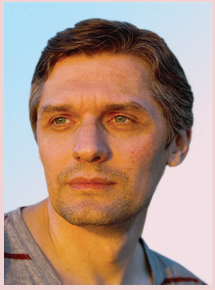

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Abstract. The article explains the sociological theory of immigration risks. Despite the fact that domestic sociology has been recently attracting more attention to the risk theory, risks of migration processes have not yet been properly considered. According to the authors, such a theory must consider social risks for all participants of the migration process: host countries, countries of origin and immigrants. The typological model of immigration risks is based on the theory of integration by H. Esser and F. Heckmann. The model describes how various risks are manifested at the micro, meso and macro level of social reality taking into account the four dimensions of social integration: cultural, structural, interactional and identification. Based on the theoretical model the authors identify several groups of risks for the host population: risks based on local and migrant population interaction at the micro level and perceived risks which can be formed by the media under the influence of certain political forces at the macro level. These risk groups were examined using a telephone survey of public opinion of Saint Petersburg residents (N=1017). The study shows the importance of a cultural distance between the host community and the migrants manifested in increased attention to the standards and values of the host population, whereas risks associated with the labor market and violent behavior remain at the background of public attention. The authors also note a high level of social risk for the part of the host community involved in daily interaction with migrants. Members of community are scared of being involved in the migration process and try to shield themselves from it – they "ignore" the presence of migrants in their everyday life, "do not get involved" in their work and life focusing only on very general view of events which they are actually part of. According to the authors, analysis of social risks of international immigration should be one of the leading areas in sociology of risk and sociology of migration; moreover, this issue may become an independent area of risk assessment and migration theories.

Key words: risk, international migration, host countries, donor countries, public opinion, Saint Petersburg.

Introduction

The collapse of the Soviet Union led to intensified migration processes in the post-Soviet territory and formed a migration system where Russia is a recipient country. Over the post-Soviet decades, the configuration of migration flows has varied considerably. Forced mass migration of the Russian-speaking population of the former Soviet republics, which, in fact, was repatriation of people coming from Russia and their descendants, is replaced by men-dominated mass labor migration represented mostly by young people from Central Asian and Transcaucasian republics [14; 5]. Thus, in 2016, the share of migrants from Uzbekistan aged 18–39 amounted to more than 70% (*Tab. 1*).

Table 1. Population of migrants into Russia from major donor countries (more than 400 000 people), distribution by sex and age (as of 5 April, 2016)

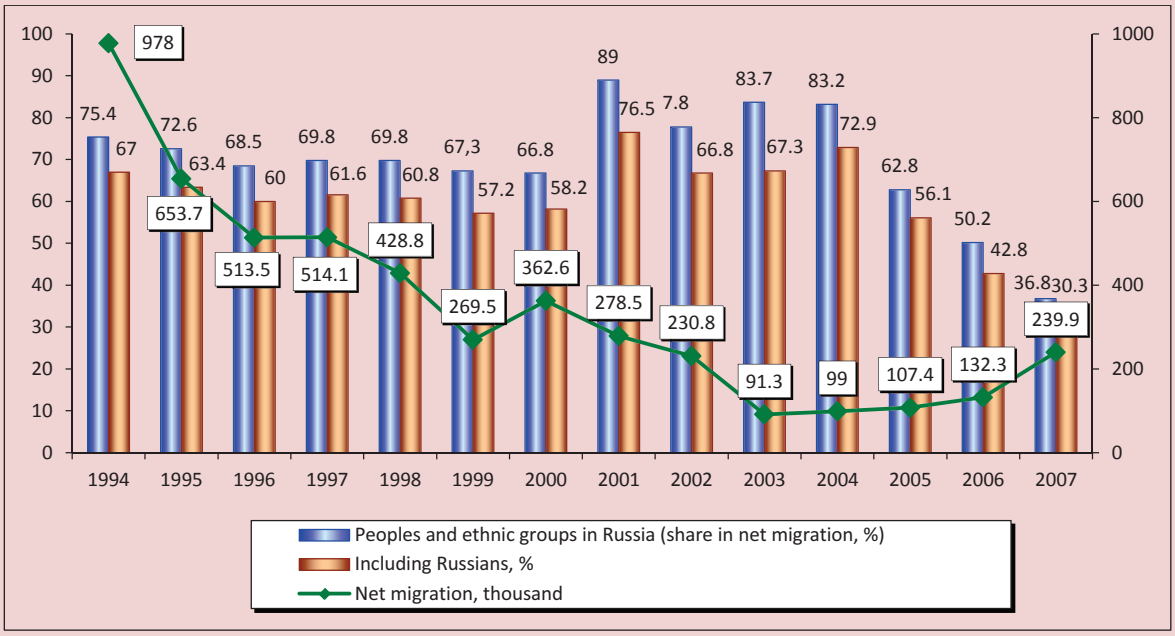
Country	Sex	Age						Total
		<17	18-29	30-39	40-49	50-59	60+	
Ukraine	Male	177 637	***407 436***	***354 097***	252 237	173 836	85 970	1 451 213
	Female	156 524	236 375	189 905	157 891	156 345	139 155	1 036 195
	Total							2 487408
Uzbekistan	Male	75 131	***729 916***	***315 079***	226 413	71 261	10 367	1 428 167
	Female	34 552	104 549	88 710	58 366	25 283	16 154	327 614
	Total							1 755 781
Tajikistan	Male	75 067	***358 384***	***167 347***	93 717	29 116	3 699	727 330
	Female	30 783	51 301	36 309	22 290	7 953	2 570	151 206
	Total							878 536
Kazakhstan	Male	54 510	***107 387***	***77 783***	57 938	45 659	27 355	370 632
	Female	42 563	58 395	38 874	33 244	37 034	41 400	251 510
	Total							622 142
Kyrgyzstan	Male	55 594	***175 366***	***65 012***	38 784	13 580	2 785	351 121
	Female	40 975	95 001	43 934	27 690	10 793	4 680	223 073
	Total							574 194
Azerbaijan	Male	36 911	***110 233***	***76 117***	60 371	41 740	13 190	338 562
	Female	31 222	46 214	31 028	30 399	26 512	14 882	180 257
	Total							518 819
Moldova	Male	23 765	***118 008***	***79 841***	53 010	28 948	5 619	309 191
	Female	18 146	51 498	37 608	31 847	21 648	8 011	168 758
	Total							477 949

Compiled from data from General Administration for Migration Issues under the Ministry of Internal Affairs of the Russian Federation.

By the mid 2000–s the share of Russians and other ethnic groups of Russia in net migration significantly reduced, reaching in 2007 36.8% *(Fig. 1)*; labor migration, by contrast, became mass: for example, the number of issued work permits and patents in 2014 amounted to 3689.9 million *(Fig. 2)*.

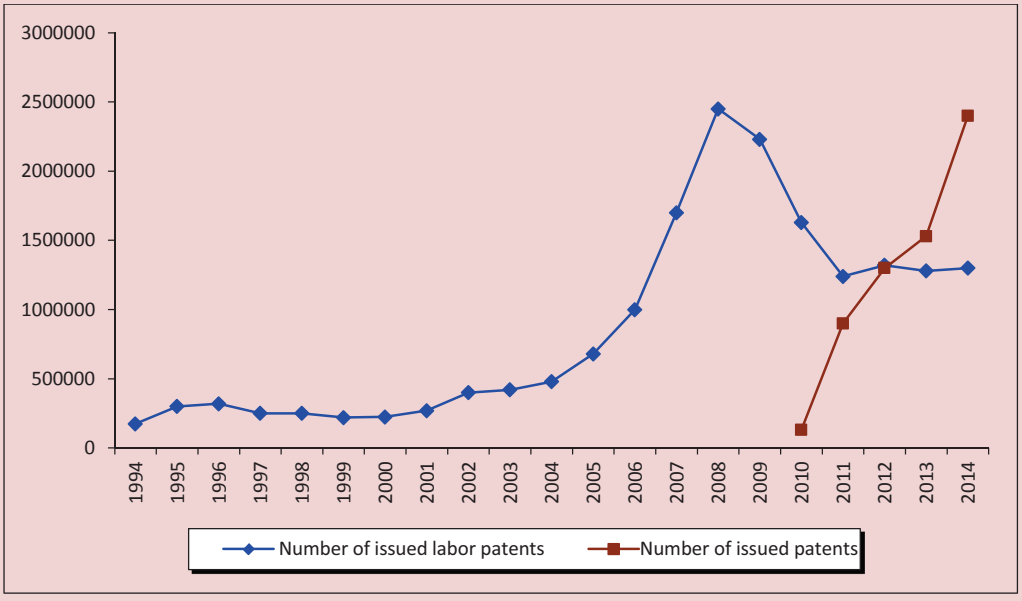
Labor migration is primarily reflexive in its nature; however, a significant number of labor migrants legally or illegally settle in Russia. Presented data indicate a large scale of migration flows into Russia. It is also necessary to consider undocumented labor migration, which, according to experts,

Figure 1. Share of ethnic groups in Russia (including Russians) in net migration, %



Note. The ethnical composition of migrants was recorded since 2007.
Source: compiled from Rosstat data.

Figure 2. Number of issued labor permits and patents



Note. Labor patents for private individuals are issued since 2010.
Source: compiled from the Federal Migration Service of Russia (FMS).

can be calculated taking into account the correction coefficient 1.8 [13, p. 26].

Despite high mobility and adaptability, young people, as opposed to people from other age groups, have an insignificant amount of social, cultural and economic capital, which is largely related to the difficult socio-economic situation in donor countries. In modern Russia, young migrants face the problem of social integration in its cultural, structural, interactional and identity environment [23; 26]. Apart from lack of capital on the way of social integration migrants face a number of barriers: institutional (contradictory and restrictive nature of migration policy and legislation, underdeveloped law enforcement in relation to migrants' rights, spread of corruption among inspection bodies, speculation on migration in political and media discourse), interactive (discriminatory actions of the host population, including radical anti-immigrant social movements) and cultural (xenophobia of the host population, ethnocentric and racist bias).

Lack of capital and barriers to integration of young migrants result in new social inequalities which are formed during the processes of exploitation, hierarchization, ethnic stratification, segregation and marginalization. New social inequalities limit the migrants' access to vital resources, make it difficult or completely impossible for them to participate in many important spheres of the host society, and are even dangerous to their lives [40]. Inequalities arise in economy, education, social security, healthcare, housing, culture, and politics.

This situation is fraught with increasing social risks considered as the possible negative consequences which will, with a certain level of probability, can affect all participants of the migration process: migrants themselves, donor communities and the host community. Migration problem is becoming increasingly complex, which is a challenge to the social sciences requiring the implementation of a complex approach taking into account the relations between the host community, the donor countries, as well as the interests, rights and practices of migrants themselves. The prospect of social risks can give additional impetus to studying new social inequalities and concepts of migrant integration.

The scientific novelty of the present study lies in the fact that we first carried out the synthesis of theories of risk and theories of social migrant integration. Based on theoretical synthesis, we developed a unique typological model of social risks of international immigration into Russia and studied the perception of migration risks by the population of Saint Petersburg.

Social risks of international migration: conceptual approaches

The most important role in the study of social risks of international migration belongs to the theory of risk formed in the social

sciences in the 1980–s and is primarily associated with researchers such as N. Luhmann, U. Beck, E. Giddens, and M. Douglas. These authors emphasize the importance of the social, political and cultural context within which risks are produced and perceived. N. Luhmann points to the increasing uncertainty in all spheres of the modern society and associates risks with making a decision in situations implying choice, where negative consequences are possible. He introduces a meaningful distinction. If a possible loss correlates with the decision this is considered a risk, if it is related to external causes, i.e., with the environment, then we are dealing with danger [28, p. 21–22].

A. Giddens and U. Beck explain the emergence of the risk society with modernization process which focuses on the future and enhances social reflexivity [2]. M. Douglas emphasizes the role of politics and culture in the selection of risks significant for society [22].

According to some sociologists such as O.N. Yanitskii, modern Russian society lacks reflexivity, which is manifested in its inability to adequately and timely assess the situation, social changes and react to them. Underdeveloped social reflexivity of contemporary Russian society leads to insufficient understanding of risk and ultimately reinforces the risk-driven nature of Russian society [16; 17].

The study of migration processes in global science is interdisciplinary. The present study adopted a broad understanding of migration as a complex, multi-level, long-term process of social and cultural transformation of individuals and groups. Let us highlight the areas most relevant for this study. In the context of the theory of migration processes, D. Massey synthetic theory of international migration is still relevant [30]. It integrates six theories: the theory of neoclassical economics [41], the new economic theory of labor migration [39], the theory of segmented labor market [34], the theory of world systems [37], the theory of social capital and migrant networks [20; 31], and the theory of cumulative causation [29]. Massey synthesis helps answer some fundamental questions: what structural factors in developing countries promote emigration and what factors create demand for migrants? What are the motivations of people who, being influenced by these macro-structural factors, decide to move from one country to another? What institutional structures are established in the process of international migration for maintaining international mobility and how they affect migration? And finally, how will the government respond to migrant flows and how efficient is the migration policy?

In addition, to understand migration processes in the post-Soviet environment, in particular the Eurasian integration, it is advisable to consider the theory of migration

systems [27; 24]. The theory refers to a broad historical context which shaped the formation of social structures that emerged in the course of sustainable political, economic and cultural correlations between two or more communities.

Under the influence of globalization processes the described theories are adjusted relatively new studies of transnational migration and transnational space. They critically reinterpret old concepts of borders, nations and communities, re-identify the relations between the global and the local, and at focus on the concepts of de-territorialization and global space, networks and flows – of people, goods, services, capital, technology and ideas, which cross national and regional boundaries (D. Harvey's concept of time space compression, M. Castells and J. Urry theory of environmental flows, A. Appadurai's theory of scapes). The study of how individuals and groups move across regional and national boundaries during economic globalization, creating new transnational spaces and relations is developed within the concept of transnationalism [38; 33]. It emphasizes that migrants are in two social worlds simultaneously – the society of origin and the host society – and maintain close relations with their homeland by participating in its economic, political and cultural life [19]. The concept of transnationalism has recently been subjected to critical reconsideration [42].

Another important research area is the study of migrant inclusion into the host society. To understand this process, social sciences formed a separate semantic field: absorption, adaptation, acculturation, assimilation, inclusion, incorporation, and finally, integration. Latest research reconsider many of these concepts. Thus, the classical understanding of assimilation (M. Gordon) was reinterpreted by R. Alba, L. Nee, H. Gans, and R. Brubaker [18; 25; 21], while A. Portes, M. Zhou and R. Rumbo proposed a theory of "segmented assimilation", according to which children of migrants assimilate themselves in different segments of the host society, which depends on both characteristics of the representatives of the second migrant generation and the characteristics of these segments.

It should be emphasized that migration in Russia remains on the periphery of western studies. In turn, Russian research of migration is predominantly empirical. However, it has laid a solid foundation for studying contemporary migration situation in Russia. Among recent works we note studies of migration processes by A.G. Vishnevskii [5], works by V.I. Mukomel, V. Malakhov, E. Varshaver etc. on problems of migrants' adaptation and integration [9; 8; 3], analysis of migration risk by Zh.A. Zaionchkovskaya, D.V. Poletaev, Yu.F. Florinskaya, etc. [7], the study of V.I. Mukomel, K.S. Grigor'eva on the migration policy [10], work by S.V. Ryazantsev

on labor migration [11; 12; 13], the study of citizenship by O.S. Chudinovskikh [15] and transnational relations by S.I. Abashin [1].

Within our approach, the most promising is the theory of social integration by H. Esser [23] developed in works by F. Heckmann [26]. The representatives of this approach distinguish four dimensions of social integration: cultural, structural, interactional and identity, specifying the integration barriers and the consequences of (dis)integration for the processes of social structuring and differentiation. This theory is used not only in empirical studies of integration, but also for monitoring and evaluation of migration policies [4].

Let us consider the main groups of risks for participants of migration process, which may occur at the micro, meso and macro levels of social reality. Our allocation of groups of risks is based on four dimensions of social integration, as proposed in the model of H. Esser and F. Heckmann.

First, we select a group the risks which migrants themselves face (*Tab. 2*). These risks can be manifested in the labor and housing

Table 2. Types of social risks for migrants depending on dimensions of social integration and level of social reality

Level of social reality	Dimensions of social integration			
	Cultural	Structural	Interactional	Identity
Micro	On the part of the host community: xenophobia, ethnocentric and racist prejudice, stigmatization; on the part of migrants: lack of linguistic, communicative, legal competence, low or absence of professional qualification	Absence of recognition and respect, establishment of status hierarchies, loss of status, discrimination	Relationship with the host community: communicative failure, failure of interaction, conflicts, violence; relationships with the community of origin: weakening or breaking social ties	Marginalization
Meso	Xenophobia, ethnocentric and racist prejudice, stigmatization	Limited access to host communities, social networks and organizations; institutional discrimination	Distrust; inter-group conflicts and violence; radical anti-immigrant social movements	Exclusion, segregation from the host community, social networks, organizations, self-isolation of migrant communities, social networks and associations
Macro	Xenophobia; ethnocentric and racist prejudice; stigmatization; speculating on migration in political and media discourse	Hierarchization, ethnic stratification, exploitation, contradictory, restrictive migration policy and legislation; loss of legal status, criminalization; underdeveloped institutions for support and protection of migrant' rights, institutional discrimination	Corruption among inspection bodies, institutional violence, expulsion, deportation	Exclusion, segregation from the host society; isolation of migrant communities

Source: compiled by the authors.

market, education and health, as well as in their everyday life.

The second group of risks is related to *donor communities*. At the macro level, these are risks associated with the outflow of most active groups of working-age population, especially young people, and the resulting changes in the economy and the socio-demographic structure. Economies of donor communities depend more on migrant remittances and less on domestic resources, technological innovation and creation of new jobs. Moreover, the so-called "brain drain", i.e. emigration of skilled specialists is accompanied by specific risks. In addition, gender and generation balance is disrupted, which leads to changes in family structures, gender relations and socialization processes at the meso and micro level.

Finally, the last group of risks is related to *the host community*. The most significant risk at the macro level is probably the risk of developing new forms of social inequality, the emergence of a new lower class represented by low-skilled migrant workers with limited labor and social rights, as well as by undocumented migrants deprived of most rights. This situation is fraught with the development of ethnic stratification, ethnization of social issues and the strengthening of the rightist anti-immigrant attitudes both on the agenda of political parties and within anti-immigrant social movements. Conflict opposition of the majority and the minority, new social inequalities directly challenge social cohesion of the society. The situation may be complicated by conflicts between different groups of migrants, which leads to increasing violence in the host society.

In the social context, it is important, on the one hand, to distinguish the risks based on experience of local and migrant population interaction at the micro level: for example, risks associated with low quality of services provided by migrants, risks of lower educational level in schools attended by migrant children, risks of behavioral conflicts due to the difference in cultural standards.

On the other hand, one should consider perceived risks formed by the media under the influence of certain political forces at the macro level. This group includes, for example, perceived risks of labor market competition and dumping, health risks associated with the image of migrants as carriers of dangerous diseases, as well as risks based on the idea of widespread violence and delinquency among migrants.

To sum up the theoretical part, it can be argued that cross-border migration, being one of the strategies for reducing the risks of households in donor communities, creates new risks for both donor and host communities and for migrants themselves. For example, lack of migrant human and labor capital is a serious risk on the one hand, on the other hand – it is created by situations

of uncertainty in the process of gaining legal status, on the labor market, in education, healthcare, everyday interactions created by risky decisions of various actors of the host society.

Research methods

The empirical base of the research includes results of the public opinion poll conducted in Saint Petersburg for assessing migration in the city and identify migration risks in the minds of the host population. Saint Petersburg is one of the most attractive cities for international labor and education regional migration; the situation in this city does not cover the whole variety of migration risks, yet it reflects the main ones well enough.

The authors used standardized telephone interview as a method of data collection. The choice of the method is explained by the fact that telephone surveys are optimal for quick scanning of public opinion in major cities such as Saint Petersburg. An additional motive of using telephone interviews is presence of longitudinal data previously collected with the use of this method.

The questionnaire included 40 questions on the situation in the city, interaction of Saint Petersburg citizens with migrants in various spheres of life, assessment of positive and negative consequences of migration, efficiency of institutional control over the process, attitude towards various variants of strategies of migration control and migration policy, as well as 6 questions on the respondents' demographic, economic and social status. Most of the questions were semi-closed with the answer variant – "other". Assessment variables were represented by specially designed verbal ordinal scales presenting key options within a possible range of statements. Simpler questions were accompanied by the Likert Scale. We also used the technique of Likert-type scale which helps identify the respondent's attitude by total assessment of a series of indicators.

The general population of the study includes residents of Saint Petersburg aged 18 and over. The stratified sample was proportionally distributed among 18 municipal districts the city. The selection of telephone numbers from the urban total urban subscriber base was randomly carried out by the CATI system with the help of special software based on the use of a random number generator.

The interviews were conducted only via telephones in residential areas (by respondents' place of residence). Selection of respondents by a particular phone number was limited by sex and age. The filling of territorial and demographic sampling structure was controlled automatically – as the district sub-samplings and demographic categories were fully filled.

The total sampling size included 1017 people, which provides the margin of random sampling error Δ=3.1% for a 95% confidence probability.

Data input was carried out during the interview by using interactive forms of CATI system. Data processing was performed using the SPSS program, version 16.0. Data visualization was performed using MS Excel (figures) and MS Word (tables). Adjoint matrices were analyzed using Pearson's chi-squared test and the method of standardized residuals. During analysis, data were partly grouped into larger semantic categories – categorical and soft answers were combined in the Likert Scale, dichotomous variables were created based on the selection of certain answer choices in complex verbal scales.

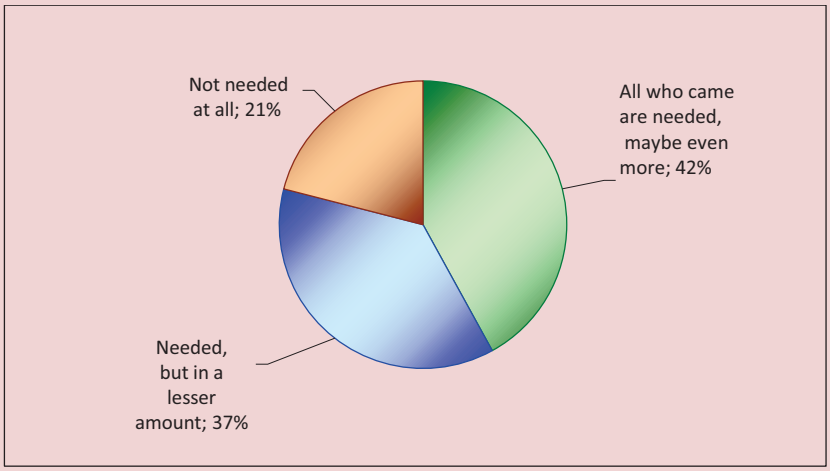
Results of a telephone survey of Saint Petersburg residents

Analysis of public reflection at the macro level – people's attitude towards migration as a phenomenon and migrants as undivided troops – has indicated that the Saint Petersburg community is dominated by restrained assessment amid quite a wide range of approach differentiation. The modal response to the question "Are migrants in Saint Petersburg needed today?" was "needed, but in a lesser amount" – 34.1% of the respondents. The second largest category of residents (30.3%) admit that the current number of migrants remains but is against its increase. Only 7.5% of residents in Saint Petersburg welcome an increase in the number of migrants in the city ("They are needed, it is necessary that migrants continue to arrive to Saint Petersburg"). And one in every five respondents (18.8%) is against them – "migrants are not needed in Saint Petersburg – those who came should leave". A relatively small share of respondents who were undecided (5.7%) is noteworthy, as well as the share of those who has their own variant (mostly differentiated) (3.6%). This suggests that the issue of migration in the host community is discussed and some attitudes have already been formed.

In-depth analysis indicated that the categories of those in favor of preserving the status quo and increased migration have similar attitudes to other options and thus can be combined. On the contrary, the attitudes of those who admit the presence of migrants if their number is reduced are significantly different from the attitude of complete exclusion of migrants. Therefore, the area of definite opinions [6, p. 100] contains three basic points of view (*Fig. 3*). The majority of respondents is in favor of reducing the number of migrants (52.9% of the total number of respondents, 58.3% of the number of respondents who expressed definite opinion), but this majority did not develop any general (dominant) attitude at the time of the study. In practice we are talking about a wide range of expectations – from reducing the number of separate problem representatives to excluding all migrants without exception.

The second indicator characterizing the position of the host community at the macro

Figure 3. Distribution of answers to the question "Are migrants needed Saint Petersburg today?" (% of respondents to this question)



level – their attitude towards possible amnesty for illegal migrants. Given the projective nature of the assessment object, during the interview it turned out that we are talking about an offer "to allow illegal immigrants to stay and work in Russia if they respect the law and pay taxes". Analysis has indicated that dynamics of this indicator is largely similar and related to those discussed above. The shares of those who had difficulties answering these two questions are near the same (8.5%), among those who gave a definite answer the share of those against amnesty is slightly higher (48.8% of the total sampling, 53.3% of those who expressed a definite position). A high share of residents strongly against amnesty for illegal migrants is noteworthy, amounting to 31.2% of respondents. Thus, opponents of amnesty constitutes 2/3 of those who are "*definitely against*" it. The supporters of amnesty, by contrast, have a moderate attitude (26.5% of answers "more likely to support" of 42.8% of respondents in favor of amnesty).

Cross-sectional analysis demonstrated the correlation between the distributions reflecting social attitudes towards the city's need for migrants and amnesty for illegal immigrants (*Tab. 3*). Analysis of the adjoint matrix by using the method of standardized residuals made it possible to identify statistically significant shifts in proportions of distribution of supporters and opponents of amnesty in two categories of citizens opposing each other – those who admit the preservation and/or increase in the number of migrants in Saint Petersburg, and those against their presence in the city. The modal category of respondents ("migrants are needed, but in lesser amounts") voted against amnesty in proportions very close to the average in the sampling.

Table 3. Correlation between attitudes towards the need for migrants in Saint Petersburg and towards possible amnesty for illegal migrants (% of respondents by category)

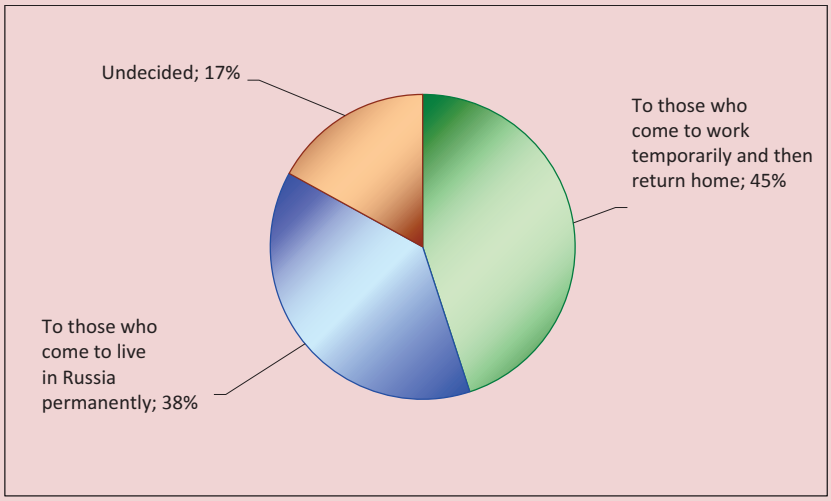
Attitude towards possible amnesty for illegal migrants	Are migrants needed in Saint Petersburg today?		
	All who came are needed, maybe even more	Needed, but in a lesser amount – their number should be reduced	Not needed at all, those who came should leave
Support amnesty	59.8	42.2	24.6
standardized residual	*3.9*	*-0.9*	*-4.2*
Against amnesty	40.2	57.8	75.4
standardized residual	*-3.6*	*0.9*	*3.9*
Total	100	100	100

The presented observations help draw two interim conclusions. First, migrants are mostly associated in the collective consciousness with *illegal migrants* and migration in general is probably related to illegal migration. In this case we observe how the media construct social issues, as, from the point of view of its impact on the everyday life of the host community; the legal/illegal status of a migrant is a secondary factor and is derived from effectiveness/ineffectiveness of government control mechanisms. Second, the host society in fact demonstrates two opposing attitudes towards the migrant population: the first lies in accepting everyone and probably even stimulating migration, the second – in eliminating it completely. The intermediate attitude – to reduce and maintaining the number of migrants – is in fact a compromise. Its prevalence in the mass consciousness indicates under-established public attitude towards migration as a phenomenon.

The third indicator at the macro level used in the analysis is the selection of migration priority for the host community. Respondents were asked who should be given priority when issuing visas, stay or work permits: those who immigrate for temporary work or those who plan to stay and live in Russia permanently? Just like in the case of amnesty for illegal immigrants, the respondents were divided into two similar-sized groups with a slight advantage of those supporting temporary stay (*Fig. 4*). However, in this case the share of those who were undecided is much higher (17%), which suggests that such "subtleties" of the migration process are less frequently discussed.

Analysis of the system of three macro-level indicators indicates that, although migration themes are familiar to the Saint Petersburg community, it is too early to talk about the shaped public attitude in this respect. This is evidenced by almost equiprobable distribution

Figure 4. Distribution of answers to the question: "Who, in your opinion, should be given priority when issuing visas, stay or work permits: those who immigrate for temporary work or those who plan to stay and live in Russia permanently?" (% of the total number of respondents)

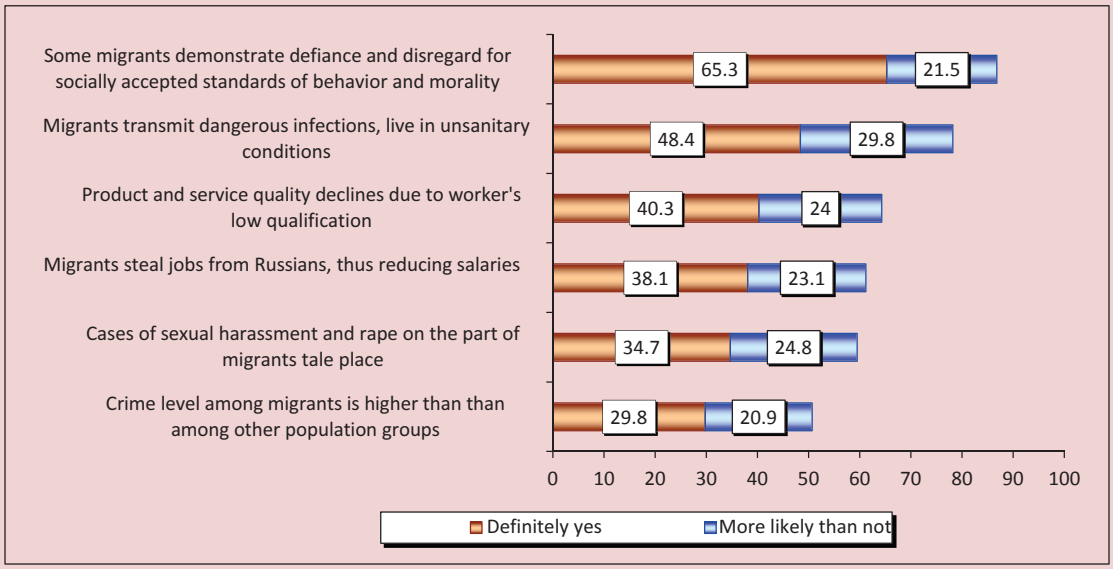


of respondents among key alternatives and the modality of compromise positions. Petersburgers still widely perceive migrants as temporary workers and focus on their formal status (legal or illegal). Public reflection is lagging behind the objective process of transformation of host communities, which leaves this process beyond social control and produces risks at the macro level.

How do macro-level trends correlate with data of meso and micro level indicators? Let us turn to the assessment of migration risks by urban community: 50–87% of respondents confirmed different threats resulting from the presence of migrants in Saint Petersburg (*Fig. 5*).

However, analysis of the structure of the issues the citizens associate with the presence of migrants arises new questions. The major issues are related to migrants' way of life: immoral behavior, disregard for local cultural standards and "dirty" life. Why are these moments significantly ahead of the functional competition on the labor market and loss of quality and technological culture? The latter threaten to cause real material damage, whereas the former are more symbolic. Why did lower positions in the risk ranking turn out to be the most socially dangerous – violent crimes and sexual aggression? It is after such events that mass unrest associated with migrant population takes place.

Figure 5. Citizen's verification of risks of the host community (the share of affirmative answers to the question: "Which of the following statements do you agree with?") (% from the total number of respondents)



One of the possible explanations is that the host society gives priority when interpreting the migration phenomenon to cultural capital and goals, whereas economic capital and security issues remain on the periphery of public attention. Then the cultural distance between the host society and migrants representing various donor communities may be a determining factor which builds the whole system of interaction including economic cooperation and competition, and even conflicts in the form of violence.

To characterize the migration situation at the *micro level* the authors firstly present two indicators reflecting population's involvement in the most acute interactions related to violence and sexual aggression. In this case, the technique suggests gender differentiation of indicators. Male respondents were asked of they ever personally participated in fights with migrants or other conflicts involving violence or threat of violence. Women respondents were asked if they personally happened to be a victim of sexual harassment or violence on the part of migrants. According to the survey, 18.5% of men and 9.4% of women gave an affirmative answer.

The share of people involved in acute conflicts with migrants is significantly higher among the youth. Almost every third man under 30 years (29.7%, standardized residue 2.6) reported they had experience of violent interaction with migrants. Every fifth woman in the same age group (21.3%, standardized residual 4.3) has at least been harassed by migrants.

Experience in acute conflict interaction significantly enhances the issues of the migrant population. Thus, half of men personally involved in fights and other violent interactions (49.4%, standardized residual 2.7) confirm that the crime rate among migrants is higher than among other population groups. The majority of women ever subjected to sexual aggression (54.5%, standardized residual 2.6) clearly verify their perceive migrants as a potential source of such aggression.

Thus, the study demonstrates a high level of social risks for the part of the host community included in their daily interaction with migrants. Their reaction to the elevated level of risk is probably ignoring of problem aspects of the migration process, its assessment and establishing specific social attitudes. Community members are afraid of being personally involved in the migration process and "do not notice" the presence of migrants in their everyday life, "do not get involved" with their work and life, focusing only on a very general view of the events which they are actually part of.

Conclusion

The present study made an attempt to outline the sociological theory of migration risks. Despite the fact that domestic sociology has given much attention to the theory of risk in recent years, risks of migration processes have not yet been properly considered. We believe that the heuristic value of the proposed theoretical model is that it helps highlight and demonstrate the correlation between various groups of migration risks for all participants of the migration process in the host countries, the countries of origin and for migrants themselves. The theoretical model of migration risks is based on the theory of integration by H. Esser and F. Heckmann. The authors made an attempt to describe how various risks are manifested at the micro, meso and macro level of social reality taking into account the four dimensions of social integration distinguished by Esser and Heckmann.

Of course, it is impossible to explore all categories of risk possible to be selected by the model in one study, therefore only two groups of migration risks of the host population were chosen for empirical study: the actual risks of interaction at the micro level and the perceived risks formed by the media under the influence of certain political forces at the macro level. These groups of risk were studied with the help of public opinion survey of residents of Saint Petersburg, which provides a good basis for further comparative studies on both Russian and international scale.

The present study demonstrates the importance of cultural distance between the host and migrant population, which is manifested in increased attention to the perceived threat to the standards and values of

the local population, whereas risks associated with labor market and violence, remain on the periphery of public attention. There is also a high level of social risks for the part of the host community involved in daily interaction with migrants.

In our opinion, analysis of social risks of international migration should be of high priority in sociology of risk and sociology of migration. Moreover, this issue may become an independent area in risk and migration theories.

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Promoting Interregional Cooperation in the Social Sphere as an Important Reserve to Strengthen Relations within the Union State*

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Abstract. In modern conditions of globalization the need for interregional cooperation in the implementation of foreign economic relations of the countries becomes increasingly evident. In this case, if a country becomes part of a larger integration association, it must consider the aspects that arise during the joint existence of two or more countries in the association. The experience of the Union State, being such an association, is considered in the paper. The purpose of the study is to determine key factors preventing the creation of the common economic space of the Union State and the opportunities for development of interregional relations, which will facilitate a more dynamic adaptation of regional economies to modern business processes and, therefore, create new opportunities for the development and implementation of competitive advantages in the regions of both countries. The novelty of the study lies in the fact that the article defines the essence and meaning of "interregional cooperation". In previously published studies the issue of cooperation at the regional level of the Union State was regarded very narrowly – exclusively within a single branch or two regions of the country. The methodology used is not limited only to the method of retrospective analysis, but uses methods such as socio-economic modelling and spatial data. The authors substantiate the necessity of development of interregional cooperation in the framework of the Union State of Russia and Belarus. It emphasizes the authors' position regarding the relevance of development of interregional cooperation between the Russian Federation and the Republic of Belarus in the spheres of education, science, culture, medicine and tourism in the context of building a single economic space. Based on the analysis of factual material reflecting the experience of cooperation between constituent entities of the Russian Federation and regions of the Republic of Belarus, the authors identify main problems of such interaction. In particular, it is shown that in the framework of the Union State, contacts and cooperation among regions face difficulties connected with the federal and unitary structure of the countries. The authors reveal that existing relationships are widespread in a geographical aspect. Addressing practical issues, the authors present recommendations for the development of cooperation between the two countries in the social sphere and platforms for cooperation in innovation sectors of economic environment. The recommendations can be used by the legislative and executive bodies of the Union State and taken into account in the work of regional authorities in order to increase the investment attractiveness of territorial administrative units of both countries.

Key words: spatial relationships, regional economy, social sphere, differentiation of regions, Union State.

Problem statement and the relevance of the study

For any country, interregional cooperation presents an opportunity for economic growth, diversification of economic flows and increase in the autonomy of each regional formation. A common question is how interregional cooperation is carried out. In the financial aspect, it is advantageous that every region can develop cooperation and spatial economic

relations, thereby gaining additional revenue for its development. In the management aspect, such benefit remains the prerogative to increase human capital and in the Union State – the mutual integration based on inter-territorial communication and integration of economic systems. This approach is reflected in the theoretical basis of the concept "interregional cooperation". Thus, Protocol 2 (Madrid Convention of May 5, 1998) defines it as any concerted action designed to establish relations between territorial communities or authorities of two or more Contracting Parties, other than relations of transfrontier cooperation of neighboring authorities.

That is, in the case of interregional cooperation, ties are established between the administrative-territorial units that might not have a common border.

The relevance of highlighting this concept is justified in the preamble to Protocol No. 2: "In order to perform their functions effectively, territorial communities or authorities are increasingly cooperating not only with neighboring authorities of other States (transfrontier cooperation), but also with foreign non-neighboring authorities" [10].

In the Russian scientific literature international cooperation is considered in the works of the following scientists: V.N. Blokhin, S.K. Volkov, L.V. Vorob'eva, S.L. Goloborodko, Ya. M. Kester, V. Kuybida, K.Yu. Kudin, R.A. Latypov, E.V. Lukin, S. Maksimenko, L. Prokopenko, I. Rozputenko, A. Rudik A.N. Spartak, I. Studennikov, V. Udovichenko, T.V. Uskova, Yu. Sharov, I.N. Shapkin, I. Shumlyaeva, and others.

Approaches to the concept of "interregional cooperation" presented in these studies are quite different. However, in essence, they all characterize the system of relations of the subjects of interaction from different regions of the country in the spheres of economy, politics, culture, education, nature conservation, etc.; this system is due to several factors, such as geographical, socio-economic and political-legal.

In turn, interregional cooperation can be considered as one of the key external drivers of socio-economic and political development of the region. Interregional cooperation is carried out by the regions that have similar goals and objectives for the development of local community and regional economy. If the state becomes part of a larger formation, it must consider the aspects that arise during the joint existence of two or more countries in the block.

It should be noted that almost all CIS countries, including Russia, still live at the expense of economic potential and economic infrastructure developed mainly in the Soviet period. At the same time, the Western world in general after World War II was characterized by the most important process, regional economic integration. Major regional economic organizations were created. The process was especially vigorous and noticeable in Europe: first G6 and G7, then the EEC, on the basis of which the EU was created, which

represented only an economic but also a political union of European countries. Against this background, the formation of the Union State of Russia and Belarus reflects the global trend of integration processes from regional to global (globalization).

If we consider the experience of existing integration groups (primarily the EU) and the practice of cooperation, we can conclude that any integration association (especially an "advanced" one, like the Union State) will be successful only if there is a strong infrastructure of cooperation. In this regard, close cooperation between regions of Russia and Belarus becomes particularly important.

The goal of the study

The Union State of Russia and Belarus is a developing association that affects the interests of more than 150 million people. Its economic policy is implemented in the mode of existence of two supranational institutions: the Eurasian Economic Union and the Union State. This determines the purpose of the present study, which is to determine key factors preventing the creation of a common economic space of the Union State and the development of interregional relations.

Main material of the study

Interregional cooperation originates from information cooperation between the members of the Union State. Such meetings and other forms of cooperation like workshops, intergovernmental meetings and round tables, potential exchange of ideas and addressing different issues become further reasons for intergovernmental meetings at the level of Governments. Thus, on the part of the Russian Federation, more than 3,000 enterprises and more than 50 regions are involved in commodity exchange. In June 2016, the Third Forum of regions of Russia and Belarus took place. There it was determined that the commercial cooperation of the Union State must become the reason and format for the development of the Eurasian Economic Union. The geography of cooperation on the part of Russia is not limited to border regions. Even remote areas such as the Sakhalin and Tyumen oblasts and Primorsky Krai have commodity relations with Belarus. Public administration authorities also understand that together with the economic ties it is necessary to develop cultural relations. This makes it relevant to consider the structure of such ties.

Interregional cooperation is a tool to solve regional problems and a part of the mechanism of economic growth both at the national and regional levels. For the country as a whole, the intensification of interregional cooperation solves the main problem of capitalization, mobilization and optimization of using the resources of regions as a main source of socio-economic development of the Union State. The regions participating in this kind of integration processes gain the following advantages:

– wider access of economic entities to financial, human, material resources and cutting-edge technology;

– ability to produce and supply products to the international market, which is more capacious;

– ability to operate on a broader, integrated, perhaps international, marketplace;

– creating favorable conditions for economic entities of the member regions, including protection from the competition of producers from other regions and countries;

– joint search for solutions to complex socio-economic, scientific-technological, environmental and other issues.

As a logical continuation of the strategic course of the Union State aimed to establish the principles of democracy in society, interregional cooperation should develop in the spheres that deal with the challenges of the growth common to several regions and provide an opportunity to capitalize the resources that in their capacity greatly exceed the capacity of individual regions.

The economy of the regions within the Union State is characterized by unbalanced development and the heterogeneity of socio-economic situation; all this is aggravated by an unstable economic and political situation and increasing crisis phenomena in the economy. This makes it impossible to meet the needs of citizens at the level exceeding that established by government, reduces the possibility of medium-term forecasting and denies the use of long-term planning, reduces the incentives to expand economic ties and violates the existing mechanisms of interaction between authorities, local government and the non-governmental sector.

Therefore, it is necessary to intensify domestic efforts of each region to achieve their development goals. In this case it can be useful to apply the model of endogenous development of regions, which gained popularity in the 1980s in the West, and which is based on the maximum use of local resources – labor, the accumulation of capital at the local level, entrepreneurial potential, specific knowledge of the production process and opportunities for implementing specific professional tasks. Another element of the model is the ability of local economy to control the accumulation process at the local level. However, not all regions have sufficient industrial and resource potential to achieve the goals on their own, so the only way out of this situation is to use the advantages of participation in inter-regional or international integration processes.

Systematization of modern experience to meet the challenges of the first and second areas of analysis and the works on assessing interregional cooperation has allowed us to formulate our own vision of a technique for designing a model for evaluating the progress and results of interregional cooperation.

In order to understand the essence of the technique it is necessary to provide explanations to this model. The first stage involves selecting the indicators of socio-economic development in the regions participating in the Union State, which may

show the result of interregional cooperation. Since its goal is to create beneficial relationships that are based on the principles of cooperation and focused on rational reproduction of resources, then in the first place it is possible to allocate the following groups of indicators: gross regional product, interregional trade, interregional movement of capital and investment, interregional migration, transport flows and so on. The analysis must include indicators such as the standard of living, evaluation of employment, education, health and others and select data from official statistical information [11].

During the next stage the selected indicators should be assessed regarding the nature of their influence on economic or social efficiency of cooperation that is regarding the possibility of getting positive or negative synergetic effect. Such action is necessary to carry out based on the analysis of dynamics of the changes in absolute and relative statistical indicators classified at the first stage, and also on expert assessment, since there are no official data on some aspects of the volumes of interregional flows.

The two groups of indicators thus obtained (increase in the useful resource and deterioration of socio-economic status) are to produce a system of indicators and occupy a respective rank position (by degree of impact and direction of impact ("+"or "–"). These methodological tools will help reveal information only in the integration aspect of the performance, which will greatly simplify the assessment of the progress of the process and results of interregional cooperation, both in general and for individual areas and programs.

In this case mutually beneficial cooperation is not reduced only to barter transactions, but industrial cooperation is developing vigorously [2]. In particular, new joint assembly productions are being established, which in turn contributes to the creation of related infrastructure facilities and provides employment for people: in Bashkiria (assembly of combines), in the Yaroslavl Oblast (components for assembly of engines). Cooperation programs focus primarily on high-tech industries (the program "Research and development of high-performance information and computing technology for increasing and effectively using the resource potential of hydrocarbon raw materials of the Union State" ("SKIF-NEDRA") 2015–2018, the program "Development of space and ground assets, providing consumers from Russia and Belarus with the information on remote sensing of the Earth ("Monitoring-SG") 2013–2017, the program "Development of modern and perspective technology for creation of thermal imaging technology of special and dual use on the basis of photoreception devices of infrared range of the third generation in the Union State members"), as well as attempts to cooperate in the agricultural sector (the program "Innovation development of potato and Jerusalem artichoke production ("Potato and Jerusalem artichoke") 2013–2016).

The legal side of the issue is regulated by several by-laws. On the part of the Russian Federation it is Federal Law 4-FL dated January 4, 1999 (as amended on July 13, 2015) "On coordination of international and foreign economic relations of constituent entities of the Russian Federation" and on the part of the Republic of Belarus it is Resolution 183 of the Council of Ministers of the Republic of Belarus dated February 24, 2012 (as amended on June 22, 2015) "On the approval of the regulations on the distribution network of Belarusian organizations abroad, the classification of the types of supply of goods to be taken into account in the implementation of export operations, and annulment of some resolutions of the Council of Ministers of the Republic of Belarus". Currently, at the regional level, more than 260 agreements and protocols on trade and economic cooperation are in action, as well as programs on development of cooperation. An example is the agreement to develop techniques for recycling motor oils in cooperation with KAMAZ in the city of Grodno. The importance of considering this sector is due to the fact that more than 20% of the total budget of the Union State is allocated for it; 62.3 mln rubles is allocated for education, 89.9 mln rubles – for culture and art, 36.8 mln rubles – for health care, 60.8 mln rubles – for social policy. Thus, the importance of expenditure on the social sphere is taken as an original fundamental principle for development on the part of public authorities.

Education. Integration in the field of education is carried out at the level of state educational institutions. According to the Ministry of Education and Science of the Russian Federation, every year, between 20 and 50 budget-funded places in universities of the Russian Federation are allocated for citizens of the Republic of Belarus. In particular, out of 17,427 citizens, who as of January 1, 2016 study in Russia, just over 200 have a scholarship. In Belarus more than 2,000 Russians study in 54 educational establishments. According to the Ministry of Education of Belarus, 73% of them study on a budgetary basis and receive a scholarship.

According to Chapter 3 of the Decree of the President of the Republic of Belarus of February 7, 2006 No. 80 "About the rules of admission to higher and secondary special educational institutions", in addition to the compulsory examination on the Russian/ Belarusian language, each group of specialties has its own two entrance exams. It is allowed to take no more than three exams in the form of a Centralized Test (CT). The applicant can choose either the CT, or the Unified State Exam. The results are not mutually recognized, there is no scale of conversion, and regulatory retake timeframes relative to each other are also absent.

Cooperation in the regional aspect in education seems to be relevant in three main areas:

1. Establishing a network university that implements a double degree program, while the content of the curriculum is identical with

the inclusion of an international component. Only participation in a more virtualized space has been implemented so far. An example is the CIS Network University, the Borderland University Network and CIS Network University Technical Consortium.

2. Establishing scientific-production complexes on the basis of higher educational institutions. In the Russian Federation such complexes are successfully operating; scientific studies in the Republic of Belarus tend to be divided on research in educational institutions and research in research institutes. But even in existing regional complexes (Yanka Kupala Grodno State University) tier education prevails with the inclusion of colleges and schools in the composition of the university. In Russia such systems have been designed and implemented in the private education sector, but were not widespread.

3. It is currently very difficult for students and graduate students to submit their final projects, and to transfer freely to educational institutions. Besides, it is not easy to achieve mutual recognition of all training programs even in their current versions. Therefore, the question of practical recognition of intermediate documents remains open.

Current contacts in the framework of the Union State are characterized by the exchange of technology and a high degree of student exchange in the border regions (Mogilev, Gomel, Smolensk and Bryansk oblasts). The staff of a number of private educational institutions tried to establish individual contacts on the principles of enthusiasm. The experience has about 5–7 endeavors in this sphere in 2010–2016 (it was planned to sign a document on a double degree program between the International Law Institute (Moscow – Volgograd) and Belarusian Institute of Law (Minsk – Mogilev); in 2012, Moscow Witte University (Moscow – Rostov-on-Don) and the Institute of Modern Knowledge (Minsk) discussed the project of creating a Network University. The project has been postponed for five years until 2017.

Such initiatives were expressed at the meetings of the Ministry of Education and Science of the Russian Federation.

Culture. Another important component of communication of the Union State at the level of social relations is represented by cultural forms of cooperation, which are implemented mainly through the organization of joint activities. In 2007–2015 more than 50 agreements on the development of culture were signed *(Tab. 1)*.

The analysis of statistical data shows that participants of Union State, not including national festivals, comprise almost 40–50% of the total number of speakers. Table reflects only some of those activities that are held on the territory of neighboring countries. In total, more than 400 cultural collaborative sessions and exhibitions of culture in Russia and in Belarus were held. Most often the groups and individual representatives of the country participate in international competitions and festivals.

Table 1. Development of cultural relations between regions of Russia and Belarus in 2016

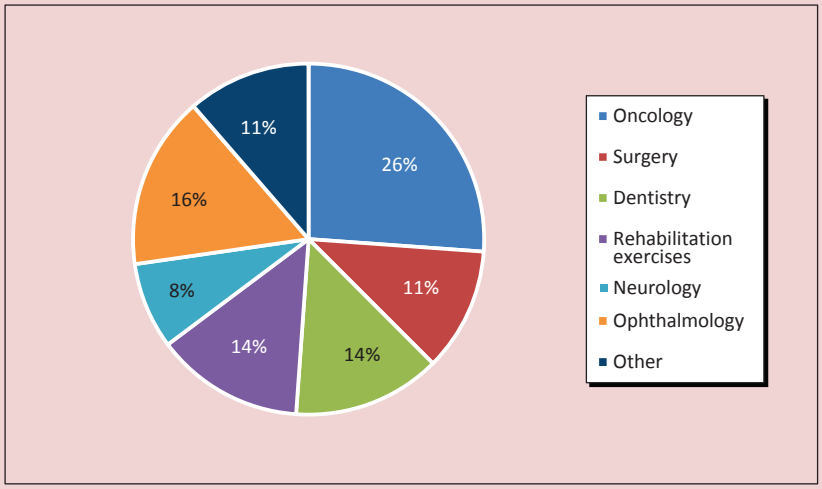
Russia's regions that host festivals (with the date of the festival)	Regions of Belarus that participate in cultural exchange (with the date of the festival)
Russia, Moscow, March 27, 2016, 3rd international festival-contest of children and youth creativity "MOSCOW BELIEVES IN TALENTS" (international children festival) Moscow–Vladimir, March 27, 2016, trip to two festivals: "MOSCOW BELIEVES IN TALENTS" (Moscow, Russia) and "INSPIRATION OF THE GOLDEN RING" (Vladimir, Russia) (festival of the Union State) Russia, Vladimir, March 30, 2016, 5th international festival-contest of children and youth creativity "INSPIRATION OF THE GOLDEN RING" (festival with international participation) Russia, Rostov-on-Don, April 1, 2016 1st international festival-contest of children and youth creativity "VISITING THE SOUTHERN CAPITAL" (40% of invited participants – from Belarus) Russia, Sochi, May 2–5, 2016 14th international festival-contest of children and youth creativity "ON THE CREATIVE OLYMPUS" (international festival) Russia, Novosibirsk, May 5, 2016, 2nd international festival-contest of children and youth creativity "SIBERIAN INSPIRATION" (international festival)	Minsk, March 27, 2016, 2nd international festival-contest of children and youth creativity "BELARUSIAN PATTERNS" (international festival, 40% of participants were from Russia) Vitebsk, May, 4, 2016, 3rd international festival-contest of children and youth creativity "ON THE LEGENDARY STAGE" (Slavic festival of culture)
Compiled by the author with the use of the data from the portals of public authorities of constituent entities of the Russian Federation and the Republic of Belarus	

Cooperation programs signed by Russian Federation constituent entities often lack joint activities on the representation of cultural forms. At the same time, the program of cooperation between the Kursk Oblast and Belarus for 2016 scheduled more than 20 events of this kind – exhibitions, regional fairs, joint advertising of achievements of countries and regions. Every region each year hosts from five to ten exhibitions of Belarusian culture and identity, which the program of cooperation on the part of Russia lack.

Major cooperation takes place in the border regions with little participation of the Central Federal District. The regions include mainly the Mogilev, Minsk and Gomel regions, on Russia's side – the Bryansk, Smolensk, Kursk and partly Saratov oblasts.

Medical tourism. In total, more than 45,000 of Russians in 2015 were treated in Belarus, including the visitors of health resorts (all resorts admit patients only upon doctor's referral). According to the National Statistics Committee of Belarus, the structure of treatment is as follows *(Figure)*.

Cancer and dental treatments were in greatest demand along with surgical procedures. It is also noted that in addition to Russian citizens, more than 5,000 foreigners came for treatment in Belarus. The export of medical services of Minsk in 2015 increased compared with the previous year by 200 thousand US dollars to and was equal to 10.1 million US dollars.



Source: compiled by the author with the use of various sections of the website of the National Statistics Committee of Belarus. Available at: http://www.belstat.gov.by

According to the existing segments of the medical tourism market, it is possible to allocate the following directions, which are very popular in Belarus:

1. Diagnosis and treatment (including operations).
2. Renewable treatment at rehabilitation and physiotherapy centers.
3. Dental tourism (provision of services for treatment, prosthetics and cosmetic dentistry).
4. SPA and wellness tourism.
5. Beauty tourism (including plastic surgery).
6. Thermal tourism (spa treatment at the mineral springs).
7. Balneological tourism.
8. Medical tourism for the elderly.

Major trends in medical and tourism cooperation between the regions of Russia and Belarus are presented in *Table 2*.

When analyzing the demand for travel services, we should note that according to the National Statistics Committee of Belarus the number of organized tourists from the Russian Federation visited the Republic of Belarus in 2015 amounted to 70,390 people. The average length of stay of Russian tourists in the Republic of Belarus is five days, which is one of the highest indicators in the CIS and corresponds to the level of tourist exchange between the countries of Eastern and Central Europe. Cooperation is developing most dynamically between the Republic of Belarus and the cities of Moscow and Saint Petersburg, the Moscow, Smolensk,

Table 2. Trends in medical and tourism cooperation between the regions of Russia and Belarus

Cooperation regions	Cooperation project or program
Minsk Oblast (Institute of Genetics and Cytology of NAS of Belarus) – Moscow (Federal Agency for Scientific Organizations (FANO)	The goal of "DNA identification" program – to develop innovative geographic and genomic technology for forensics and prevention of socially significant diseases, which allows to increase the safety of citizens of the Union State and to counter terrorism.
Moscow Oblast (Nikiforov Russian Center of Emergency and Radiation Medicine, Medical Radiological Research Center, Federal Medical Research Center of Psychiatry and Narcology), Leningrad Oblast (Saint Petersburg Research Center for Radiation Hygiene), Kaluga Oblast (Obninsk Scientific Researhc Center "PROGNOZ"), Bryansk Oblast (Bryansk Oblast Healthcare Department Bryansk Clinical and Diagnostic Center). Countering the change in incidence rate after the Chernobyl power plant accident.	
Vitebsk Oblast – Moscow Oblast Mogilev Oblast – Saratov Oblast, Nizhny Novgorod Oblast	Agro-ecological tourism
Minsk Oblast – Moscow, Leningrad Oblast Mogilev Oblast – Yaroslavl Oblast, Saratov Oblast, Tula Oblast	Medical tourism
Minsk Oblast – Kaliningrad Oblast, Republic of Bashkortostan, Yaroslavl Oblast, Penza Oblast	Support to knowledge-intensive medical industries
Compiled by the author according to the findings of the study.	

Yaroslavl, Bryansk, Nizhny Novgorod, Saratov and Tula oblasts. In Belarus, Russian tourists get acquainted with the monuments of history, architecture, art, with natural and ethnic features, modern life of Belarusian people. Holidays in Belarusian agricultural mansions are popular among Russian tourists. Of the total number of foreign citizens, who visited Belarusian agricultural mansions, Russian tourists account for more than 80%. In 2015, 533.8 thousand Belarusian citizens went on a holiday abroad, and among them 64.1 thousand people chose Russia as their destination. The Moscow and Leningrad oblasts were the most popular regions to visit.

Conclusions and recommendations. In the course of the analysis, we developed recommendations, which in general can help overcome the problems that currently hinder integration of the countries of the Union State.

We think that cooperation in education in the regional aspect is relevant in the following three main areas:

1. Establishing a network university that implements a double degree program, while the content of the curriculum is identical with the inclusion of an international component.

2. Forming scientific-production complexes on the basis of higher educational institutions.

3. Practical recognition of intermediate documents.

In the sphere of culture it is necessary to expand the spatial coverage of the festivals and enable participation of groups from the Union State in them.

On the part of Russia it is necessary to conduct activities that will present little-known places, which can be a prerequisite for tourism development. In general, a most promising direction is to allocate funds of the budgets of the regions and the Federal State to conduct joint exhibitions and cultural exchange programs. The joint efforts of the regions in the health care industry and medical tourism will allow by 2020 to create a new industry – medical service tourism, which will not only have a significant impact on the tourist market, but will also affect the overall level of population health.

In order to establish closer cooperation, it is necessary to standardize the goals and procedures of health care with the introduction of amendments to the Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation "About the provision of medical assistance to citizens of the Republic of Belarus in healthcare institutions of the Russian Federation and to citizens of the Russian Federation in healthcare institutions of the Republic of Belarus" dated January 24, 2006 and to ensure that health insurance is valid on the territory of the entire state, and regional medical programs should be extended to cover all citizens that are in the region, where the program is in action for the entire period of their stay.

According to *Table 3*, the main cooperation exists between the border areas, regions of the Central Federal District and the Volga Federal District. It is recommended to expand the geography of cooperation to include the Southern Federal District, Northwestern Federal District and, in the future, in Siberia and the Far East.

In addition to the expansion of regional programs on cooperation in the spheres of national economy, it is necessary to focus on

Table 3. Regions that are engaged in the most active cooperation between Russia and Belarus

Sector	Russian Federation	Republic of Belarus
Education	Moscow Novosibirsk Oblast Sverdlovsk Oblast Kaliningrad Oblast Voronezh Oblast Smolensk Oblast	Minsk Oblast Mogilev Oblast Brest Oblast Grodno Oblast
Culture	Moscow Moscow Oblast Vladimir Oblast Rostov Oblast Krasnodar Krai Novosibirsk Oblast	Minsk Oblast Vitebsk Oblast
Healthcare	Minsk Oblast Bryansk Oblast	Moscow Oblast Kaluga Oblast
Compiled by the author according to the findings of the study.		

increasing the access of goods and services on the domestic market, especially in border regions. It is necessary to form new principles of cooperation, under which organizing cultural, social or economic activities does not require registration of the legal entity of the host country and the citizens of Belarus do not fall under the purview of the law on foreign citizens. The transfer of authority to conclude trade and economic agreements on cooperation and development to the regions without ratification by the Government will reduce communications through the central channels of communication and shift to multilateral direct links.

The economy of regions within the Union State is characterized by unbalanced development and the heterogeneity of socio-economic situation, which is aggravated by an unstable economic and political situation and strengthening of the crisis phenomena in the economy. This makes it impossible to meet the needs of citizens at the level exceeding the one established by the government, reduces the opportunities of medium-term forecasting and denies the use of long-term planning, reduces incentives to expanding economic ties and violates existing mechanisms of interaction between federal authorities, local authorities and public sector.

Therefore, it is necessary to intensify domestic efforts of each region to achieve their development goals. In this regard, it can be useful to apply the model of endogenous development of regions, which became especially popular in the 1980s in the West, and which is based on the maximum use of local resources – labor, the accumulation of local capital, entrepreneurial capabilities, specific knowledge of the production process and implementation of specific professional tasks. Another element of the model is the ability of the local economy to control the accumulation process at the local level. However, not all the regions have sufficient industrial and resource potential to fulfill assigned tasks on their own, so the only way out of this situation is to use the advantages of participation in interregional or international integration processes.

Interregional cooperation is a tool to solve regional problems and it is also part of the mechanism of economic growth both at the national and regional levels. For the country as a whole the intensification of interregional cooperation solves the main problem of capitalization, mobilization and optimization of the use of resources of regions as a main source of socio-economic development of the Union State. Regions that participate in this kind of integration processes will get the following advantages:

– wider access of economic agents to resources: financial, human, material resources and cutting-edge technology;

– the ability to produce and supply products to the interregional market, which is more capacious;

– the ability to operate on a broader integrated, perhaps international, market-place;

– favorable conditions for economic entities of the participant regions, including protection from the competition of producers from other regions and countries;

– joint solution to complex socio-economic, scientific, technological, ecological and other issues.

As a logical continuation of the strategic course of the Union State for approval of the principles of democracy in society, interregional cooperation should develop in directions that address challenges common to several regions on the way toward their growth and provide an opportunity to capitalize the resources, the capacity of which greatly exceeds that of individual regions. This requires the establishment of cooperative relations, especially concerning the position on the import of products under sanctions and development of import substitution programs. In addition to the economic and political standards, it is necessary to adhere to the policy of cultural and educational exchange.

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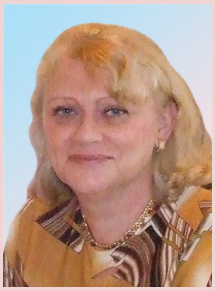
Potential for Asia-Pacific Countries Innovative Development*



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Abstract. The relevance of the chosen topic is determined by the new geo-economic situation. Since the end of the 20th century, the vector of global economic development has shifted towards the Asia-Pacific region. Russia's economic entry to the Asia Pacific region is a necessary condition for its internal sustainability and competitiveness on the international stage. The purpose for the research is to assess the level of innovative and technological development in Asia-Pacific countries with further clustering. Integrated assessment remains understudied, in particular, in the context of Asia-Pacific market. The authors estimate innovative activity of 42 Asia-Pacific countries during 2008–2013 (252 observations), built regression models, use their own methodology for clustering Asia-Pacific countries

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by level of innovation development in 2008–2013 according to indicators of innovative activity. The study identifies the most significant factors the changes in which have a positive impact on innovative development of a country: "human potential factor", "factor of innovative development", "factors facilitating (impeding) the development of human abilities". The research proves the role of human potential as the most meaningful factor in assessing the level of innovative-technological development of countries measured by indicators such as: per capita GDP, higher education enrolment rates, costs of R&D, engineers and researchers in R&D, demographic burden on the working-age population and life expectancy, investments and internet users. An increase in the above indicators in a particular country will lead to its efficient innovative development. The main area of state policy in terms of increasing economic potential is primarily stable growth of industrial production and significant annual GDP growth as a basis for increasing the level of financial self-sufficiency and economic independence. The use of the proposed set of indicators implies the study of factors which have the greatest impact on the integrated assessment of the level of innovative development of a country. The built regression models help use the identified factors with a positive impact on the outcome indicator, which will significantly influence the level of innovative development of a country in the long run.

Key words: innovative development, Asia-Pacific Region, regression analysis, patents, clustering, human potential.

Nowadays researchers consider the Asia-Pacific region as one of the most promising regions for future integration. The relevance of this study is determined, firstly, by the necessity of Russia's transition to innovative development as the only way to make its economy competitive and to enter the global community on equal terms. Secondly, such a transition requires the use of comparative advantages of the domestic economy related to the Eastern area of its foreign economic relations, especially in terms of economic and political issues.

Issues of theoretical and methodological justification of industrial market estimation and forecasting in Asia-Pacific countries are currently poorly researches, especially in terms of determining the properties and variables influencing economic performance. International economy is going through "tectonic" transformations which change its configuration. Previously, the term "developing countries" was used as a synonym for "backwardness", but now this concept is replaced by a new definition – emerging – "rising" economies. In light of this, there is a need for Russia's further critical reflection on opportunities related to the recovery of these economies.

The scientific significance of addressing the issue at this research stage is to develop theoretical and methodological foundations of the research, assess the dynamics of sectoral markets of Asia-Pacific countries with regard to potential of the Russian economy.

Modern strategy of Russia's development is based on the principles of protecting national interests in the long term. In this context, the issue of new quality of economic development of the Russian economy from the point of view of achieving strategic goals and reducing the gap between the developed countries has been discussed for many years. In fact, the only result of this controversy to date is the recognition that to address the issues Russia is facing in the medium and long term, a high level of economic development must be ensured. As for opportunities and ways of achieving this goal, the need for fundamental restructuring of the management system and finding new mechanisms of the country's competitiveness through effective collaboration with Asia-Pacific countries. A lot remains to be done, primarily, in the context of studying the issues of integration of the Russian economy into sectoral markets of Asia-Pacific countries. However, these opportunities have not yet been fully comprehended, the mechanism for their implementation has not been developed. *Comprehensive analysis of these issues has not yet been conducted.*

New, breakthrough scientific results are possible after defining the specific features of the Russian economy – relatively high natural resource security. In this regard, there are discussions which oppose resource-based economy to innovative economy and estimate potential location of innovation development institutions in territorial and sectoral aspects.

The most popular view is that innovative development will break the resource deadlock of the Russian economy. This view is supported by most economists and politicians.

The opposite point of view, based on the Heckscher–Ohlin theorem, is sharply criticized. The theorem determines that a relatively high resource security of the Russian economy should be taken into account in innovative development. In other words, innovation in the Russian economy will pay off only in primary industries.

The presented points of view, despite their mutually exclusive nature, can be reduced to a common denominator. It is related to integration of the Russian economy into sectoral markets of Asia-Pacific countries and development of structural transformation of the Russian economy which would take into account the possibility of using innovation development impulse from this integration.

It should be comprehended that the economic prospects of the Asia-Pacific Region are not unique, so they are discussed by many authors. Some authors write that the East Asian community is acting against in the interests of creating a common East Asian identity and pursue the aims of particular states [21]. In different periods, the authors point to the low level of economic integration in the Asia-Pacific Region due to lack of highly developed regional institutionalization processes. Asia-Pacific Economic Cooperation (APEC) is

described as the most successful regional association among the others [9, 10, 20]. For many observers, the Asia-Pacific Region is the epitome of Asian regionalism where integration is inefficient. Various authors note the possibility of replacing formal processes of regional economic integration institutionalization [17, 18], both inside and outside the region [15].

The history of institutionalization of integration processes shows that significant efforts have been made to build a strong institutional environment for the development of regional economic relations in post-war East Asia, but these efforts were not successful [12]. The fact that integration in the Asia Pacific Region will increase the potential benefits for the country due to conserving on the scale by expanding export industries [10, 14, 29], reduce transaction costs between contracting parties and reduce the importance of political negotiations [30], is the subject of many economic discussions. A number of authors note that cross-border banking operations in the Asia-Pacific Region, which began to increase in the past decade, could be considered a sign of major integration processes in the region. But it is represented in the form of dollar flow from the US to Europe and then to the Asia-Pacific region and back to the US through major mediators – European banks [8]. However, after the crisis, European banks are openly hampering the banks of Asia-Pacific countries [11, 13, 28, 31].

The ambiguous interpretation of integration processes in the Asia-Pacific region was the impetus which results in the need to evaluate the potential and the actual state of integration processes in the region based on innovative potential.

The above presented studies largely cover the issues of evaluating market production capacity; however, the issues of integrated assessment of potential remain underdeveloped, in particular, a set of market in the Asia-Pacific region.

The often used thesis that Russia is already present in the Asia-Pacific region has determined the authors' scientific interest to test this statement. As a result of studying the possibilities of Russia's integration into Asia-Pacific markets, the authors identified very low trade exchange among Asia-Pacific countries. Judging by trade relations, the authors exclude South Asia, TLA countries, Oceania, Indochina, Russia, Mongolia, and North Korea from the Asia-Pacific region. The remaining are: the US, Northeast Asia (without Russia, North Korea and Mongolia), ASEAN countries, Canada, Australia and New Zealand, i.e. 15 countries [22]. The differences and similarities in the sectoral GDP structure do not affect the increase in the volume of mutual trade between partner countries. Empirical analysis of Asia-Pacific countries confirmed that in this case, formation of trade blocks does not entail the increase in mutual trade flows. This proves that many of the trading blocks are formed

as a result of a political decision, rather than an objective economic process. The success of the currently existing organizations can be put under question. Analysis showed that the stated objectives of any organization were not fully achieved. Moreover, social, political and cultural spheres were largely involved; however, the economic sphere demonstrates less cooperation. Statistics confirm the thesis that most Asia-Pacific countries are not of any trade value neither to each other, nor to other Asia-Pacific sub-regions. Their integration potential is not mentioned in the present paper. Some of the economic trends can only be applied to two sub-regions: Northeast Asia and ASEAN region, including, of course, the United States which, due to their global impact are the most important economic factor in all parts of the globe, including the specified sub-regions [23, 24].

Assessment of the current state of integration processes in the Asia-Pacific region by country and sector showed that there are differences in the level of economic potential, natural resource security, population, cultural, religious and other traditions. A lot of time will pass before the Asia-Pacific region is identified as a region according to similarity of all characteristics. Cluster analysis of Asia-Pacific countries has shown that these countries cannot be considered a single organized community. The Asia-Pacific region is demonstrating extreme fragmentation in development [25, 26]. The country areas of developing promising partnership for Russian business of greatest interest are Chinese, Korean, Japanese, Vietnamese, and Australian destinations.

Further research in this area should be focused on detecting the gap between the absolute and the current market potential taking into account both quantitative and qualitative indicators, which will ensure the understanding of directions of cross-country market integration from the perspective of innovative development.

There is no consensus on defining the list of Asia-Pacific countries; there is only a conditional classification of its member economies, so the authors include the following countries in Asia-Pacific region: Australia, Brunei, Vanuatu, East Timor, Vietnam, Guatemala, Honduras, Hong Kong, Indonesia, Cambodia, Canada, China, Colombia, Costa Rica, Macau, Malaysia, the Marshall Islands, Mexico, Micronesia, Nauru, Nicaragua, New Zealand, Palau, Panama, Papua New Guinea, Peru, Russia, Taiwan, South Korea, El Salvador, Samoa, Singapore, Solomon Islands, Thailand, Tonga, Tuvalu, the USA, Fiji, the Philippines, Chile, Ecuador, Japan, Myanmar, Mongolia, Nepal, India, Sri Lanka, Bangladesh, North Korea, and French Polynesia.

Nowadays there are different approaches to assessing the level of innovative-technological development of the country and its regions in domestic and international practice. Amid the establishment of innovative economy the main factors in socio-economic development include technological

development, innovation creation and use, intellectual property. In order to identify potential opportunities and growth areas of the economic system it is necessary to find and use the methods of complex estimation of innovative potential of the country. Domestic and foreign science uses different methods of estimating innovative potential of the country (region).

The issue of measuring and evaluating innovative potential is covered by researchers of various international schools and scientific organizations. In particular, these include the Organization for Economic Cooperation and Development (OECD), the European Commission on Innovation, research units of the World Economic Forum and the World Bank, the UN Industrial Development Organization (UNIDO), etc. Methods and approaches to assessing innovative potential developed by these organizations are widely used for various purposes (*Tab. 1*).

Table 1. Methods of assessing country's innovative development

Indicator	Description
Technological capacity index *(World Economic Forum – WEF)*	Integrated index of assessing the level of the country's competitiveness depending on three categories of variables: macro-economic environment, public institutions and technology.
Integrated index of innovative development *(Organization for Economic Cooperation and Development – OECD)*	Applied to analyze the level and development dynamics of innovative economy of developed and developing countries. The OECD methodology presents the following indicators: the share of high-tech economic sector in manufacturing and services; innovative activity; investment in the knowledge sector (public and private); development and production of information and communication equipment, software products and services; number of employed in science and high tech, etc.
System of indicators to measure *Eurocomission* innovative activity	The technique is used for comparative analysis of the level of innovative activity development in the European Union (EU), as well as for its comparison with indicators of the US and Japan. The system includes 16 indicators divided into four groups: human resources; knowledge generation; knowledge transfer and use; innovation financing, innovative activity results.
European Innovation Scoreboard (EIS) Index	The index is based on three blocks: opportunities, business activity and results.
Knowledge Economy Index (World Bank methodology *in the framework of Knowledge for Development (K4D)* program	It represents the mean value of four indicators: economic incentive and institutional regime, education and human resources, innovation system, information and telecommunication technology.
Index of Russian regions' innovativeness *(Independent Institute for Social Policy project)*	The calculation of the index is based on a set of five factors expressed by relative indicators: share of employees engaged in research and development in the total number of employed in economy; number of university students per 10 thousand people; number of registered patents per 1,000 people employed in economy; costs of technological innovation per 1 person; level of IT development.
Level of scientific development and introduction of technological advances in the region *(Expert RA rating Agency)*	The indicators used for analysis: share of innovation-focused enterprises, share of innovative products in the total production volume, costs of research.
Source: [1, 2, 5, 16, 19, 27, 32, 34, 35].	

The whole range of techniques for assessing the country's innovative development is not limited to this set of indicators. However, the used techniques for assessing the country's innovative development have certain disadvantages limiting their practical use. These include imperfect regional statistics as a number of indicators at the regional level are not calculated; therefore the differentiation factor is not taken into account. National indices take into account the country's specific characteristics. Indices of international organizations are largely comparable as they are based on common techniques.

It is worth noting that the assessment of the country's innovative development does not focus on people's level and quality of education and their wealth necessary to meet their need for benefits and socio-economic conditions affecting human potential in all its diversity. Given the current trends, nowadays it is advisable to use the integrated approach to studying the country's innovative development and defining the role of a human in it. Thus, from the point of view of innovative development, the contribution of human potential is determined by its influence as a source of new ideas and innovations.

In our study, we propose an approach to determining the actual areas of innovative development taking into account human development in countries with different levels of socio-economic development. Special attention is paid to the system of indicators giving information on the country's level of innovative development. The practical use of the proposed set of indicators involves the study of factors having the greatest impact on the integrated assessment of the country's level of innovative development.

Quantitative assessment of the volume and efficiency of innovative development is quite difficult because of the limited statistical information in terms of regional and country aspects. The main measure of innovative activity in foreign economic literature is the number of patent applications; for comparison: some Russian studies use the indicator "number of innovation-focused enterprises" [3, 6, 7]. Thus, the choice of a measure indicator is up to the researcher.

We agree with the opinion of foreign researchers that patents more accurately reflect the state of the scientific research sector as the main source of new knowledge and innovations than the number of innovation-focused enterprises. It is the number of patent applications that reflects the effectiveness of innovation-focused enterprises. Of course, their innovative activity has an impact on the country's and regions' innovative development and is determined by a large number of factors.

The choice of factors influencing the country's innovative development was made by using regression analysis techniques. The number of residents' and nonresidents' patent

Table 2. Indicators of country's innovative activity

Legend	Indicator
GDPpc	GDP per capita, by Purchasing Power Parity (PPP) in current international dollars
EDU_GDP	Public expenditure on education, % of GDP
EDU_H	Gross higher education enrollment rate, in %
RgD	Expenditures on R&D, in % of GDP
IMP_HT	Imports of high-tech goods, in % of the total amount of imports
EX_HT	Exports of high-tech goods, in % of industrial exports
IT_SERV	Information and communication services. Protected Internet servers, per 1 million people
SAJ	Articles in scientific and technical journals, number
IT_US	Internet users, per 100 people
TECH_RgD	Engineers in R&D, per 1 million people
RES_RgD	Researchers in R&D, per 1 million people
HEALTH_GDP	Public and private expenditures on healthcare, in % of GDP
TDR	Dependency rate, number of people aged 0–14 and those aged 65 and over per 100 people aged 15–64
LEB	Life expectancy at birth, years
INV_OUT	Foreign direct investment, net outflow, in % of GDP
INV_IN	Foreign direct investment, net inflow, in % of GDP
U_EMPL	Unemployment rate, in %
Source: compiled by the author.	

applications per 100 thousand people (Patent) serves as a dependent variable characterizing the country's innovative activity.

The regressors are the following (*Tab. 2*).

The regression equation was estimated by 42 countries in the Asia-Pacific region in 2008–2013 (252 observations). The rest of the countries were not sampled due to lack of data on certain key indicators. The information base for the research is World Bank statistics [4; 33].

It is obvious that in Asia-Pacific countries there is a sufficiently high differentiation both by indicators of socio-economic development and indicators of innovation and technological development. ***In the present study, Asia-Pacific countries are classified into homogeneous groups using cluster analysis.*** During cluster analysis, each Asia-Pacific country was represented by a vector in a 17-dimensional space of factors (*Tab. 3*). In general, similar territorial zones called clusters have been identified by using the system of indicators characterizing the country's level of innovative activity.

Cluster *A* in 2013 included 8 Asia-Pacific countries (19% of the total number of countries). This cluster is formed by countries

Table 3. Grouping of Asia-Pacific countries by level of innovative and technological development in 2008 and 2013

Results of clustering at the beginning of the period under review (2008)	Results of clustering at the end of the period under review (2013)
Cluster A	
Australia, Canada, New Zealand, South Korea, Japan, Singapore, Hong Kong, the USA	Australia, Canada, New Zealand, South Korea, Japan, Singapore, Hong Kong, the USA
Cluster B	
Brunei, China, Russia, Macau, Malaysia, Mexico, Thailand, Chile, Panama	China, Costa Rica, Macau, Malaysia, Mexico, Russia, Thailand, Chile, Mongolia
Cluster C	
Costa Rica, Vietnam, India, Indonesia, Colombia, Mongolia, Peru, Fiji, Ecuador, the Philippines	Brunei, India, Indonesia, Colombia, Panama, Peru, El Salvador, Fiji, the Philippines, Vietnam, Ecuador
Cluster D	
Vanuatu, Guatemala, Honduras, Cambodia, Micronesia, Papua New Guinea, Samoa, Solomon Islands, East Timor, El Salvador, Nicaragua, Tonga, Nepal, Sri Lanka, Bangladesh	Vanuatu, Guatemala, Honduras, Cambodia, Micronesia, Nicaragua, Papua New Guinea, Samoa, Solomon Islands, East Timor, Sri Lanka, Bangladesh, Nepal, Tonga
Source: compiled by the author.	

leading in indicators of innovative development. GDP per capita of these countries is 48054,53 international dollars by PPP, indicating a fairly high level of socio-economic development. Indicators intellectual potential are also at a high level: the countries' average higher education enrollment rate is 68% with an average of 819 and 4946 engineers and researchers in R&D per 1 million people respectively. The number of publications in scientific journals by the end of 2013 averaged 43233,6. These countries had an average of 192 patent applications patents per 100 thousand people. All this, of course, indicates high innovative activity of the countries included in the cluster. During the period under review the group has not changed.

Cluster *B* at the end of 2013 included 9 Asia-Pacific countries (21% of the total number of countries). These countries are in the "middle" position regarding countries from other clusters. Cluster *B* countries demonstrate rather high GDP per capita: the average of 26465,91 USD by PPP (in current international dollars), which characterizes them as countries with prosperous standard of living and quality of life. As for the values of key indicators of innovative development, these countries have the average of 20.8 patent applications per 100 thousand people. In cluster *B* countries in 2013 there was a high share of imports of high-tech products – an average of 13.5% of the total amount of goods. At the same time there was a high share of high-tech exports – an average of

20.1% of industrial exports, mainly due to Costa Rica (43.3%) and Malaysia (43.6%). In 2013, these countries were allocated an average of 4.6 and 0.8% of GDP respectively for education and R&D. The average higher education enrollment rate was approximately 53.5%. During 2008–2013, the quantitative composition of the cluster slightly changed: Brunei left Cluster *B* and moved to Cluster *C*; while Costa Rica improved its position became part of Cluster *B*. Thus, countries of Cluster *B* rank second by innovative development and intellectual capacity compared to other homogeneous groups of Asia-Pacific countries.

Cluster *C* in 2013 included 11 Asia-Pacific countries (26% of the total number of countries under study). The main characteristic of these countries is that their level of innovative development is below average. This is evidenced by a small number of patent applications – 2.4 per 100 thousand people, and the number of articles in scientific journals – 2226, as well as a small number of engineers and researchers in R&D – 106 per 1 million people. In countries of this cluster high-technology exports exceed their imports, the average increase amounted to 20% (except Colombia, Peru, Panama and Ecuador). Public expenditures on education in the countries of this group averaged 3.7% of GDP, but it is worth noting that Vietnam is the leader the value of which is 6.6% of GDP. Public expenditures on R&D are more stable and range on average around 0.2% of GDP. By level of socio-economic development these countries differ from other clusters: they are characterized as more or less sustainable. The value of GDP per capita is on average 16330.4. USD by PPP (current international dollars), which is almost 2 times lower than the average value in Cluster *B*. The average gross higher education enrollment rate is 32.1% along with the small number of Internet users – 40 per 100 people.

During 2008–2013 cluster *C* underwent some changes: in 2008, the cluster consisted of 10 countries; during the period under review Costa Rica and Mongolia improved their ratings by some indicators of innovative development and moved to cluster *B*. The negative trend of declining indicators of innovation activity was observed in Brunei (the number of patent applications during the period under review decreased from 19.7 to 2.6 per 100 thousand people); there was also a decline in publication activity. Thus, the level of innovative development of cluster *C* countries can be described as below average.

In 2013, cluster *D* consisted of 14 Asia-Pacific countries (34%). These countries differ considerably from the countries of all other clusters in terms of innovation development, as well as by indicators of human potential. This cluster demonstrates lowest indicators of innovative activity (number of patent applications amounted

to an average of 0.980 per 100 thousand people; the number of publications in scientific journals is also at the lowest level compared to other clusters – 10 units). This group is also characterized by the lowest higher education enrollment rate – an average of 12.9%, and the lowest number of researchers and engineers in R&D. Cluster *D* countries have highest unemployment rates (on average, 11.3%) compared to other clusters, and the lowest rate of GDP per capita – 4729.1 international dollars by PPP. During the period under review, the cluster has slightly changed due to the fact that El Salvador moved to the group of countries with better indicators of innovative development. Thus, cluster *D* countries are characterized as countries with the lowest level of innovation and human development in the Asia-Pacific region.

The results of clustering show high differentiation among Asia-Pacific countries in terms of innovation development; this is due to several factors: geographical position, climate, economic and labor market development, demographic and social characteristics. In this regard, it seems appropriate to introduce a dummy variable which will take into account the specific features of each country. Let us present the countries' specification (country's belonging to a particular cluster) with binary features (*Tab. 4*).

Through correlation analysis we determine the correlation between the outcome indicator and factor features. To exclude the effect of multicollinearity and reduce the dimension of initial indices the current study implements factor analysis through principle component analysis.

Table 5 shows that eigenvalues of the first three principal components are more than one, so they are preserved for further analysis. They explain 75.7% of initial feature variance. *Figure 1* shows the composition of each component.

Conventionally, the first component *(F_1)* can be called "human potential factor": GDP per capita – reflects the level of material well-being; gross higher professional education enrollment rate – the literacy rate; life expectancy at birth – the level of social welfare. It should be noted that these indicators are

Table 4. Replacement of qualitative parameters of a regression model with binary features

Binary variables			Belonging to a cluster
Cluster *A*	Cluster *B*	Cluster *C*	
1	0	0	Cluster *A*
0	1	0	Cluster *B*
0	0	1	Cluster *C*
0	0	0	Cluster *D*

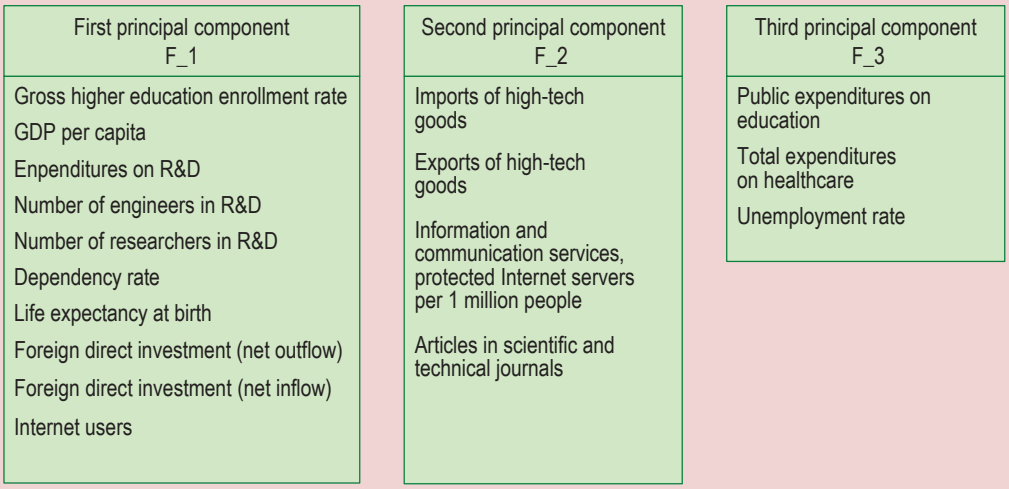
Source: compiled by the authors.

Table 5. Value of principal components and the share of explained variance of features

No. of component	Principal component symbol	Principal component eigenvalue	Explained variance, %	Cumulative fraction explained variance, %
1	*F_1*	6.003	42.343	42.343
2	*F_2*	3.256	19.991	62.334
3	*F_3*	1.789	12.855	75.189

Source: compiled by the authors.

Figure 1. Composition of principal components



included in the integrated index – Human Development Index, according to the UN methodology. Moreover, the index includes indicators characterizing the number of specialists in R&D. The dependency rate reflects the level of population ageing and the number of people of working age with accumulated potential. Direct foreign investment is also important for the formation of human capital as targeted capital investment in different sectors and industries contribute to the improvement of the population's welfare. Most indicators are related to the first principal component by direct correlation, i.e. if values of these indicators are increased, according to the calculations, the component value is increased, except for dependency rate, which indicates the decreasing component value amid the increasing indicator. Variance of the first principle component is 42.3%.

The second main component *(F_2)*, the variance of which is 19.991%, includes indicators of country's innovative develop-

ment; it is conventionally called "factor in innovative potential". The indicators included in the second principal component are directly correlated indicating an increasing *F_2* amid the growth of the underlying factors.

The variance of *F_3* amounts to 12.855% of the total variation. Indicators of the third principal component can mostly be described as factors in development of human capacity. Public expenditures on education and healthcare have a positive correlation with the component; the unemployment rate – negative. Measures to reduce unemployment and tensions on the labor market carried out by the government in any country will definitely affect the economic growth, which will result in the increasing quality of life and the standard of living and, of course, will have a positive impact on the development of human capacity and innovative thinking. All of the above will also have a major impact on the level of the country's long-term innovative development.

Next we build a regression dependence model based on the outcome indicator of the selected factors (*Formula 1*). The regression model includes dummy variables which help take into account the country's belonging to a certain cluster:

$$y = 143{,}98 + 12{,}83F\_1 + 8{,}86F\_2 + \\ + 1{,}32F\_3 - 142{,}68Cl\_A - \\ - 132{,}08Cl\_B - 124{,}63Cl\_C \quad (1)$$

The dependence of the number of patent applications from the factors for countries in each cluster will be described by the following equations:

For the countries of cluster *A*:

$$y = 143{,}98 + 12{,}83F\_1 + 8{,}86F\_2 + 1{,}32F\_3 - 142{,}68Cl\_A;$$

For the countries of cluster *B*:

$$y = 143{,}98 + 12{,}83F\_1 + 8{,}86F\_2 + 1{,}32F\_3 - 132{,}08Cl\_B;$$

For the countries of cluster *C*:

$$y = 143{,}98 + 12{,}83F\_1 + 8{,}86F\_2 + 1{,}32F\_3 - 124{,}63Cl\_C;$$

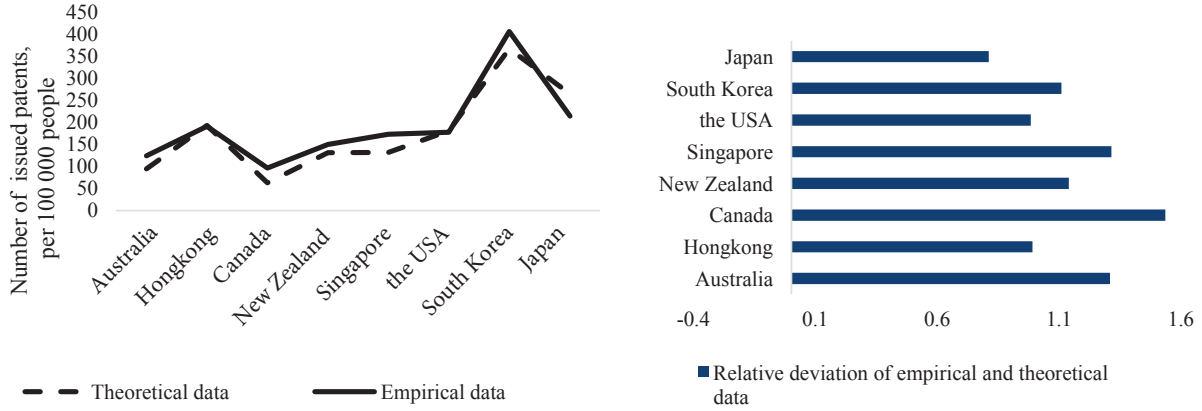
For the countries of cluster *D*:

$$y = 143{,}98 + 12{,}83F\_1 + 8{,}86F\_2 + 1{,}32F\_3.$$

Figures 2–5 present empirical and simulated values of the number of patent applications in the countries of clusters *A, B, C, D* at the end of 2013. The graphs also present the relative deviation of the simulated values of the outcome indicator from empirical data. The models can be used for predicting key performance indicators and identifying the main trends in the outcome indicator.

To identify priority areas of innovative development for the countries of cluster *A* we rate the main factors included in the first principal component *F_1* and contributing to the change in the outcome indicator for the countries in this group. Through stepwise regression for the countries of cluster *A* we have identified four important factors: R&D expenditures *(RgD)*; public and private expenditures on healthcare *(HEALTH_GDP)*; public expenditures on education

Figure 2. Number of patent applications in the countries of cluster *A* at the end of 2013



Source: calculated by the authors.

Table 6. Evaluation of factors contributing to the change in the outcome indicator for the countries of cluster *A*

Model	Non-standardized index	Standardized index	Indicator importance
	B	*Beta*	*P-level*
Constant	44.770352	–	0.01120
RgD	73.700571	0.930890	0.00000
HEALTH_GDP	14.224475	0.805795	0.00000
EDU_GDP	0.692993	0.248387	0.00600
TECH_RgD	0.039370	0.246965	0.00100
Source: compiled by the authors.			

(EDU_GDP); engineers in R&D *(TECH_RgD)*. These factors explain 72% of the total variance of the value of the number of patent applications. Factor estimates are presented in *Table 6*.

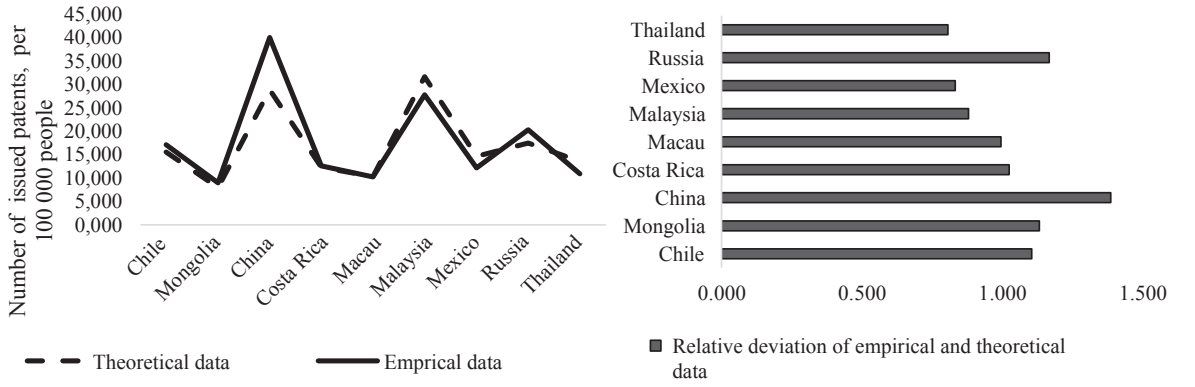
Table 6 shows that ***the amounts of investment in R&D and public expenditures on healthcare have the greatest impact on the results of innovative activities in the countries from cluster A.*** This cluster includes leading countries of the Asia-Pacific region in terms of economic, innovative and human potential development. Ultimately, if the results of economic development in the countries of this cluster are forwarded to maintaining the achieved results in innovation, as well as to maintaining an adequate standard of living and quality of life, it will lead to building innovative potential and economic growth.

The regression model for the countries from cluster *B* is as follows (*Fig. 3*).

As a result of decomposition of "human potential factor" *(F_1)* the most significant indicators are highlighted: net inflow of foreign direct investment *(INV_IN)*, researchers in R&D *(RES_RgD)* and the number of articles in scientific and technical journals *(SAJ)*. These factors explain 79% of the total variance in the outcome indicator. Parameter estimates are presented in *Table 7*.

The table shows that ***the researchers' publication activity and the number of researchers in R&D have the greatest impact on the results of innovative activities in the countries from cluster B.*** These countries can be described as effectively-oriented since their competitiveness is achieved through market efficiency and ability to benefit from the existing technology. ***These countries experience the need to stimulate scientific potential and innovative activity of research and scientific organizations. Attention should also be paid to***

Figure 3. Number of patent applications in the countries of cluster *B* at the end of 2013



Source: calculated by the authors.

Table 7. Evaluations of factors contributing to the change effective indicator for the countries of the cluster In

Model	Non-standardized index	Standardized index	Indicator importance
	B	*Beta*	*P-level*
Constant	2.589210	–	0.00711
SAJ	0.000519	0.889209	0.00000
RES_RgD	0.003984	0.599207	0.00000
INV_IN	0.907935	0.111984	0.00000
Source: calculated by the authors.			

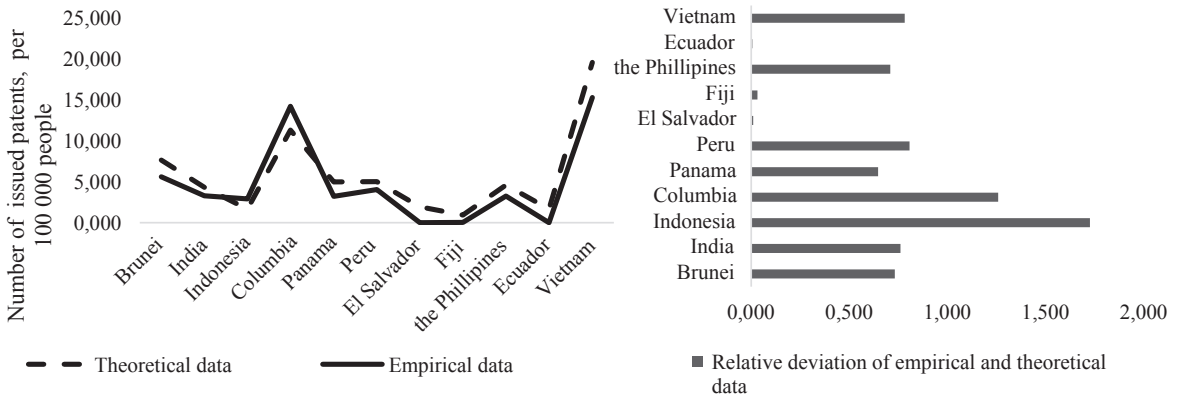
attracting investment in science and education for increasing innovative potential of the countries in this cluster.

For the countries of cluster *C*, the simulation results of the number of patent applications are shown in *Figure 4*.

The figure shows that the theoretical model does not contradict empirical data given the trend of innovative development of the countries in this cluster. We also define priority areas by highlighting the main factors contributing to the change in the outcome indicator in the countries of this cluster.

Through stepwise regression for the countries of cluster C we have identified four important factors: researchers in R&D (RES_RgD); GDP per capita (GDPpc); dependency rate (TDR); higher education enrollment rate (EDU_H). These factors explain 66% of the total variance of the number of patent applications (*Tab. 8*).

Figure 4. Number of patent applications in the countries of cluster *C* at the end of 2013



Source: calculated by the authors.

Table 8. Evaluation of factors contributing to the change in outcome indicator for the countries of cluster *C*

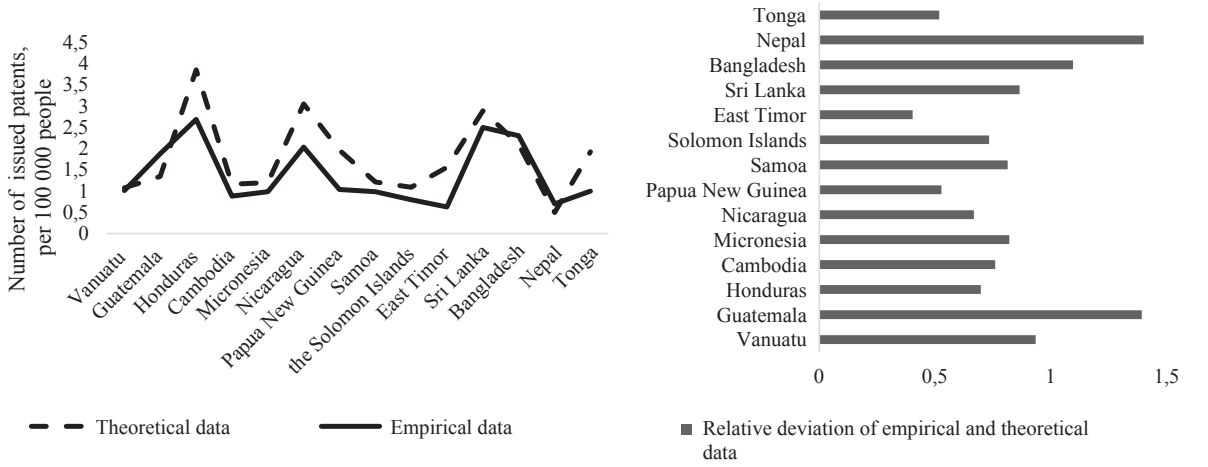
Model	Non-standardized index	Standardized index	Indicator importance
	B	*Beta*	*P-level*
Constant	8.907542	–	0.00000
TDR	0.106871	0.607524	0.00401
GDPpc	0.000029	0.298712	0.00900
EDU_H	0.097125	0.222901	0.00153
RES_RgD	0.035971	0.200181	0.00120
Source: calculated by the authors.			

As can be seen from the data, in terms of standardized equation indices, **dependency rate have the greatest impact on the number of patent applications in the countries from cluster C;** *the remaining parameters are sufficiently equivalent. These countries can be characterized as more or less sustainable in terms of socio-economic development.* ***Thus, if the results of economic development in these countries are forwarded to improving demographic indices and developing educational potential, it will lead to significant innovative development.***

The simulation results of the number of patent applications in the total amount of determining factors for the countries of cluster D are shown in *Figure 5*.

Let us outline factors which have the greatest impact on the results of innovation activity by using stepwise regression (*Tab. 9*).

Figure 5. Number of patent applications in the countries of cluster D at the end of 2013



Source: calculated by the authors.

Table 9. Evaluations of factors contributing to the change in the outcome indicator for the countries of cluster *D*

Model	Non-standardized index	Standardized index	Indicator importance
	B	*Beta*	*P-level*
Constant	1.777298	–	0.00013
RES_RgD	0.049981	0.552987	0.00030
TDR	0.125871	0.378120	0.00013
RgD	8.001578	0.232487	0.01500

Source: calculated by the authors.

The table shows that the number of researchers in R&D, dependency ration and investment in R&D have the greatest impact on the number of patent applications in the countries from cluster D. **The priority area of economic development in these countries is building educational and scientific potential.** Countries in this cluster may be classified as resource-based (focus on natural resources and low-skilled labor). These countries do not have a developed system of education, and high-skilled workers are available due to migration processes. These countries are experiencing acute problems of migration outflow which affects demographic indicators. **Thus, these countries need to implement programs aimed at social development, reduction of unemployment and improvement of the quality of educational and scientific potential.**

The study identified the most significant factors the changes in which are beneficial for the country's innovative development: "human potential factor" which characterizes human development in terms of demographic indicators, reflects the population's satisfaction with material benefits and determines its level of self-sufficiency; "innovative development factor" which characterizes the level of innovative and technological development and the country's intellectual potential; "factors facilitating (impeding) the development of human capacity" which accumulate various economic conditions to implement people's potential.

In general, we can conclude that the constructed models provide a visual representation of groups of factors influencing the level of innovative and technological development in a particular country. **The study proved the role of human potential as the most significant factor in assessing the level of countries' innovative and technological development measured by indicators such as: GDP per capita, higher education enrollment rate, expenditures on R&D, number of engineers and researchers in R&D, dependency rate and life expectancy at birth, investment and Internet users.** Therefore, the increase in the above indicators in a particular country will lead to effective innovative development.

With the help of the developed system of indicators it is also possible to develop the priority areas of the countries' innovative development. We also point to the necessity of implementing a set of measures for developing innovative potential of the society, stimulating economic activity, which is reflected in the incomes of different population groups for meeting their needs and developing creativity ultimately leading to innovative achievements. The main area of the state policy in terms of increasing economic potential is primarily stable growth of industrial production and significant annual growth of GDP as the basis for increasing the level of budgetary self-sufficiency and economic independence.

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Structure and Dynamics of Household Consumption of Information Goods: Regional Perspective

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Abstract. Over the past two decades, the indicators of consumption of information goods by the Russian population have been significantly behind the similar indicators in developed countries, which was accompanied by inequality in consumption between Russian regions. The importance of studying consumption of information goods in information economy is due to the fact that the degree of satisfaction of needs reflects the level of population's welfare and is an indicator of innovative development which defines the incentives and constraints of modernization and long-term sustainable growth of the national economy. The article is devoted to contemporary structural changes in consumption of auxiliary information goods by the population of a dynamically developing region (the Sverdlovsk Oblast) amid the development of information economy. The use of methods of economic-statistical analysis and sociological survey has helped identify the structure and main trends in consumption of information goods in Russia in general and in the Sverdlovsk Oblast in particular. The article reviews the impact of factors such as consumers' age group, place of residence (town, village) and income level on household consumption of goods in the Sverdlovsk Oblast.

Key words: information economy, consumption, information products, household, Sverdlovsk Oblast.

The development of the information society, which still remains one of priority objectives for the Russian government, is focused primarily on the growth of production and consumption in the information sphere. Changes in the structure of consumption of information goods amid the formation of information economy are driven by various factors such as rapid emergence and production of new goods and services in information and communication technology (ICT) and socio-cultural characteristics of consumer behavior of different socio-demographic groups. At the same time, the inequality in information and communication benefits (services, goods, technologies) remains at several levels: international (relative to developed countries), regional (between different constituent entities in Russia), and social (between people of different socio-demographic groups).

Despite considerable interest in the issues of the information society to both representatives of various scientific disciplines (especially economists and sociologists) and government structures responsible for its establishment in Russia, the number of works analyzing the regional specific features of households' information benefits consumption is small. In line with this, the purpose for the present study is to consider the modern structure, characteristics and trends of consumption of certain types of information benefits by households from the Sverdlovsk Oblast amid information economy.

The research novelty lies in an attempt to thoroughly analyze the specific features of consumption of supporting information benefits the availability of which is largely determined by informational inequality between both households and regions.

The practical value of the research is due to the possibility of using the research data by government authorities, manufacturers of information goods, researchers dealing with information society and information economy including the digital divide.

Conceptual approaches to the issue of consumption in the ICT sector

The idea that the basis of modern society is information generation and distribution appeared in the 1960–1980-s in the works of famous foreign scientists such as F. Machlup, Yo. Masuda, T. Stonier, J. Beniger, M. Porat and others. Information as an economic category was widely used in economic research during the information revolution of the 1950–70-s., when knowledge became a key production factor. At the same time, according to D. Bell, information is a very specific good characterized by social nature (consumed by the society in general, rather than by an individual), lack of physical consumption and depreciation, the need for new approaches to determining its value and price [5].

Recognition of information and knowledge a key factors in the development of modern society has led to the emergence of several new theories – information society, knowledge society, theories of information economy. *The term "information economy" was established in the work by* M. Porat who divided material and energy production and information [25]. Thus, information economy is referred to as economy of information benefits and ICT. In other words, it includes production, distribution, consumption of information benefits and ICT. Information benefits are benefits which can be represented digitally (books, movies, phone conversations, etc.). According to this criterion, information benefits are material [1]. Growing ICT will inevitably lead to economic growth as it helps every industry improve the quality of production of goods and services, which this inevitably leads to increased consumption [22]. Progress in ICT causes a drop in consumption and intermediate product production prices for ICT, providing incentives for investment in sectors using ICT [26].

M. Castells clarifies the term "information economy" *mentioning informational and global economy in which* "productivity and competitiveness of factors or economics actors (be it a firm, a region or a nation) depend primarily on their ability to generate, process and efficiently use information based on knowledge"" [10], which is only possible within a global interconnected network.

According to *I.V. Monakhova,* the formation of information economy has led to the transformation of all aspects of consumption: structure, nature, type, quality characteristics [13, p. 7].

Economics defines consumption as the total amount of goods purchased and consumed during a certain period, as well the

use of consumer goods aimed at meeting people's material and spiritual needs. Consumption is one of the major economic categories of a complex and contradictory nature. On the one hand, consumption is associated with income, savings and investment (this is analyzed in the works of many scientists: J. Keynes, R. Harrod and A. Hansen, J. Duesenberry, L. Klein, M. Friedman, F. Modigliani, etc.), on the other hand, consumption is studied as a characteristic of consumer behavior related to needs and motives, freedom of choice. The latter implies numerous theories of need (C. Alderfer, D. McClelland, A. Maslow, H. Murray), theories of rational behavior (M. Weber, H. Simon, K. Arrow, G. Becker, R. Coase, Ch. Buchanan, D. North and R. Fogel), theories of adverse selection and moral hazard (J. Stiglitz, M. Spence, C. Shapiro, G. Akerlof), etc.

The development of the information society and information economy has led to changes in the structure of final consumption: decreased share of goods with a low degree of involvement, increasing diversification of goods and services, increased number of types of mediation services, increased share of services in final consumption, increased significance of effects of consumer behavior on consumer behavior strategy [6].

In our opinion, it is subjective, socio-cultural factors that largely determine the changing nature of consumption in information economy. A surge in intangible, non-utilitarian benefits is associated with the implementation of spiritual, intellectual and creative human needs [14, p. 38]. Consumption becomes more varied, individualized, and situational and depends on the person's lifestyle. Conspicuous (prestige) consumption aimed at establishing and maintaining a certain social status is transformed into a new type of consumption – simulation (symbolic) where different types of benefits of human consumption are replaced by their symbols. These types of behavior are no longer unique to particular social groups (for example, in T. Veblen's theory of the leisure class, demonstrative behavior was attributed to the rich, ruling class) and become widespread [19, p. 52]. Consumption does not only fulfil the function of group prestige, but also becomes a system of communication and exchange as well as a means of constructing one's "I" [21, p. 46]. One of the main characteristics of information goods is their symbolic (image) value formed on the basis of unique relations between consumers and goods [24, p. 97] which helps consumers shape and maintain their identity, their belonging to a reference group. For example, in connection with the increased public interest in environmental issues there is an increase in eco-friendly ICT consumption through limited use of potentially toxic materials in electronics production [18]. There also are many

other features of consumption related to socio-cultural factors. Thus, D. Horrigan distinguishes a group of trendsetting tech elite or the so-called "greedy" consumers who buy information and communication goods and services, thereby charting the course for their use in the future [23].

The current changes largely affected the quality of consumer goods. Information economy is characterized by the growth of the so-called experience goods, i.e. complex devices whose qualities cannot be determined before purchase (for example, laptops, and cell phones) [24, p. 98]. Rapid obsolescence of goods takes place, when moral depreciation is ahead of physical depreciation: underutilized goods become out of use long before their actual depreciation. At the same time, there is an increase in the number and complexity of consumer goods which must not only be useful and novel, but also be of a symbolic value formed on the basis of unique relations between consumers and goods [14, c. 39].

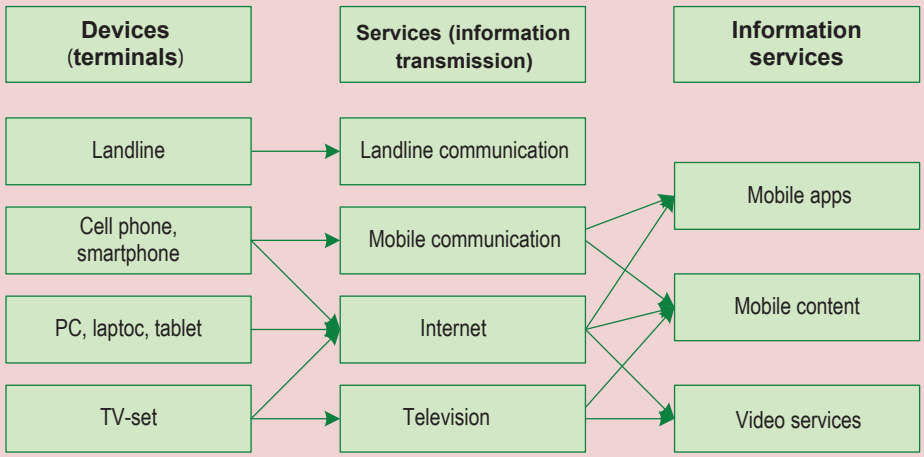
Information economy and information society highlight information goods. However, there currently is no shared understanding of what constitutes "information goods". They usually include information products such as products of information activity and supporting products, i.e. products ensure information generation, storage, processing and distribution [7, p. 45]. In the first case we are talking about different types of information (business, expert, educational and consumer) necessary to meet the needs of different categories of users [4, p. 65]. To supporting information products include ICT, information services, information and communication devices which provide access to products of information activity and information technology.

The present study focuses on the specific features of consuming supporting information products – data transmission ICT and devices (hardware) which provide access to information for households.

According to the integrated model proposed by T.A. Kuzovkova, the ICT user also uses connection and information services in the form of content and applications [12, p. 54]. Producers and providers of services can be quite different in both type of communication and range of services provided. The process information and communication service creation simultaneously involves three types of producers: communication service provider providing information transfer and network access; content producers and aggregators of information and communication and services (e-banking, e-store, "smart house" management, etc.); content and service providers.

In information economy the structure of communication services has significantly changed. These include not only written communication (life – more than three centuries), telegraphic messages (over 150 years), landline phone calls (over 100

Figure 1. Patterns of consumption of information goods



years), but also mobile communications (over 30 years). It is important to note that new services and means of communication do not immediately and completely replace traditional (old) services. Thus, a decline in written correspondence over the past 20 years is explained by private mail with relative preservation of business correspondence documents, notices, reminders, etc. [12, p. 55].

At the same time, household consumption of information and communication (IC) services is impossible without appropriate technical means of access to communication, information networks and resources (cell phone, PC, TV-set, etc.) (*Fig. 1*). Thus, IC service consumption is directly related to the use of information and communication devices (IC devices).

Due to development of technology new types of IC devices are constantly produced and rapidly become obsolete. Simultaneously, there is the "interpenetration" of functions performed by various IC devices: modern PCs perform the functions of a DVD player, a TV set and partly of a cell phone; cell phones have acquired the functions of a video camera and a PC; smart TV has replaced a PC. As a result, IC devices can be divided into 2 groups: "basic" devices – TV sets, PCs, cell phones; and IC devices whose consumer functions can be fully performed by other devices (VCRs, camcorders, DVD players).

Research methods

Assessment of consumption of IC devices and IC services in the Sverdlovsk Oblast was carried out based on statistics during 2000–2015 inclusive provided by the Federal State

Statistics Service [17]. It should be noted that part of statistical information in the regional context has been systematically gathered by Rosstat only since 2007. Rosstat simultaneously collects information on comparable indicators using different methods (for example, the share of households residing in houses equipped with landline; landline density including pay phones per 100 inhabitants; number of telephones including local and universal pay phones per 1000 inhabitants in urban and rural areas, etc.). According to this, selection of indicators for analysis is also a challenge.

The Rosstat technique of statistical data collection for household IC devices does not fully assess their quality. For example, the category "mobile phones" includes smart phones, "personal computers" – laptops and tablet PCs, "TV sets" –smart TV. There are no statistics on input-output devices in household possession: printers, scanners, multifunction devices.

Qualitative characteristics of consumption were analyzed based on the results of a sociological survey in the Sverdlovsk Oblast conducted in 2014–2015. It was conducted by selecting a representative sample by age (16–75 years) and type of settlement (metropolis, large, medium, small city, rural settlement). The study presented 934 questionnaires.

During the research methods of mathematical statistics were used for data analysis. Based on time series trend lines were constructed through extrapolation method with the use of MS Excel (including polynomial approximating curve). We also used regression and correlation analysis to identify the impact of individual factors on the changes in consumption of IC devices and services.

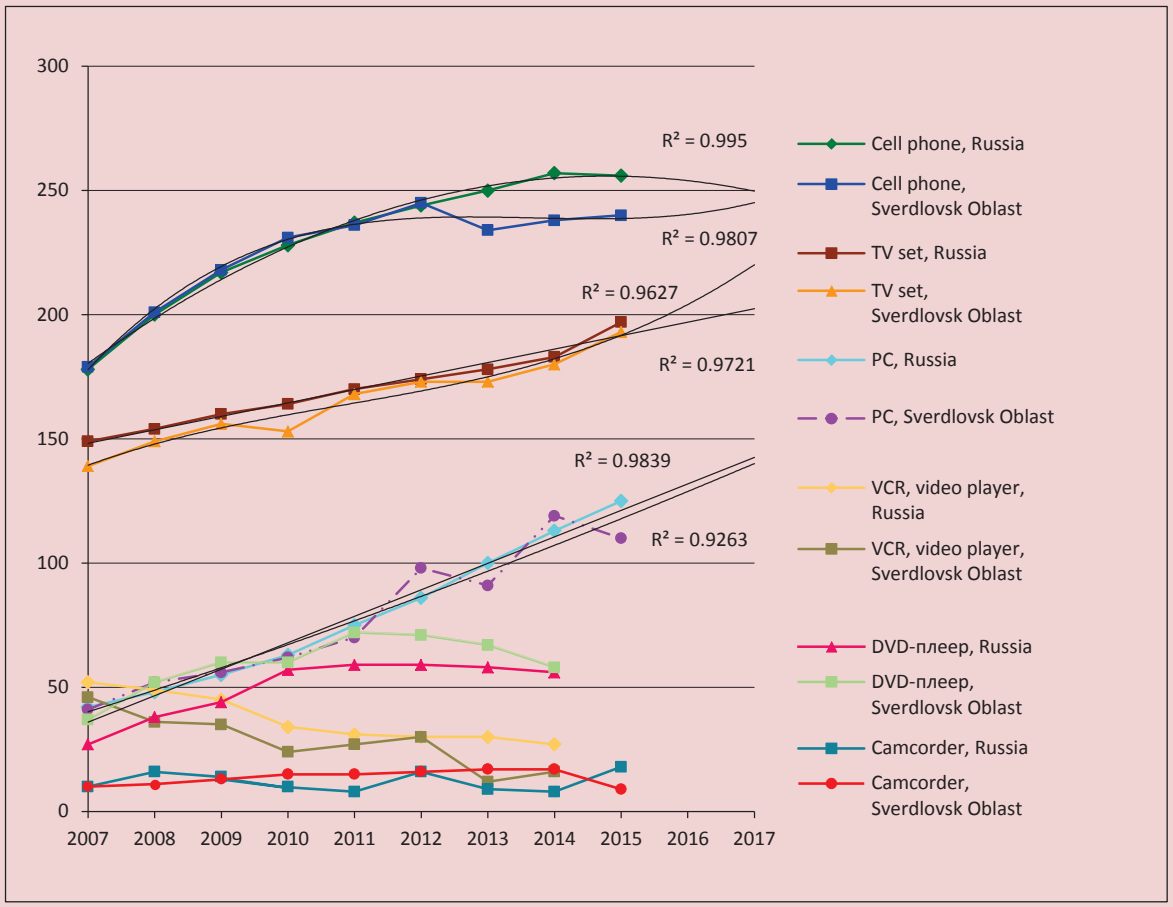
Specific features of household consumption of IC devices in the Sverdlovsk Oblast

Let us consider the indicators characterizing consumption of durable information goods: the number of TV sets, cell phones, PCS, VCRs, DVD players and video cameras per 100 households (*Fig. 2*). The basis for time series is Rosstat statistics on Russian and Sverdlovsk Oblast.

Analysis of consumption dynamics helps reveal the modern trends in this area. The most rapid growth is observed in the number of personal computers. During 2007–2014, their number increased 2.7 times in Russia and 2.9% times in the Sverdlovsk Oblast amounting to 119 units per 100 households. In 2015 in the Sverdlovsk Oblast, according to the Federal State Statistics Service, the number of PCs decreased to 110 units per 100 households.

In recent years, information processing devices are becoming more varied; the gradual replacement of desktop computers with the portable ones continues. According to J'son & Partners Consulting, in 2015, desktops were used by 53% of families; laptops – by 63%. In addition, over the past three years the

Figure 2. Changes in the number of IC devices in Russia and in the Sverdlovsk Oblast in 2007–2017, per 100 households



Source: official statistics of the Federal State Statistics Service

average retail price for smartphones and tablet PCs has decreased despite the price increase in 2015 [20]. These devices have become available for people with almost any level of income: their sales increased significantly.

During the sociological survey we studied the consumption of both device categories as a whole, but also their particular types: smartphones, smart TV, tablets and laptops. The obtained results help draw conclusions about the structure of consumption of both families and individuals (*Tab. 1*).

Judging by the survey results almost the same number of families own laptops (81%) and personal computers (86%), a lesser number – tablets (68%). Analysis showed that less than 7% have no IC devices. The general trend, according to statistical data analysis

Table 1. Sverdlovsk Oblast population's estimates of the number of IC devices in individual and family possession, 2015, % of respondents

Number of devices	Cell phone		Smart-phone		Tablet		Laptop		ПС		TV set		Radio		Landline		Smart TV	
	Personal	Family	Personal	Family	Personal	Family	Personal	Family	Personal	Family	Personal	Family	Personal	Family	Personal	Family	Personal	Family
None	5.4	5.2	38.0	27.9	48.4	32.3	27.8	18.7	27.2	15.9	10.2	2.5	41.2	36.9	41.6	30.3	63.0	57.0
One	80.3	17.9	55.9	26.8	49.3	49.6	66.1	47.4	68.2	64.6	65.4	31.7	55.7	46.3	56.0	59.4	34.6	33.6
Two	9.9	25.6	3.3	19.4	1.3	11.7	3.6	22.4	2.9	12.7	14.4	30.9	1.4	9.0	1.8	5.8	1.5	5.9
Three	2.5	25.3	1.3	15.4	0.2	3.3	1.5	7.1	0.8	4.2	7.6	24.4	0.9	4.3	0.2	2.3	0.9	2.4
Four	2.0	26.1	1.5	10.6	0.8	3.0	1.0	4.3	0.8	2.6	2.4	10.5	0.7	3.4	0.5	2.2	0.0	1.1

($R^2 = 0.97$), also focuses on the continuing growth of households PC consumption *(Fig. 2)*.

It seems interesting that there is a steady increase in the number of TV sets in Russia as a whole and in the Sverdlovsk Oblast in particular, where it amounted to 38.8% in 9 years. As a result, in 2015, each household had an average of 1.93 TV. This is confirmed by data of the present study: 66% of respondents indicated that their family owns two or more TV sets, every tenth family has 4 TV sets. The second and subsequent TV sets are primarily for "summerhouse" and "kitchen", then "bedroom" and "children".

The upward trend is observed in consumption of cell phones. It should be noted that since 2007 there has been a steady nationwide growth in the number of household landlines, in the Sverdlovsk oblast in 2013, this number is decreased by 11 followed by a slow growth afterwards. In 2015, each household in Russia had an average of 2.56 cell phones, in the Sverdlovsk Oblast this number amounted to 2.4. According to other Rosstat statistics, this number comprised 1852.6 cell phones per 1000 people.

Consumption of other IC devices is non sustainable. Thus, the number of VCRs in 2007–2014 fell sharply – by more than 2 times in Russia and almost 3 times in the Sverdlovsk Oblast, which, of course, is related to their "moral depreciation". Almost the same situation currently characterizes DVD devices – they were mostly used in 2011, since then a downward trend has been observed. It is currently rather difficult to assess the consumption of VCRs and DVD-players due to the fact that since 2015, official statistics collects data on VCRs and DVD-players together. In 2015, the total number of these devices comprised 43 per 100 households across the Russian Federation and 39 units – in the Sverdlovsk Oblast.

The situation with camcorders is more controversial. In Russia, the number of these devices owned by households changed abruptly in the period under review, although starting form 2007 up to the end of 2015 this number increased 1.8 times (from 10 to 18 units per 100 households). In the Sverdlovsk Oblast, the increase in the number of camcorders was sustainable until 2014; in 2015, there was a sharp decrease from 17 to 9 units per 100 households.

In the study, we performed the forecast of consumption of basic IC devices by using the method of extrapolation of the obtained data series for the next 2 years (see *Fig. 2*). The trend forecast shows (approximation reliability R^2=0.99) that in the short term, the number of cell phones in Russia is most likely to reduce slightly, and in the Sverdlovsk Oblast, this number will further grow till it reaches the average Russian value. Analysis of the trend helps speculate on the future growth of household use of TV sets and PCs in the whole country and in the region. The revealed trends were confirmed by the results of forecast made by several authors according to which the number of PCs will increase from 99 million in 2015 to 120 million by 2020 [16]. However, according to the economists of the Analytical Center for the Government of the Russian Federation, in 2005–2014, there was a mass upgrade of durable goods, especially in big cities, which primarily affected computer equipment and communication devices. Russia was then ahead of most countries in the world in terms of purchasing durable goods and demonstrated one of the highest share of expenditures (15%) on various devices. In this case, by 2013 the saturation levels at the prevailing social structure were achieved [8]. This affects the possible purchase fluctuation amid economic recession.

Changes in the structure and volume of demand for information products are influenced by various factors. Works of domestic researchers draw attention to the following groups:

1) technological: innovative development of technical means and networks, availability and quality of IC services and devices, production and implementation of IC services and devices;

2) socio-economic: GDP and GRP growth rates, inflation, level of household income, expenditures on IC services and devices in a family's budget, the extent to which ICT is implemented in economic activities;

3) socio-demographic: population, number of employed in economy, subscribers' demographic composition, population's territorial structure (those living in urban and rural areas; by region);

4) socio-psychological: consumers' affiliation to a social group, nature of activity, level of commitment to an ICT type, willingness to master new IC services and devices.

Survey results analysis and statistics show that the use of IC devices is influenced by three major factors: consumers' age, type of settlement and per capita household income.

Analysis of statistical information has revealed high correlation between the indicators of per capita household expenditures on final consumption and the number of TV sets (regression coefficient R^2 equals 0.93 at F=0.000089), mobile phones (R^2=0.96 at F=0.000019) and PCs (R^2=0.92 at F=0.00014) per 100 households. For devices such as VCRs, camcorders and DVD-players this correlation is less significant.

An age group is one of the most important factors determining consumption patterns of both individuals and households. Most studies distinguish three main age groups: young people under 30, adults – 30–55 and elderly people over 55. Age consumption peculiarities in ICT are, in our view, associated with economic (level of education, employment and, respectively, average per capita income) and socio-psychological (goals, skills and readiness to use various IC devices) characteristics.

Young people under 30 is a population group most widely using and adopting new IC devices and means of communication which construct the basis of their lifestyle. Representatives of this group have the most developed skills in applying IC devices. At the same time, the growing consumption of IC devices and services within this group is constrained by relatively low income levels and young people' focus on purchasing a car and accommodation.

The majority of consumers aged 30–55 are at the peak of their labor activity and are highly employed and have correspondingly high incomes. This age group adheres to the credit model of consumption which suggests that more money is spent than received in the form of current income [14, p. 40]. Consequently, representatives of this age group are the main consumers of durable goods, including IC devices.

Patterns of consumption of information goods by elderly people are associated with several characteristics. First, even if enough savings are available, elderly consumers pursue the strategy of saving. At the same time, the need to maintain a lifestyle leads to compensatory buying behavior when the retirees often purchase relatively expensive goods and services amid implementation of their saving strategy [2, p. 4]. One of the important factors affecting consumption of information goods by the elderly is their low level of skills in using IC devices and modern communication systems, as noted in the number of domestic and foreign studies.

Elderly people are demonstrating a trend towards using "traditional" technical devices. On the contrary, progressive "new" "non-standard" technical devices are often

purchased by younger people: 68% of young people possess a smartphone while only 17% of elderly people have it (Cramer's V=0.263, significant); 63% of young people and 62% of middle-aged people possess one tablet while only 27% of elderly people possess one (Cramer's V =0,140, significant).

Significant differences in the pattern of consumption of IC devices should be noted depending on consumers' place of residence. Residents of metropolis and large cities are the main smartphone users – 77% of respondents; inhabitants of rural areas – only 32%. People living in villages and small towns in the Sverdlovsk Oblast possess "simple" cell phones (86%). For the residents of large cities, particularly Ekaterinburg, a cell phone mainly serves as a "supplement" to a smartphone – the second (25%) or the third one (5%). The inhabitants of metropolis are the main users of TV sets with smart technology (41% of Ekaterinburg respondents). In other settlements of the region, the majority (70%) of the population use "regular" TV sets.

One of the factors influencing household consumption of IC devices is, in our opinion, the population's interest in new technical devices, which, amid the information society and scientific and technical progress, is an indicator of the expected demand for emerging products and services. The greatest interest in technical innovation devices is displayed by young people (27%) and men in general (22%), the lowest – by people in rural areas.

The survey has identified the average frequency of household purchasing IC durables: almost every third buys a cell phone or a smartphone on average once every 2–3 years; the majority of the population buy tablets, laptops, PCs, TV sets or smart TV less than once in 5 years (*Tab. 2*).

In our view, a significant feature of household use of ICT devices is the incomplete use of their functional properties. As can be seen from *Table 3*, only about one-third of consumers believe that they fully use of the properties of their IC devices (except TV sets).

Table 2. Frequency of purchasing new IC devices to operate information by the population in the Sverdlovsk Oblast in 2015, % of respondents

Purchase frequency	Cell phone	Smartphone	Tablet	Laptop	PC	TV set	Smart TV
Once a month	1.2	1.2	1.2	0.6	0.9	0.6	1.8
Only in every 6 months	2.8	4.0	2.7	2.0	2.4	1.9	3.2
Once a year	10.0	11.4	4.6	3.1	2.0	2.7	3.9
Once in every 2–3 years	30.0	25.9	19.4	13.8	8.4	7.4	3.6
Once in every 4–5 years	21.7	15.0	17.5	24.2	20.4	17.4	12.5
Less than once in every 5 years	34.3	42.5	54.7	56.4	65.9	69.9	75.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 3. Sverdlovsk Oblast population's estimates of using the functional properties of their IC devices in 2015, percentage of respondents

Полнота использования	Cell phone	Smartphone	Tablet	Laptop	PC	TV set	Smart TV
Cannot use	1.9	22.9	19.0	10.8	5.3	0.7	31.3
10–20%	12.7	7.7	12.5	12.0	11.1	5.4	14.8
30–50%	23.4	21.3	21.5	22.6	23.1	16.3	13.5
60–80%	25.7	22.0	22.0	24.9	27.2	22.2	14.4
100%	36.3	26.0	24.9	29.6	33.4	55.4	26.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Trends in household consumption of IC services

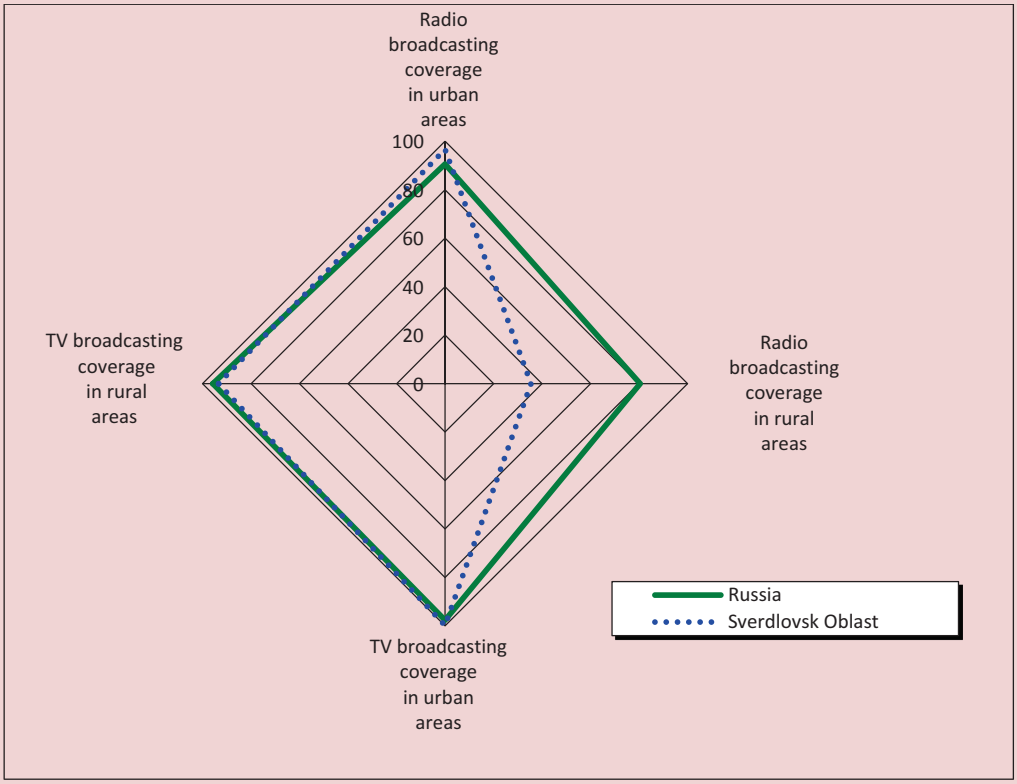
Let us consider the main trends in household consumption of IC services in the Sverdlovsk Oblast. These include communication services provided by landline and mobile communications providers, Internet, analog and digital TV (ADTV), radio.

Radio being the oldest form of IC communication is gradually losing its importance with the development of other types of IT. At the end of 2015, according to Rosstat, the radio broadcasting coverage amounted to the average of 80% (*Fig. 3*). In the Sverdlovsk Oblast, the values significantly differ: the urban coverage is higher than the national average (96.7%), the rural coverage – more than 2 times lower (35.4%).

Nowadays television remains the most widespread and popular IC service. According to Rosstat, at the end of 2015, at least one television program covered 97.6% of urban and 95.8% of rural population. In the Sverdlovsk Oblast, the coverage of urban population is almost 100% as of the 3rd quarter of 2015, rural – 93.4%. However, these indicators do not take into account the share of digital broadcasting, the development of which is a priority area in the field of ICT for Russia. J'son & Partners experts conducted analysis of data from the Russian television and radio broadcasting network, according to which technical ADTV coverage in cities with a population over 100,000 people and a high quality of life amounted to 90%, in cities with average and low level of economic development – 56.8% [3].

One of the most important indicators of information society development is its use of landline communication. In Europe, this figure reaches 95%. In Russia, starting from 2009, we observe a downward trend in the number of households residing in houses equipped with landlines (*Fig. 4*). For comparison, we took another indicator which is recorded by the Federal State Statistics Service – the number of landlines,

Figure 3. Radio and TV broadcasting coverage in urban and rural areas of Russia and Sverdlovsk Oblast by the end of 2015.

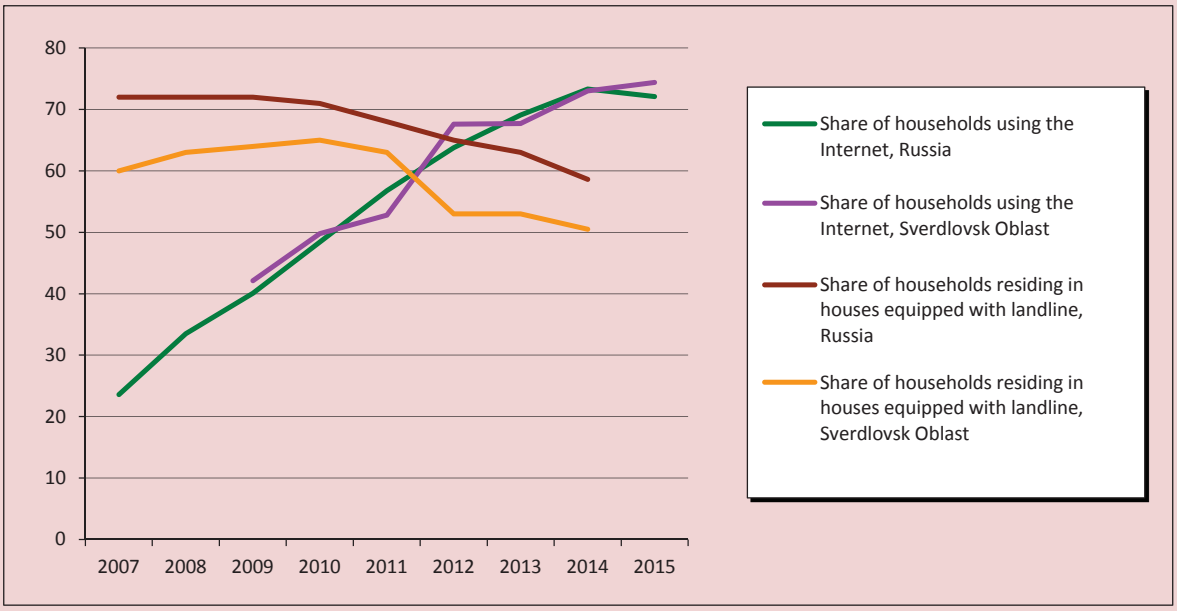


Source: official statistics of the Federal State Statistics Service.

including local and universal payphones per 1000 residents in urban and rural areas. These figures reached its maximum level in the Sverdlovsk Oblast in 2008, when urban areas accounted for 378.1 landlines per 1000 people (in Russia in general – 382.2), and rural – 132.5 (in Russia in general – 143.8). By the end of 2015, these figures dropped to 288.9 units in cities (in Russia in general – 318.6) and 104.8 units in rural areas (in Russia as a whole – 122).

The Sverdlovsk Oblast generally follows the nationwide trend, although significant regional differences can be observed: first, the values of indicators are lower; secondly, their decline rates are higher. The number of landline telephones on public domain network changed within this trend. The peak in Russian was recorded in 2008 – 280.4 landlines per 1,000 people in urban areas and 119.4 in rural areas. In 2014, the Sverdlovsk Oblast ranked 52nd among all Russian regions

Figure 4. Share of households equipped with landline and using the Internet in Russia and in Sverdlovsk Oblast in 2007–2015



Source: official data of the Federal State Statistics Service.

by number of landlines in rural areas (109) and 55th – by a similar indicator in urban areas (186.5).

In recent years, consumption of landline communication services has been declining; mobile communication services, however, are becoming more demanded. According to the monitoring of the information society in 2010–2015 published by the Higher School of Economics, Russia has one of the highest mobile communication prevalence in the world – 151 active subscribers per 100 inhabitants, which exceeds even the level of developed countries with 120 subscribers per 100 people [9, p. 32].

According to data from TMT consulting, significant growth in the number of mobile subscribers was observed: by 12.9 million in 2013, by 3.5 million – in 2014, in 2015, subscriber bases of Russian mobile service providers increased by more than 11.6 million people. At the end of 2015, there were 251.8 million mobile subscribers in Russia accounted for 178 subscribers per 100 inhabitants. MTS served 77.3 million subscribers, MegaFon – 74.8 million, Vympelcom – 59.8 million, Tele2 – 37.3 million [15]. Unfortunately, there are no official statistics on this indicator in the regions.

Furthermore, the most important means of obtaining information is the Internet, including both "household" dial-up networking using a modem and a public domain network, and broadband or high-speed Internet access, as well as mobile Internet.

The Russian telecommunications market ranks first in Europe by number of fixed broadband users and fourth in the world after China, thee USA and Japan. It also ranks eighth by penetration rate among 10 world's largest fixed broadband markets, ahead of China and Brazil. In Russia, according to J'son & Partners Consulting, the tariffs at speeds up to 1 Mbps and lower practically do not exist, they only account for less than 3% of connections. At the same time, less than 1% of households use Internet access at speeds higher than 100 Mbps [16]. According to TMT Consulting, in the second quarter of 2016, the number of broadband subscribers among individuals in Russia amounted to 30.4 million with penetration rate of 55% [20].

As can be seen from the data above (see Figure 4), the share of households using the Internet in the Sverdlovsk Oblast at the end of 2015 amounted to 74.4%. Over 6 years, starting from 2009 the number of users increased 1.7 times, which generally follows the nationwide trend. Extrapolation of the obtained data series shows that the upward trend will remain in the following years.

Higher household consumption of Internet services is ensured by rapid spread of 4G standard for high-speed wireless communication (4G LTE) which helps reduce the cost of data transfer services by 6 times compared to 3G, which ultimately reduces the cost of mobile Internet and television for final consumers. At the end of 2014, the Sverdlovsk Oblast ranked fourth among Russian regions by number of base LTE stations per 1,000 people with an indicator amounting to 1,072; the leader is Moscow with 6,763 base stations per 1000 people [16].

Rosstat statistics also show a slight change in the cost of communication services even in the crisis period 2014–2015 (*Tab. 4*).

Thus, the cost of local telecommunication services in the Sverdlovsk Oblast amounted to 103.2% in 2015 compared with the previous period, the monthly subscription fee for using mobile Internet – 102.3%, the monthly subscription fee for Internet access – 101%.

The share of communication expenses in population's consumer expenses is constantly decreasing. Thus, in 2009, it comprised an average of 3.8% in Russia as a whole and in 2015 fell to 3.2%. In the Sverdlovsk Oblast the highest share of services in population's consumption expenditures was observed in 2011 – 4%, then it gradually declined to 2.8% in 2015.

As shown by regression analysis, the proportion of expenditures on communication

Table 4. Cost and volume of communications services in the Sverdlovsk Oblast in 2010–2015

Year	Change in the cost of local telecom services (% to the previous period)	Change in subscription fees for using mobile Internet, per month (% to the previous period)	Change in subscription fees for Internet access, per month (% to the previous period)	Services provided to the population, per one citizen (rubles)
2010	110.8	…	91.7	4537.9
2011	108.8	…	99.3	4774.7
2012	106.1	…	98.7	5372.1
2013	106.1	…	100.8	5666.9
2014	101.6	102.5	101.5	5413.5
2015	103.2	102.3	101.0	5480.2

… – no information.

Table 5. Distribution of population groups depending on income level and cost of telecommunication services in 2015, % of the number of respondents

Monthly expenditures on communication services, rubles	Financial capacity self assessment				
	Not enough money for anything	No money expect for food and bare essentials	Enough money to buy clothing and household appliances	Enough money to buy a car and accommodation	Enough money for anything
Less than 300	16.2	13.4	3.6	2.4	4.8
300–500	28.4	25.1	25.6	7.3	11.3
501–1000	40.5	39.2	45.2	29.3	37.1
1001–1500	8.1	12.5	15.8	19.5	21.0
1501–2000	5.4	6.3	8.3	22.0	9.7
2001–3000	0.0	1.6	1.2	9.8	3.2
More than 3000	1.4	1.9	0.3	9.8	12.9

services depends primarily on the cost of communication services ($R^2 = 0.7676$) and does not depend on an increase in household consumer expenditures as a whole.

According to some research, the share of consumer expenditures on information and communication services or the revenues of IC grow at a higher rate (3.86 times) than per capita GDP (3.66%) [14, p. 40].

Correlation analysis of survey results showed the dependence of the monthly expenditures on communication services on characteristics such as age (Cramer's V=0.159, significant) and income level (Cramer's V=0.185, significant). For example, 81% of respondents aged 60–75 spend not more than 1,000 rubles a month on services related to information con-

sumption, while 28% of young and 29% of middle-aged people spend 1,000–3,000 rubles and more.

Table 5 shows that high-income population groups spend the greatest amount of money on satisfying their communication needs. 22% of those who can afford buying durable goods spend 1,500–2000 rubles a month on information services; however, the same share among low-income population groups amounts to 5.4%.

Conclusion

The use of IC devices and services in information economy remains quite dynamic. Analysis showed that over the past 10–15 years there have been constant changes in the structure of household consumption of information goods due to the fairly rapid emergence of new devices (e.g. smart TV) and services (mobile Internet, broadband) and "moral depreciation" of old devices and services (VCRs, landline communications, etc.).

The identified trends help draw conclusions about the further increase in the number of "basic" IC devices such as TV sets, PCs, cell phones in households; all these devices are gradually moving from being commonly used by households towards the category of personal use. Although in general, consumption of IC devices in the Sverdlovsk Oblast follows national trends, there is a number of regional characteristics such as higher growth rate of the number of PCs in households and downward trends in the number of cell phones.

Dynamics of consumption of IC services are also associated with the increased use of their most modern types – digital TV, mobile communication, broadband – with simultaneous negative dynamics of radio broadcasting and landline communications. In the Sverdlovsk Oblast, these trends are even stronger than in Russia in general. The increasing disparities between urban and rural settlements of the Sverdlovsk Oblast in terms of coverage of all types of IC services should also be noted.

The analysis has helped identify the main factors influencing the consumption of IC devices and services: consumers' age, place of residence (city, village) and level of income.

Further development of information economy in Russia in general and in the Sverdlovsk Oblast in particular is directly correlated with consumption of information goods, including auxiliary ones. This requires deeper analysis of the processes by the economic science, as well as strengthened measures from public authorities on the development of the information infrastructure in the region.

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Quality of Life: Analyzing the Impact of Factors Related to Health, Based on System and Mathematical Models

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Abstract. The paper considers the formation of the structure of the indicator of the quality of health as a major factor that has the greatest impact on the quality of life. The paper also analyzes the properties of the proposed structure and main approaches to assessing and measuring the quality of life and quality of health. It is established that the integral indicator of health quality has a complex structure that belongs to the class of hierarchical structures. The paper studies properties of hierarchical structures with the help of systematic approach, according to which the integral indicator of health quality was broken down and three components (system indicators) were identified. They are as follows: quality of care, quality of environment and quality of health. Each component, in turn, was broken down and presented as a triad of interrelated objective and subjective indicators of lower level (partial indicators). The proposed system model for assessing the integral indicator of health quality is a spatial structure of this indicator, which takes into account the links between system indicators at the median level and the links between partial indicators at the lower level. A cognitive model that shows the interaction between partial indicators on the example of the "healthcare quality" component was elaborated. The concepts of the model are indicators of the lower level of the component under consideration, and their mutual impact is reflected in the relations with weight ratios that characterize the degree (strength) of influence. The integral indicator of health quality was calculated, which helped determine the ranges of values of the integral indicator, which correspond to a high, satisfactory, moderate, low and poor level of health quality. The influence of changes in particular indices on the integral indicator of health quality under various factors (both perturbing and controlling factors) was studied. The prospect of further research is to analyze the impact of an expanded list of partial indicators on the assessment of the integral indicator of health quality, the possibility of applying statistical analysis of particular indices to quantify the strength of linkages between them, and the use of the model for assessing an integral indicator of health quality as a dynamic object of management for efficient management decision-making.

Key words: quality of life, quality of health, integral indicator, system model.

Introduction

Currently, the category of "quality of life" is widely used in economic, sociological, and medical research and is quite often found in political speeches and media publications.

The need to improve the quality of life of Russian citizens is indicated in the Decree of the President of the Russian Federation as one of the most significant in the sphere of ensuring national security [19]. On the approved list of state programs, the first place in terms of funding belongs to the set of programs "New quality of life" [15].

There are many theoretical concepts of the quality of life, which highlight various aspects of life (happiness, health, decent life, etc.), but there is no single and universal definition of this category. And this is obvious, since, when talking about the quality of life, we should take into consideration a

wide range of spheres of human life and its environment, as well as the diversity (time and space) of mental attitudes of people in the interpretation of this concept [1].

A variety of definitions of the quality of life is accompanied by a considerable number of methods for its measurement. There are two main methodological approaches to the assessment and measurement of the quality of life: the macro approach (or the objectivist approach) based on the analysis and compression of statistical indicators, and the micro approach (or the subjectivist approach) based on the analysis and processing of the results of special questionnaire surveys [1].

Criteria for objective assessment of the quality of life can be found in the existing standards of the needs and interests of the people, in relation to which we can objectively assess the degree of satisfaction of these needs and interests [3]. In such a case the financial position of individuals (the standard of living), the state of their health, living conditions, marital status and others. From the subjective viewpoint, the "quality of life" means that every person acquires their own life experience, and therefore, different people assess the quality of their lives in different ways. At that, the concept of the "quality of life" is often associated with the concepts of "happiness" and "satisfaction with life" as a whole or with its individual aspects [7].

At the same time, foreign and local scientists agree that the use of only the objectivist or the subjectivist approach cannot give a fully adequate assessment of the quality of life and reflects only partial aspects of the assessment [16, 23]. Thus, research interests are shifting toward a combined approach that allows for considering not only the objective indicators of the quality of life, but also the subjective psychological and social components of how the people perceive the quality of life [21, 27]. Sociological research methods allow us to evaluate important aspects of people's self-rated well-being (e.g., self-reported health, relationships with other people, values, etc.) that complement and compensate for objective indicators of the quality of life [3]. "A model of the quality of human life must combine objective indicators that can be measured fairly accurately and subjective indicators that can be determined either by expert evaluations or opinion polls" [5].

Thus, the indicator of the quality of life has a complex structure, therefore, it should be regarded from the standpoint of the system approach, taking into consideration the relationship between all its components. The works [4, 17] consider the quality of life as a complex system that has basic system properties such as integrity, hierarchy, and integration. The works [9, 10] suggest models for the formation and assessment of the quality of life that are developed on the basis of the system approach.

According to opinion polls, health is a major factor influencing the quality of life of Russians [2]. In recent years, the government

has been paying great attention to the health of the nation, including both physical and spiritual health in this concept. Public health is one of the main factors in the successful functioning of society. Creating conditions for preservation and improvement of public health is a priority task for any state [20]. A state program "Healthcare development" was adopted and it is included in the "New quality of life" block of programs [15]. The priority national project "Health" was adopted and it aims to promote care for human health and develop sustainable beliefs of the need to adhere to a healthy lifestyle in public consciousness.

Obviously, the quality of life concept should be recognized as closely related to the definition of health according to the World Health Organization (WHO): "Health is a state of complete physical, social and mental well-being and not merely the absence of disease" [30]. In modern medicine, terms such as "health-related quality of life" and similar ones have become widespread and they help select parameters that describe health status, healthcare and the quality of medical care, from the overall concept of the quality of life. According to a contemporary paradigm of clinical medicine, health-related quality of life is at the basis of understanding of disease and determining the effectiveness of its treatment. Health-related quality of life evaluates components of this quality that are both related and not related to a disease, and allows for determining the impact of a disease and treatment on a patient's condition [18]. International practice considers research on the quality of life to be highly informative, sensitive and economical technique to assessing health status in the population as a whole and in individual social groups [13].

Depending on the directions of research, there are several classifications of questionnaires that assess the quality of life in medicine [24]. The questionnaires can be general and specific. There are also questionnaires designed to address a particular condition or disease like asthma, rheumatoid arthritis or coronary heart disease. Unlike specific questionnaires, general ones help assess the quality of life of both the healthy and the ill regardless of the presence of a particular disease. One of the most widely used general questionnaires for assessing the quality of life is the Short Form (36) Health Survey (SF-36) [25, 28]. It includes 36 items grouped into eight scales: physical functioning, physical role functioning, bodily pain, general health perceptions, vitality, social role functioning, emotional role functioning, and mental health. The indicators in each scale vary between 0 and 100, where 100 is equivalent to no disability. The scales are grouped into two indicators: "physical health" and "mental health".

In accordance with the above definition of health, the WHO defines quality of life as "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation

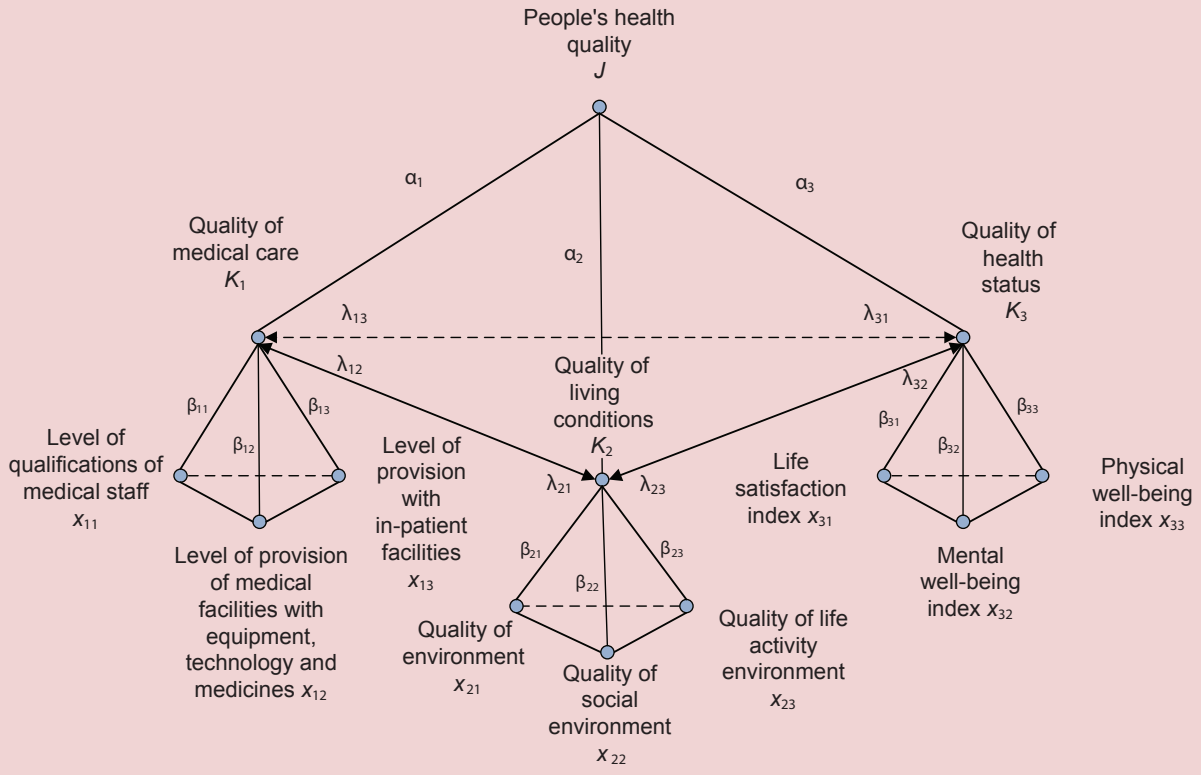
to their goals, expectations, standards and concerns" [29]. As can be seen, complexity and the subjectivity of assessments are fundamental properties of the quality of life [22].

The present article considers the formation of the structure of health quality as the most important component of the quality of life and analyzes the properties of the proposed structure. We suggest a solution to this problem by developing systematic and dynamic models for shaping and assessing health quality indicator, as well as analyzing the impact of various factors. We understand health quality as an integral characteristic of population health that combines both objective indicators (quality of medical care and the natural and social environmental factors) and subjective indicators (individual approach to health, health concerns).

A system hierarchical model for assessing health quality

Health quality indicator, as well as quality of life indicator, has a complicated structure that belongs to the class of hierarchical structures. In order to measure and assess this indicator it is necessary to determine what components it includes. Having analyzed the

Figure 1. A system model for assessing health quality



works of domestic and foreign researchers [12, 14, 20, 26], the data of the Federal State Statistics Service and findings of sociological surveys [6, 8, 11] we identified three interrelated components (system indicators) within the structure of the integrated indicator of health quality (*J*). these components are quality of medical care (K_1), quality of living conditions (K_2) and health quality (K_3) (*Fig. 1*).

Each component in turn can be decomposed and presented as triads of interrelated objective and subjective indicators of the lower level (specific indicators). Specific indicators can be identified on the basis of official statistical data and on the basis of sociological surveys conducted, for example, by the Russian Public Opinion Research Center (VTsIOM).

The system indicator "quality of medical care" (K_1) has three specific indicators: "qualifications of medical staff" (x_{11}), "provision of medical institutions with equipment and medicines" (x_{12}) and "number of in-patient facilities" (x_{13}). The system indicator "quality of living conditions" is formed by specific indicators such as "quality of environment" (x_{21}), "quality of social environment" (x_{22}) and "quality of life activity environment" (x_{23}); the system indicator "quality of health status" consists of specific indicators such as "life satisfaction index" (x_{31}), "mental well-being index" (x_{32}) and "physical well-being index" (x_{33}).

The integral index of health quality *J* can be calculated as the weighted sum of its components (system parameters):

$$J = \alpha_1 K_1 + \alpha_2 K_2 + \alpha_3 K_3, \quad (1)$$

where K_1 is the quality of medical care;

K_2 is the quality of living conditions;

K_3 is the quality of health status;

α_1, α_2, α_3 – weight coefficients that characterize the significance of component K_i and defined by experts, in this case $\sum_{i=1}^{3} \alpha_i = 1$.

The change in integral index *J* is described by the following differential equation:

$$\frac{dJ}{dt} = -J + \alpha_1 K_1 + \alpha_2 K_2 + \alpha_3 K_3. \quad (2)$$

Here and in the future it is expected to change the parameters according to the exponential law, which allows us to generate a state space of these parameters and to evaluate with the help of known methods the stability of the parameters in this space under the influence of external factors.

In order to calculate system indicators K_i we solve the system of equations:

$$\begin{cases} K_1 = \lambda_{12} K_2 + \lambda_{13} K_3 + K_{10}, \\ K_2 = \lambda_{21} K_1 + \lambda_{23} K_3 + K_{20}, \\ K_3 = \lambda_{31} K_1 + \lambda_{32} K_2 + K_{30}, \end{cases} \quad (3)$$

where $K_{i0}, i = \overline{1,3}$ – initial values of K_i defined by private parameters;

$\lambda_{ij}, i \neq j$ – weight coefficients characterizing the mutual influence of the components of K_i and defined by experts. We believe that λ_{ij}=0,05, then the effect is weak, λ_{ij}=0,1, then the effect is strong.

Taking into account the dynamics of the interaction of the system indicators K_i can be recorded in the following way:

$$\begin{cases} \dot{K}_1 = -K_1 + \lambda_{12}K_2 + \lambda_{13}K_3 + K_{10}, \\ \dot{K}_2 = -K_2 + \lambda_{21}K_1 + \lambda_{23}K_3 + K_{20}, \\ \dot{K}_3 = -K_3 + \lambda_{31}K_1 + \lambda_{32}K_2 + K_{30}, \end{cases} \quad (4)$$

where $\dot{K}_i = \frac{dK_i}{dt}$ is the rate of change in the i-th system indicator.

The initial value K_{i0} can be computed as the weighted sum of respective specific indicators x_{i1}, x_{i2}, x_{i3}:

$$K_{i0} = \beta_{i1}x_{i1} + \beta_{i2}x_{i2} + \beta_{i3}x_{i3}, \quad (5)$$

where β_{ij} – weight coefficients characterizing the relative importance of specific indicators x_{i1}, x_{i2}, x_{i3} and defined by experts, in this case $\sum_{j=1}^{3}\beta_{ij} = 1$.

In order to calculate specific indicators x_{i1}, x_{i2}, x_{i3} we solve the system of equations:

$$\begin{cases} x_{i1} = k_{12}x_{i2} + k_{13}x_{i3} + x_{i1}^0, \\ x_{i2} = k_{21}x_{i1} + k_{23}x_{i3} + x_{i2}^0, \\ x_{i3} = k_{31}x_{i1} + k_{32}x_{i2} + x_{i3}^0, \end{cases} \quad (6)$$

where $k_{ij}, i \neq j$ – weight coefficients characterizing the mutual influence of indicators x_{i1}, x_{i2}, x_{i3}, the numerical values of which are determined by experts;

$x_{i1}^0, x_{i2}^0, x_{i3}^0$ – the initial values of indicators x_{i1}, x_{i2}, x_{i3} at a given point in time.

The interaction dynamics of the specific indicators is described by the following differential equations:

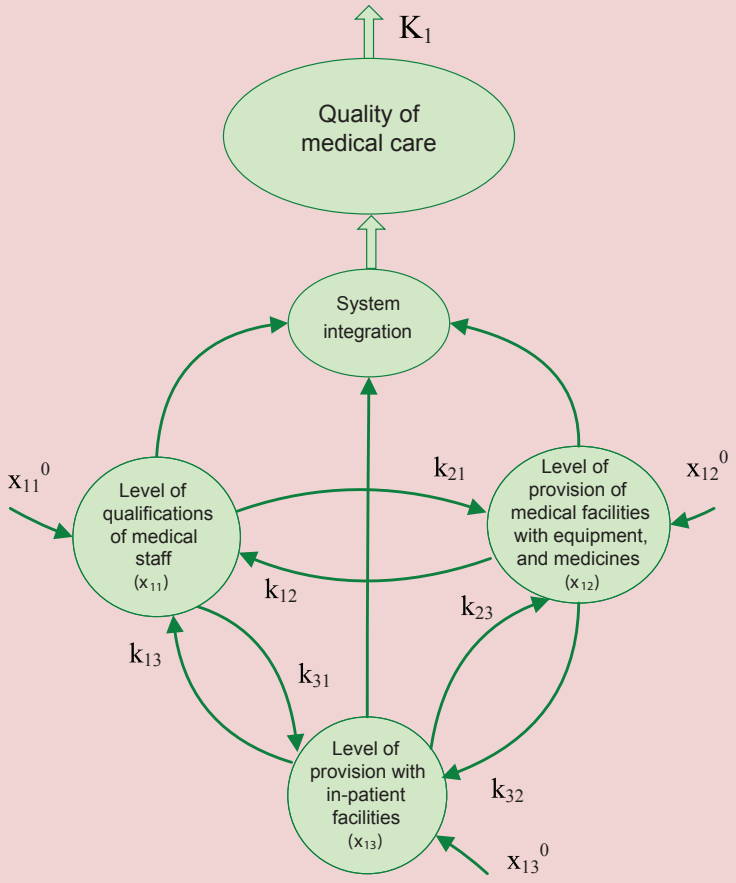
$$\begin{cases} \dot{x}_{i1} = -x_{i1} + k_{12}x_{i2} + k_{13}x_{i3} + x_{i1}^0, \\ \dot{x}_{i2} = -x_{i2} + k_{21}x_{i1} + k_{23}x_{i3} + x_{i2}^0, \\ \dot{x}_{i3} = -x_{i3} + k_{31}x_{i1} + k_{32}x_{i2} + x_{i3}^0. \end{cases} \quad (7)$$

The interaction between specific indicators of individual components of the integral indicator of health quality can be represented in the form of a cognitive model in which private indicators are concepts and the mutual influence of indicators is reflected in the relations with weight coefficients that characterize the degree (strength) of influence. Let us consider the dynamics of interaction between specific indicators of component (system parameter) K_1 – "quality of medical care".

Modern medicine cannot do without high technology and skilled personnel able to effectively use the achievements of modern medical science and technological progress. Therefore, major factors determining the quality of medical care are, first, the qualifications of medical personnel that is to provide timely and effective assistance, and second, the provision of public medical institutions with equipment and medicines; third, how timely and fully medical assistance is provided, which is reflected primarily in the presence of a sufficient number of in-patient facilities.

The interaction between these factors determining the "quality of medical care" component is presented in the form of a cognitive model, the concepts of which are presented by specific indicators: "qualifications of medical staff" (x_{11}), provision of medical institutions with equipment and medicines" (x_{12}) and "number of in-patient facilities" (x_{13}); and the mutual influence of these indicators is presented in the form of links with relevant weight coefficients that characterize the degree (strength) of influence *(Fig. 2)*. For example, the use of modern medical equipment and technology requires an appropriate level of qualification on the part of medical staff (coefficient). The opposite effect is reflected in the relationship with coefficient k_{21}.

Figure 2. Cognitive model of interaction between specific indicators of component K_1 – "quality of medical care"



Mathematical model of interaction between indicators in this component is presented as a system of differential equations.

The equation describing the rate of increase of the level of qualification of medical staff (x_{11}) depending on the level of provision of medical institutions with equipment and medicines (x_{12}), the level of provision with in-patient facilities (x_{13}) and initial level of skills (x_{11}^0), is as follows:

$$\dot{x}_{11} = -x_{11} + k_{12}x_{12} + k_{13}x_{13} + x_{11}^0 .$$

The equation describing the rate of increase of the level of provision of medical institutions with equipment and medicines (x_{12}), depending on the qualifications of medical staff (x_{11}), the level of provision with in-patient facilities (x_{13}) and the initial level of provision with equipment (x_{22}^0) is as follows:

$$\dot{x}_{12} = k_{21}x_{11} - x_{12} + k_{23}x_{13} + x_{22}^0 .$$

The equation describing the rate of increase of the level of provision with in-patient facilities (x_{13}) depending on the qualifications of medical staff (x_{11}), the level of provision of medical institutions with equipment and medicines (x_{12}) and the initial level of provision with in-patient facilities (x_{13}^0) is as follows:

$$\dot{x}_{13} = k_{31}x_{11} + k_{32}x_{12} - x_{13} + x_{13}^0 .$$

The dynamics of interaction between specific indicators of components of K_2 – "quality of living conditions" and K_3 – "quality of health status" that are included in the integrated indicator of health-related quality of life are described similarly to the dynamics of the interaction between specific indicators of component K_1 – "quality of medical care".

Thus, we have developed a system hierarchical dynamic model for assessing people's health quality. The advantage of the proposed model is the spatial structure of the integral indicator of health quality, which takes into account the links between system indicators at the median level and between specific indicators at the lower level. The dynamic model allows for assessing the stability of movement of indicators of the system under the influence of external factors.

Evaluation of the integral indicator of people's health quality

When calculating the integral indicator, the following assumptions were made.

1. The values of weight coefficients characterizing the significance of system indicators K_i, coefficients β_{ij} describing the importance of specific indicators x_{i1}, x_{i2}, x_{i3}, coefficients λ_{ij} characterizing the mutual influence of system indicators and coefficients k_{ij} describing the mutual influence of specific indicators are defined by experts and do not change.

2. The initial values of specific indicators are defined by experts, because the valuation of initial statistics or data of sociological surveys is a separate issue and is not considered in the present work.

3. When evaluating an integral indicator of quality of health in these situations we did not take into account the dynamics of change in specific and system indicators, but took into account their static values. We used the method of cognitive analysis.

Let us take α_1=0.2, α_2=0.3, α_3=0.5, i.e. in order to calculate the integral index, we assume the indicator "quality of health status" (K_3) to be most important, the indicators "quality of living conditions" (K_2) and "quality of medical care" (K_1) – less important.

Let us take the values of weight coefficients characterizing the mutual influence of system indicators as equal to: λ_{12}=0.01, λ_{21}=0.01, λ_{13}=0.01, λ_{31}=0.05, λ_{23}=0.01, λ_{32}=0.05, i.e. we assume that the quality of health status is influenced by the quality of living conditions and by the quality of medical care, as fore other relationships between system indicators, we shall consider them as weak.

The weight coefficients that characterize the significance of specific indicators in the system parameter K_1 are taken equal to: β_{11}=0.4, β_{12}=0.3, β_{13}=0.3, i.e. the indicator "qualifications of medical staff" is more important for the quality of medical care than "the level of provision of medical institutions with equipment and medicines" and "the level of provision with in-patient facilities".

Weight coefficients that characterize the significance of specific indicators in the system parameter K_2 are taken equal to β_{21}=0.5, β_{22}=0.2, β_{23}=0.3, i.e. the quality of the environment is the most important indicator for the indicator of the quality of living conditions in comparison to the indicators of the quality of social environment and life activity environment.

Weight coefficients that characterize the significance of specific indicators in the system parameter K_3 are taken equal to β_{31}=0.6, β_{32}=0.2, β_{33}=0.2, i.e. life satisfaction index is more important for the indicator of the quality of health status, as for mental and physical well-being indicators, they are less important.

Coefficients of the mutual influence of specific indicators within system indicators K_1 – "quality of medical care", K_2 – "quality of living conditions", K_3 – "quality of health status" are assumed as equal to k_{12}=0.05, k_{13}=0.05, k_{21}=0.05, k_{23}=0.05, k_{31}=0.05, k_{32}=0.05.

Let us evaluate integral index J "health quality" for different situations.

Situation 1 – low level of health quality. This situation is characterized by low values of specific indicators: low level of qualifications of medical staff, poor provision of medical facilities with equipment and

medicines, poor provision with in-patient facilities, poor environmental conditions, low quality of social environment, low quality of life activity environment, low indices of life satisfaction, physical and mental well-being. The set of current values of specific indicators M_1={(0.05,0.1,0.15),(0.1,0.15,0.1), (0.1,0.15,0.1)} corresponds to this situation, i.e. x_{11}^0 =0.05, x_{12}^0 =0.1, x_{13}^0 =0.15, x_{21}^0 =0.1, x_{22}^0 =0.15, x_{23}^0 =0.1, x_{31}^0 =0.1, x_{32}^0 =0.15, x_{33}^0 =0.1.

Let us calculate the values of specific indicators according to the formula (7) and the current values of system indicators according to the formula (5):

x_{11}=0.06, x_{12}=0.11, x_{13}=0.16, K_{10}=0.1.
x_{21}=0.11, x_{22}=0.16, x_{23}=0.11, K_{20}=0.12.
x_{31}=0.11, x_{32}=0.16, x_{33}=0.11, K_{30}=0.12.

Let us calculate the values of system indicators using the formula (4):

K_1=0.11, K_2=0.13, K_3=0.14.

Then the value of the integral indicator calculated by the formula (1) will be equal to J=0.13.

Situation 2 – high level of health quality. This situation is characterized by high values of specific indicators: high level of qualifications of medical staff, adequate provision of medical institutions with equipment and medicines, adequate provision with in-patient facilities, healthy environment, high quality of social environment, high quality of life activity environment, high indices of satisfaction with life and physical and mental well-being. The set of current values of specific indicators M_2={(0.9,0.85,0.8),(0.8,0.85, 0.9),(0.9,0.85,0.8)}, i.e. x_{11}^0 =0.9, x_{12}^0 =0.85, x_{13}^0 =0.8, x_{21}^0 =0.8, x_{22}^0 =0.85, x_{23}^0 =0.9, x_{31}^0 =0.9, x_{32}^0 =0.85, x_{33}^0 =0.8.

In this situation, the values of specific indicators and the current values of system indicators will be as follows:

x_{11}=1, x_{12}=0.94, x_{13}=0.9, K_{10}=0.95.
x_{21}=0.9, x_{22}=0.94, x_{23}=1, K_{20}=0.93.
x_{31}=1, x_{32}=0.94, x_{33}=0.9, K_{30}=0.96.
K_1=0.97, K_2=0.96, K_3=1.1.

Then the value of the integral indicator will be equal to J=1.0.

We note that the situations described above define a "corridor" of values of the integral indicator, which the rest of the situations "fit in". Under the given parameter values, the lower value of the integral indicator is equal to J_{min}=0.13, the upper value – to J_{max}=1.0. This "corridor" can be divided into zones corresponding to the levels of the integral indicator "health quality". For example, let us select the following zones: "high level", which corresponds to the values J=0.9÷1.0;; "satisfactory level", which corresponds to the values J=0.7÷0.9; "median level", which corresponds to the values J=0.5÷0.7;

"low level", which corresponds to the values J=0.3÷0.5; "unsatisfactory level", which corresponds to the values J=0.13÷0.3.

Let us consider the dynamics of the changes of specific indicators, system indicators and the integral indicator.

Situation 3 is characterized by the increase in the value of specific indicators in comparison with *Situation 1* on average by 20%, i.e. Δ_{av}=0.2. The set of values of specific indicators for this situation is as follows:

$$M_3=\{(0.25,0.3,0.35),(0.3,0.35,0.3),(0.3,0.35,0.3)\}.$$

In this case, the value of the integral indicator is equal to J=0.36, it increased almost in three times and got into the "low" zone.

Situation 4 is characterized by the increase in the value of specific indicators in comparison with *Situation 1* on average by 40%, i.e., Δ_{av}=0.4. The set of values of specific indicators for this situation is as follows:

$$M_4=\{(0.45,0.5,0.55),(0.5,0.55,0.5),(0.5,0.55,0.5)\}.$$

In this case, the value of the integral indicator is equal to J=0.6, it increased in almost five times and got into the "median" zone.

Situation 5 is characterized by the increase in the value of specific indicators in comparison with *Situation 1* on average by 60%, i.e., Δ_{av}=0.6. The set of values of specific indicators for this situation is as follows:

$$M_5=\{(0.65,0.7,0.75),(0.7,0.75,0.7),(0.7,0.75,0.7)\}.$$

In this case, the value of the integral indicator is equal to J=0.8, it increased in more than six times and got into the "satisfactory" zone.

Situation 6 is characterized by a sharp drop in the values of specific indicators of the system parameter K_3 – "quality of health status", i.e., Δ_{av}=-0.65, which is connected, for example, with the occurrence of any epidemic disease. The set of values of specific indicators for this situation is as follows:

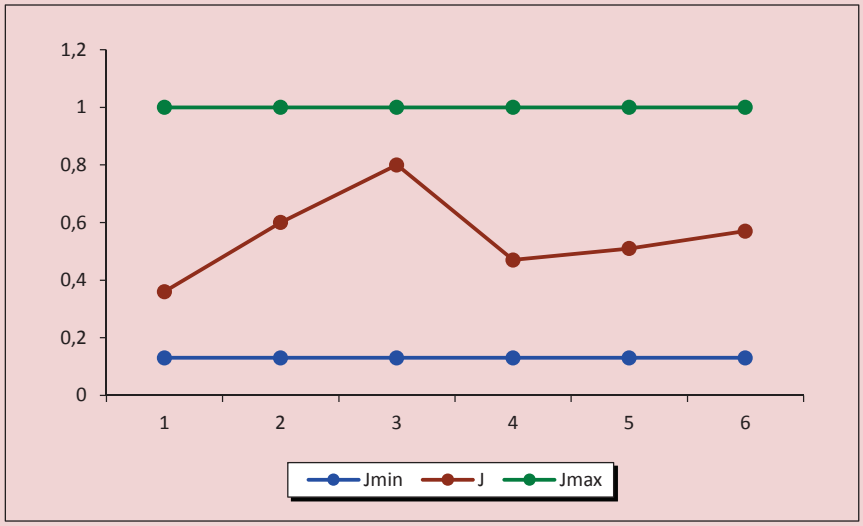
$$M_6=\{(0.65,0.7,0.75),(0.7,0.75,0.7),(0.05,0.1,0.05)\}.$$

In this case, the value of the integral indicator is equal to J=0.47, it decreased almost in two times compared to the previous level, and got into the "low" zone.

Situation 7 is characterized by an increase in the values of specific indicators in the system indicator K_1 – "quality of medical care" that describes the efforts to eliminate the epidemic. The set of values of specific indicators for this situation is as follows:

$$M_7=\{(0.8,0.9,0.9),(0.7,0.75,0.7),(0.05,0.1,0.05)\}.$$

Figure 3. Dynamics of change of the integral indicator J – health quality



In this case, the value of the integral indicator is equal to J=0.51, it increased by 8.5% compared to the previous level, and fell into the "median" zone.

Situation 8 is characterized by a slight increase in the values of specific indicators in the system indicator K_3 – "health quality", i.e., Δ_{av} =0.1, which describes the restoration of people's health after the epidemic. The set of values of specific indicators for this situation is as follows:

$$M_8=\{(0.65,0.7,0.75),(0.7,0.75,0.7),(0.15,0.2,0.15)\}.$$

In this case, the value of the integral indicator increased to J=0.57.

The dynamics of change of the integral indicator for the sets of values of specific indicators characterizing the situations considered above is represented in *Figure 3*.

Thus, we studied the influence of changes in particular indicators on the dynamics of the integral indicator of the quality of life under the influence of various factors; that is, the trend of the integral indicator was determined. This approach can be used in practice when evaluating the effectiveness of control factors that are formed by supervising structures.

Conclusion

The system hierarchical dynamic model for assessing people's health quality was developed. A specific feature of the proposed model is the spatial structure of the integral indicator, which allows for taking into consideration the links between system

indicators at the median level and between specific indicators at the lower level.

The calculations of the integral indicator of health quality were made; they helped identify the range of variation of the integral indicator and the zones corresponding to different levels of the indicator. Studying the influence of change in particular indicators on the integral indicator of health quality under the impact of various factors allowed us to reveal trends in its changes. In this case, we can distinguish the impact of control factors, which is very important in assessing the effectiveness of decisions taken by relevant authorities.

Further studies can aim, first, to analyze the impact of an extended list of indicators on assessing the integral indicator of health quality; second, to analyze possibilities of applying statistical analysis of specific indicators to quantify the strength of linkages between them; third, to use the model for assessing the integral indicator of health quality as a dynamic object of management to make efficient management decisions.

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Environmental and Economic Assessment of Water Regulation Function of Rural Territories in the Republic of Komi*

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Abstract. The concept of sustainable development adopted in Rio de Janeiro in 1992 was a turning point in the understanding of the importance of "natural capital", when emphasis on ecosystem services was marked. An important step in the development of the practical use of the concept of ecosystem services was the decision, which is based on three principles: recognition of the ecosystem value; carrying out its economic assessment and the development of mechanisms accounting for these benefits. The article presents the ecological and economic assessment of water regulating function of the northern region on the basis of methodology of Yu.V. Lebedev and I.A. Neklyudov based on the evaluation of average annual growth rate of groundwater flow of forested watersheds. The region is situated in the natural zones of tundra and taiga. As for taiga forests, their precipitation joins groundwater flow during the period of summer and autumn rains. The differentiation of the value of groundwater flow is determined by the topography, forest cover, wetlands and characteristics of timber stands. The calculation also concludes that wooded watersheds provide the territory with water (as a result of the growth of the underground part of the river flow) by 130-560 cubic meters per hectare of forested areas in the summer period; the annual volume of accumulated water per hectare in the region is 9915,6

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million cubic meters, which may serve as a possible reserve of water in case of natural and man-made emergencies. The annual economic effect of water regulating role of forests is 3.5 billion rubles. This financial measure can be a starting point in assessing the damage from the loss of forested areas. The conducted evaluation is important because it provides specific data at the local level concerning forest ecosystem potential of keeping the amount of water differentiated by forestries.

Key words: water regulation function, groundwater flow, wooded watersheds, percentage of forest area, growth of groundwater runoff, forestry, ecosystem services, natural capital.

In connection with the increasing role of environmental factors in the world economy, issues concerning the preservation of environment and its biospheric functions in promoting the quality of life become more and more relevant. The concept for sustainable development, adopted in Rio de Janeiro in 1992 was a turning point in the understanding of the importance of "natural capital". This document introduced the term "ecosystem services", which has features common to those of natural capital. Often the terms "ecosystem services" and "biospheric functions" were used as synonyms when describing the value of the goods of nature, and only in recent years ecosystem "functions" have started to be treated as "services" if they entered the market. An important step in the development of the practical use of the concept of ecosystem services was a decision made in 2007 in Germany at the ministerial meeting of G8+5 on environmental protection. The decision is based on three key principles: recognition of the value of ecosystems, biodiversity; economic valuation; development of mechanisms to account for the services and benefits provided by ecosystems in the planning of economic activities [1]. In relation to ecosystem services there are three types of assessment: environmental (the ability of ecosystems to perform their functions); economic (integrated into the decision-making mechanisms familiar to the market) and social (ensuring consistent decisions for the community and removal of conflicts) [2]. Studies on economic valuation of biosphere functions of various natural objects (forest, wetland, etc.) are carried out not only abroad but also in our country. Thus, researchers at major Russian scientific centers like Lomonosov Moscow State University, RAS Institute of Market Problems, RAS Institute of Geography, RAS Institute for System Analysis, Institute of Plant and Animal Ecology of the Ural Branch of RAS, Botanical Garden of the Ural Branch of RAS and other research organizations and higher education institutions have analyzed and developed detailed schemes for practical application of the valuation for many years [3–8]. In recent decades, foreign researchers have developed various methods for the valuation of ecosystem services in monetary

terms. They are described in detail in the works of S. Pagiola, D. Pearce, A. Freeman, W. Hanemann [9–11] and others. Existing methods are widely used, and their common feature is adherence to the principles of people's economic welfare.

It is known that forests maintain the balance of water in terrestrial ecosystems and regulate and improve river runoff. This paper presents an attempt to estimate the increase in water supply in the area by means of the underground component of river runoff and the economic effect of water regulating services of rural territories in the Republic of Komi. This issue is studied in rural areas of the region. Economic evaluation of water regulating services has a distinctive feature that consists in identifying the beneficiaries from the use of this good. In particular, this service can be considered at the local, regional and global level. Local users of this service are companies (various enterprises, business) and people interested in the availability of clean water. Regional (at the level of river basins) consumers are municipalities and economic agents (sectors) that use water, and the population and economic entities concerned in the prevention of floods and other negative effects [12]. Rural population, as well as industrial enterprises, is equally interested in the adequacy of not only water resources but also the ability to accumulate and hold the volume of water by forest ecosystems. It should be noted that major production sectors operating in rural territories of the region are agriculture and forestry, traditional nature management and the production of fuel and energy resources. In this case, forest area is an operating unit of rural areas.

Water regulating role of forests consists in the fact that they improve the balance between the incoming and outgoing parts of the flow by transferring surface runoff to groundwater runoff, this is how water is accumulated and preserved. Another effect is the reduction (but not prevention) of the intensity of floods in the period of snowmelt and heavy rains, increasing the level of water in the low-flow period, preventing the waterlogging of soils [13]. Scarcity of water resources for the region is not extremely urgent, as it can be observed, especially in recent years, in the other regions. However, preventing water crisis in many respects depends on effective forest management.

The state of forest resources. The region is located in the tundra and taiga natural zones, the vegetation on the western slope of the Urals forms mountain-forest, mountain tundra and goltsy altitudinal belts all this determines the region's distinctive features. Most of the territory is a sub-zone of middle taiga, which is dominated by spruce forest. As a result of fires and logging (for many decades), secondary spruce-birch, birch and aspen forests grow in place of coniferous forests and occupy large areas in the middle taiga subzone. The average forest cover in the republic is 79.1%, the highest values of this indicator (more than 90.0%) belong

to the southern and south-western areas of the region, and the lowest (25–55%) – to the northern and north-eastern areas. Spruce is distributed on the territory of the republic unevenly, its predominance (60–80%) in coniferous forests is marked in the north-western and north-eastern forestries of Usinsky, Intinsky, Knyazhpogoststsky, Vuktylsky and Ust-Tsilimsky districts. A smaller percentage of spruce (30–40%) is observed in the central and southern forest districts of Priluzsky and Koygorodsky districts. The middle productivity class of spruce forests in the republic in general is[1] IV, 8; and in the middle subzone of the taiga it is IV, 5; in the southern zone it is III, 8. Second place among coniferous species in the republic belongs to the pine. Pine plantations occupy one fourth of the wooded lands of the republic (23.9%) and forest lands (25.2%). Forests of this species can be found throughout the republic, but their greatest areas are located on the upland terraces of major rivers (Vychegda, Pechora, and others). Pine plantations are most widespread (40–55%) in forestries of Syktyvdinskiy, Sosnogorsky and Ust-Kulomsky districts. Soft-wooded broadleaved species are represented by the birch, aspen, alder and willow, which account for 19.8% of the wooded lands of the republic, or 19.5% of the forest lands. It should be noted that since 2013 there has been a downward trend in the species conversion ratio, which is associated with the annual increase in the area of coniferous species transferred to the area covered by forests. Age structure of forests in the republic is a result of their long and uneven utilization and fires over the years. It is characterized by uneven distribution of plantations by age class for individual dominant species and for all forests in general. The republic in general is dominated by plants of age class VI and older (61% of the forested area). Mature and overmature plantations are located unevenly on the territory of the republic. For instance, in traditional logging areas along railways and public automobile roads, forest resources are depleted. The share of mature and overmature forests is negligible here. The main reserves of mature and overmature forests are concentrated in the north-western and north-eastern forest areas of the republic.

According to field studies [14], the hydrological role of taiga forests is manifested in the following:

- maximum moisture reserves are typical for spruce forests and the lowest – for birch forests; spruce forests have higher intensity of water accumulation and low intensity of reduction of water reserves in the soil, which significantly affects the amount and seasonal distribution of runoff of small rivers;
- with the increase in the forest cover of river catchments areas, the stocks of water in

[1] Actual data were taken from the State Report "On the state of the environment in the Komi Republic in 2015". Syktyvkar, 2016. 173 p.

snow grow by the beginning of snowmelt; snow cover melting in spring is observed at a later stage (by 8–12 days);

• spruce forests contribute to the higher and prolonged standing of perched water (its level in forested watersheds is 2–3 times higher than in the area without forest vegetation).

Status of water resources. The river network of the territory under consideration belongs to the basins of the White (the rivers Vychegda, Luza, Mezen) and Barents (Pechora river) seas, and rivers that flowing directly into the sea. The total long-term average annual flow of the rivers in the study area is estimated at 228 km^3; it corresponds to the water flow of 7,230 m^3/s and an average runoff of 11.6 l/s*km^2 [14]. Its distribution in the basins of seas and major rivers of the region is presented in *Table 1.*

The river flow reaches its greatest depletion to the end of the season of the winter low water period: in the lowland rivers of the southern and central parts of the territory – in the first half of April; in the mountain and tundra rivers – in the first third of May.

The territory under consideration is swamped by an average of more than 10%; in the Far North, swamps in some places reach 60% of the area of river basins. The role of wetlands is manifested in the regulation of river flow, flow of water into lakes, and the maintenance of groundwater levels. When peat moisture is normal, bogs accumulate about 10 km^3 of water, including, up to 2–3 km^3 in the active layer. Studies have shown that logging activities in river catchments can have a significant impact on the change in the characteristics of river flow and hydrological regime of small rivers with a catchment area of 1–2 km^2. At small runoffs, the basins which were covered by continuous logging, you can expect a 20–25% reduction in annual runoff. The forestry component of changes in the runoff of medium and large

Table 1. Distribution of the long-term average annual runoff in the basins of seas and main rivers

Basin	Area, thousand km^2	Annual runoff		Flow rate, m^3/s	Modulus of flow, $l/s \cdot km^2$
		km^3	% of the total		
White Sea, total	217	65.3	34.9	2070	9.51
Including: – river Vychegda	121	34.1	15.0	1080	8.90
– river Luza	18.3	4.23	1.9	134	7.30
– river Mezen	78.0	27.0	11.8	855	11.1
Barents Sea, total	404	163	65.1	5160	12.8
Including: – river Pechora	322	134	58.8	4250	13.2
– rivers of the sea coast	82.5	28.6	12.5	907	11.0
Total	**622**	**228**	**100**	**7230**	**11.6**

rivers of the region is relatively small. Here, the decrease in the value of this indicator caused by gradual (within the allowable cut) logging in the catchment areas does not exceed 1–5% [14]. Negative processes caused by forestry activities are expressed in the silting up of the rivers during the low-flow periods (which contributes to the changes in the qualitative and quantitative characteristics of fish resources), the increase in maximum water levels during spring floods, more intense development of erosion processes in river beds, etc. Modern types of mechanized logging are changing the forest environment. With the use of logging machinery on forest sites the ground vegetation and the upper soil horizons are badly damaged. As a result, water-physical properties and infiltration capacity of the soil are deteriorating. Soil properties deteriorate especially significantly after application of the tractors with a high specific pressure on the ground in the snowless period. After the use of such machinery on loamy and clayey wet soils their permeability is reduced dozen-fold. Dramatic deterioration of water-physical soil properties leads to a complete loss of water protective functions of forest areas affected by logging. The coefficient of surface runoff increases in more than 200 times, subsurface flow completely disappears and the intensity of water erosion is increased hundreds of times [15]. Due to the fact that during the summer logging the litter is removed and water-physical properties worsen, the soil freezes to a great depth and it usually does not have time to thaw out before the complete disappearance of the snow cover. Therefore, the entire spring runoff flows across the surface and impairs the hydrological regime of rivers.

Economic assessment. The concept of total economic value that originated in the 1990s is the most common practice in the world for conducting economic evaluation.

Table 2. Algorithm of calculating total economic value

Formula	**TEV= DV + IV + OV + EV**			
Items	Direct use value (DV)	Indirect use value (IV)	Option value (OV)	Existence value (EV)
Examples	Fishing Hunting Agriculture Recreation Gathering Fuel (peat)	Carbon sequestration Wastewater treatment Preservation of microclimate Pollination Assimilation Water management	Potential future use (both direct and indirect) The opportunity of obtaining goods and services in the future	Biodiversity Inheritance Culture
Methods	Method of “market” prices Costly methods Method of transportation costs	Method of “market” prices Costly methods (compensation costs) Method of subjective assessments	Method of subjective assessments (“willingness to pay” for the preservation of the resource)	Method of subjective assessments Hedonistic method Method of transportation costs

* The table was made with the use of the monograph:Tishkov A.A. (Ed.). *Ekonomika sokhraneniya bioraznoobraziya* [Economics of biodiversity conservation]. Moscow: GEF proyekt “Sokhraneniye bioraznoobraziya”; Institut ekonomiki prirodopol’zovaniya, 2002. 604 p.

The main idea of this concept is based on the resource, regulating and cultural functions of natural capital. The total value consists of the value of the use and of the non-use of the territory that has the functions of natural capital *(Tab. 2)*. In this case, it is objectively difficult to assess the water regulating function and, in our opinion, it is possible only to designate the lower boundary here.

For example, when evaluating the regulation of the composition of hydrological parameters included in the environment forming function, we used a technique developed by researchers at the Botanical Garden of the Ural Branch of RAS, taking into account the bogginess and woodiness of the territory, the structure of the forest, bonitet, forest stand, and the proportion of summer precipitation [13, 16, 17]. Assessment in a particular case was conducted broken down by the forestries of the region.

Evaluation of water regulating function. Forested watersheds allow for transferring up to 95% of river runoff to the underground part, whereby in the future the territory can be evenly provided with water resources [13]. Water regulating function dependent on the increase of underground runoff is estimated by the following formula [16]:

$$\Delta S = X \cdot \alpha \cdot K_1 \cdot \mu \cdot [C_1 \cdot K_2 \cdot K_3 \cdot K_4 - C_2], \quad (1)$$

ΔS is the annual average increase of underground runoff, mm;

X – average annual precipitation[2], mm;

α –river runoff ratio;

μ – share of summer precipitation[3], %;

K_1 – bogginess ratio[4];

C_1 and C_2 – ratios of the underground runoff of forested and woodess areas;

K_2 – ratio characterizing the age of the plantings;

K_3 – coefficient characterizing the bonitet class of the plantings;

K_4 – coefficient depending on the fullness of the plantings.

The value of river runoff ratio (α) is determined depending on the natural zones of vegetation areas (by subzones of taiga) and terrain (mountains and plains). Their values are taken according to the data of Yu.V. Lebedev and I.A. Neklyudova and range from 0.14 to 0.56; the minimum values are in the southern subzone of taiga, and the maximum are in the mountainous part of Far North taiga [3, 17]. The values of the ratios of the underground runoff of forested and woodess areas depend on forest cover (%), type of planting (deciduous or coniferous) and mechanical composition of soils (loamy or sandy) [17]. The values of bogginess ratio are

[2] SNiP construction rules and regulations 23-01-99. Table 2. Climatic parameters of the warm period of the year. Russian Federation. Kemerovo Oblast, Kirov Oblast, Komi Republic, etc. and SNiP construction rules and regulations 23-01-99. Building climatology. Table 1. Climate parameters of the cold season of the year. Russian Federation. Kemerovo Oblast, Kirov Oblast, Komi Republic, etc.

[3] *Ibidem*.

[4] *Atlas Respubliki Komi* [Atlas of the Komi Republic]. Moscow: Feoriya, 2011. 294 p.

in inverse proportion to the bogginess of the territory itself: the higher the bogginess, the smaller the value of this ratio (0.85–1.00). The values of coefficients characterizing the age (0.25–1.00) and fullness of the plantings (0.65–1.0) have a direct correlation: the older the age of the plantings and the higher the fullness of the plantings, the higher the value of this ratio [18]. And vice versa – the higher the class of bonitet, the smaller the value of the corresponding ratio (0.6–1.3).

Let us demonstrate the procedure on the example of calculating the magnitude of the increase in underground runoff per ha over the summer period for the mature stands on the Pechora forestry (the total area of which is 4,256.8 thousand ha). Conifers dominate here and account for 82.8% of plantings, of which young growths constitute 1.8%; mid-ripening – 15.0%; ripening – 16.1% and ripe – 67.1% (data on the forest management of the forestry[5]). The annual precipitation is 473 mm (data of SNIP, Petrun station for weather observations); river runoff ratio is 0.5 (flat terrain, Far North taiga); the share of summer precipitation is 0.74 (data of SNIP, Petrun station for weather observations); bogginess ratio – K_1 (for the bogginess of the territory equal to 7.6%[6]) equal to 0.9 is taken from the table in [18]); the ratio of the underground runoff – C_1 (accepted by the forest cover (54%), pine plantations, lowland forests and loamy soils) is equal to 0.65 [16]; the ratios of the underground runoff of woodless areas C_2 is 0.12 [18]; the ratio characterizing the age of the plantings K_2 (for calculation of mature stands of bonitet class V) is 1.0; the coefficient of bonitet class K_3 (bonitet class V) is 0.6 [18]; the coefficient of the fullness (0.4) of plantings K4 is taken equal to 0.7 [18]. Thus, substituting the values of the presented indicators, we get the value of groundwater gain per ha for mature stands:

$$\Delta S = 473 \cdot 0{,}5 \cdot 0.74 \cdot 0.9 \cdot [0.65 \cdot 1{,}0 \cdot 0.6 \cdot 0{,}7 - 0.12] = 24{,}09 \text{ mm or } 240.9 \text{ m}^3/\text{ha}$$

For other categories of plantations of coniferous and deciduous species (of different categories) we conduct similar calculations. Given the equity distribution of plantings (82.8% for coniferous species; 17.2% for deciduous species), we calculate the total increase for the forestry in general. In our case, it is 209.6 m^3/ha. The volume of water accumulation taking into account the area of the forestry is 292.2 million m^3.

In order to determine the economic impact of water regulating function, it is necessary to choose the financial equivalent. It can be presented by utility bills for water usage and water tariffs for industrial enterprises. These indicators for the Republic of Komi vary throughout municipal districts and the basins of Pechora and Northern Dvina. Thus, the average value of water tariff (utility fee for the use of cold water) in the region is 40 rubles/m^3, the value of the

[5] According to the Forest Committee of the Komi Republic (Komileskhoz) by forestries of the region.

[6] *Atlas Respubliki Komi* [Atlas of the Komi Republic]. Moscow: Feoriya, 2011. 294 p.

Table 3. Evaluation of the water regulating function of the region broken down by forestries

Forestry	Area, thousand ha	Increase in groundwater runoff, m³/ha	Structure of plantings C/D, %	Water accumulation volume, mln m³	Economic effect, mln rub.
Southern forest tundra, Far Northern taiga,					
Pechorskoe	4256.8	209.6	83/17	892.2	303.9
Usinskoe	2990.4	156.2	88/12	467.1	159.1
Ust-Tsilemskoe	4037.1	309.5	86/14	1249.5	425.5
Izhemskoe	1754.3	560.4	85/15	983.1	334.8
Northern taiga					
Kadzheromskoe	1295.4	334.8	92/8	433.7	147.7
National Park	567.8	182.4	44/23	103.6	35.3
Vuktylskoe	1306.9	400.8	91/9	523.8	178.4
Sosnogorskoe	1618.5	325.8	82/18	527.3	179.6
Ukhtinskoe	1280.1	330.1	78/22	422.6	143.9
Middle taiga					
Meshchurskoe	1162.2	157.9	88/12	183.5	160.9
Udorskoe	1475.2	335.9	90/10	495.5	101.1
Ertomskoe	1109.4	280.7	86/14	311.4	86.8
Mezhdurechenskoe	958.8	278.8	80/20	267.3	59.6
Zheleznodorozhnoe	1445.4	362.2	76/24	523.5	170.0
Aikinskoe	390.4	179.9	63/37	70.2	22.8
Chernamskoe	83.6	315.9	86/14	26.4	8.6
Storozhevskoe	835.9	214.3	78/22	179.1	39.5
Pomozdinskoe	680.9	243.4	82/18	165.7	8/.3
Troitsko-Pechorskoe	951.4	269.5	75/25	256.4	120.9
Pechoro-Ilychskoe	1179.6	300.9	94/6	354.9	48.8
Natural reserve	721.3	198.8	88/12	143.4	112.7
Komsomol'skoe	1134.2	291.8	89/11	331.0	83.8
Ust-Nemskoe	1002.1	257.4	82/18	257.9	40.7
Ust-Kulomskoe	426.8	293.8	64/36	125.4	39.9
Pruptskoe	483.1	254.2	69/31	122.8	53.8
Lokchimskoe	405.7	249.0	62/38	101.0	58.2
Kortkerosskoe	475.9	154.6	73/27	73.6	32.8
Kazhimskoe	408.8	406.9	69/31	166.3	54.1
Koigorodskoe	618.1	336.6	65/35	208.1	98.2
Sysolskoe	579.1	418.1	66/34	242.1	25.0
Syktyvkarskoe	195.6	394.2	80/20	77.1	17.5
Syktyvdinskoe	478.9	254.1	74/26	121.7	45.0
Southern taiga					
Letskoe	428.9	125.5	44/62	53.8	67.6
Priluzskoe	810.2	170.9	55/45	138.5	78.6

tariff changes in the range of 29–182 rubles/m^3 [19]. These calculations use the fee that industrial enterprises pay for the use of water, the amount of the fee is regulated for the basins of the rivers: for Pechora basin – 258 rubles/thousand m^3; for Severnaya Dvina basin – 246 rubles/thousand m^3 with the multiplying coefficients[7] of 1.32 for 2016. On the example of Pechora forestry (basin of the river Pechora), we see that the economic effect is expressed as the product of the volume of accumulation of water by the fee for the use of water for industrial enterprises (258 rubles/thousand m^3 * 1.32) and it is equal to 303.9 million rubles.

Usually, when calculating the increase in groundwater flow, the key indicator is the average annual rainfall, which, due to the characteristics of the forested area, is able to retain and accumulate moisture. The amount of precipitation depending on the natural zones of vegetation increases from the southern taiga to the zone of the Far North. Often, however, the proportion of forest cover and the structure of plantings (deciduous or coniferous) and their age are more significant due to the adjusting factors. These characteristics determine the difference in the forestries located in the same vegetation zones. For example, in the area of Far North taiga for Usinskoe and Ust-Tsiemskoe forestries, due to differences in the proportion of forest cover and average annual rainfall, the twofold difference in the volume of increase in groundwater flow is observed *(Tab. 3)*. The table presents the results of calculations of the annual economic effect of the water regulating services of the region broken down by forestries and natural areas of vegetation.

The increase in groundwater flow characterizing the amount of storage of water, correlates to the greatest extent with the following parameters: annual rainfall; forest cover of the territory; proportion of conifers in the structure of forested areas; proportion of ripe species (coniferous and deciduous). Thus, the higher values of these parameters, the greater the increase in groundwater flow. Forests and forested watersheds fulfill a critical ecological role by maintaining the natural hydrological regime in the region. Thus, for the summer period, forested watersheds provide water to the area (due to the growth of the underground component of river runoff) of 130–560 m^3 per hectare of forested area – the annual volume for the region is 9,915.6 million m^3. The annual economic effect of the water regulating role of forests is 3.5 billion rubles *(Tab. 4)*.

This financial indicator can serve as a starting point to assess the damage from the loss of forest-covered areas, and the quantitative indicator shows the possibilities of water storage to organize water-intensive industries.

[7] Resolution of the Russian Government "On the rates of payment for the use of water objects being in the federal property" dated December 30, 2006 No. 876 and the Resolution of the Russian Government "On the rates of payment for the use of water objects being in the federal property and on amending Section 1" dated December 26, 2014 No. 1509.

Table 4. Economic effect of water regulation function of rural territories of the region broken down by natural zones of vegetation

Natural zone	Area, thousand ha	Ratio of coniferous to deciduous species, %	Показатели		
			Increase in groundwater runoff, m³/ha	Water accumulation volume, mln m³	Economic effect, mln rub.
Southern forest tundra, Far Northern taiga	13 040	85/15	150-560	2907.8	1223.3
Northern taiga	6 070	85/15	180-400	2011.0	684.9
Middle taiga	17 200	75/25	150-420	4804.5	1480.7
Southern taiga	1 240	50/50	130-180	192.3	146.2
Total for the region	**37 550**		**130-560**	**9 915.6**	**3 535.1**

Practical importance of assessing the service. Currently, areas of practical application of ecosystem services assessments have been formed [7, 20-23], the major ones are as follows:

• designing national environmental policy and long-term programs and plans for environmental protection with the aim of reducing the level of environmental threats;

• incorporating the value of ecosystem services in the national systems of integrated environmental and economic accounting, the system of national accounts, the estimation of adjusted indicators of GRP and others;

• establishing fees and insurance premiums;

• establishing a market for ecosystem services.

The most important condition of effective management in the natural resource sector is the organization of its provision with scientifically substantiated information on natural reserves and on income obtained. In 1993, the UN Statistics Division introduced the System of Environmental-Economic Accounting (SEEA) consistent with the System of National Accounts (SNA). The accounts of the SNA are accounts of flows that reflect the cross-cutting movement of goods, services and income through all the stages – from production to use. Most national statistical forms relating to natural capital present the data in physical terms rather that in value terms as it is required by the SNA. It should also be noted that environmental management in the sector of households is not reflected in the system of statistics observation. Changing this system with a mandatory monitoring of the economic value of natural capital, including the household sector, would allow for the planning of regional development taking into account the interests of population, creation of new jobs and alleviation of poverty [21]. Some efforts to consider environmental issues in economic development of Russia's regions were undertaken in the framework of a project carried out by WWF-Russia on the

development of an environmental-economic index for regions, taking into account environmental sustainability (including environmental, economic and social factors). The standard system of national accounts assumes that only investments in fixed capital are investments in the future welfare of society. Broader definition of adjusted net savings includes natural and human capitals that constitute national wealth. From this perspective, the depletion of nonrenewable natural resources and the overuse of renewable natural resources represent a deduction from the national wealth [6]. The adjusted net savings index characterizes the rate of accumulation of national savings after proper accounting of natural resource depletion and damages due to pollution. The index is a result of changes in gross domestic savings. Adjusted net savings (ANS) for Russian regions are calculated according to [24] by the formula (2):

$$ANS = GFCF - IFC - DNR - PDE + BEHCD + EEP + ASPNA, \quad (2)$$

where GFCF stands for "gross fixed capital formation";

IFC – for "investments in fixed capital by type of activity "Mining";

DNR – for "depletion of natural resources";

PDE – for "pollution damage to the environment";

BEHCD – for "budget expenditures on human capital development";

EEP – for "expenditures on environmental protection";

ASPNA – for "assessment of specially protected natural areas".

Among the restrictions, imposed in connection with the use of official statistics, it is necessary to note a low efficiency of the published data (for some indicators, information is published with two-and sometimes three-year delay). It should be noted that domestic developments concerning the valuation of ecosystem services currently concern specially protected natural areas, where the environment-forming, provision and cultural functions of natural capital are taken into account. It is therefore necessary, in addition to the costs of environmental protection activities provided for at the objects of federal importance (through state funding, which in 2014 amounted to 320.4 million rubles), to take into account the value of these natural functions/services. So, we have assessed major sites of protected areas (of regional importance), where the specific indicator of value varies according to the degree of demand among tourists, according to natural environmental conditions, etc. and is equal to 10–990 rubles/ha per year [23]. According to expert estimates, the average value for all protected areas this indicator can make 500 RUB/ha/year. Thus, taking into account the total area of all protected areas in the region, which is 2.7 million ha, the value of these sites, taking into account ecosystem functions, is 1 350 million rubles.

Expenditures on environmental protection, according to the statistics for the region[8] as of 2014 comprise 76.7 million rubles. The damage from environmental pollution is determined by the amount of payments for negative impact on the environment (for 2014 – 1053.3 million rubles to the consolidated budget of the region). Budget expenditures on human capital development comprise 52194.5 million rubles (according to the same statistics as of 2014). Investments in fixed capital by type of activity "Mining" were 21.04 billion rubles. The depletion of natural resources consists of two components: mineral resources component and forest component. The depletion of the mineral resources (DMR) is estimated by volume of gross value added by type of activity "Mining" and is 89.0 billion rubles. Forests are renewable natural resources, and in some regions there is a situation where the volume of timber harvesting or the reduction of its reserves due to other causes, such as fires, may be lower than its growth. In this case the natural resource is not exhausted, but replenished. In this regard, when assessing the impact of changes in the stock of forest resources (CSFR) on the amount of net savings, the following principle is used: if timber supplies are reduced, then net savings are reduced by the cost of the reduced amount of wood, if timber supplies increase, so do net savings. Therefore, the value of CSFR can take positive and negative values: if timber stock increases, then the value of CSFR is negative, and vice versa [24]. The change is calculated relative to the average value of timber reserves in recent years. The cost of changes in timber reserves in the region is determined based on the price of round timber to produce lumber. According to statistics, the change in timber reserves in the region amounts to 19.4 million m^3, while the average price of timber for production of lumber is 968.3 RUB/m^3. Thus, the depletion of forest resources is 18.8 billion rubles. Gross fixed capital formation (net savings) comprise 112.89 billion rubles.

$$ANS = 112.890 - 21.040 - 107.800 - 1.053 + 52.195 + 0.077 + 1.650 = 37.97 \text{ billion rubles.}$$

The environmental-economic index (adjusted net savings index – ANSI) is calculated as the ratio of adjusted net savings to GRP by the formula (3):

$$ANSI = ANS/GRP \cdot 100\%, \quad (3)$$

where ANS stands for "adjusted net savings";

GRP – for "gross regional product" (according to statistics of the region as of 2014m it is 469.6 billion rubles).

The value of adjusted net savings index for the region is 8.09, which, given the "positive values" in the group of export-oriented regions of the country, already proves that the territory is moving along the path of sustainable development.

[8] *Informatsionno-analiticheskii obzor "Respublika Komi. Itogi 2014": stat. sb.* [Information and analytical review "Komi Republic. 2014 results": statistics collection]. Syktyvkar, 2015. 260 p.

At the microeconomic level, the assessment of environmental (association of regulatory and supporting services) functions of an ecosystem involves determining the damage caused by their deterioration and the volume of resources to replenish or prevent them [25]. According to G.A. Motkin's opinion, an available compensatory mechanism can be found in the insurance of the risk of violation of environmental functions. In particular, researchers at the Central Economics and Mathematics Institute, RAS proposed a set of measures for replacing the existing "payments for negative impact" with "insurance payments", the amount of which would not go to the budgets, but would be collected at the enterprises themselves. The calculation of such payments was proposed to be determined on the basis of the value of ecosystems that are affected by activities of the enterprise. There are practical developments on tariff rates of insurance contributions for insurance against the risk of violation of ecosystem functions, depending on economic sectors [26, 27].

The formation of ecosystem services market in Russia is not yet developed; as for foreign countries, the situation is opposite there. The most common payments for ecosystem services in foreign countries are those relating to forestry and agriculture, where the main principle is "it is not the polluter, but the user, who pays". According to the definition of the United Nations Economic Commission for Europe (2007), payment for ecosystem services means "contractual transaction between a buyer and a seller for an ecosystem service, or a land use/management practice likely to secure that service" [27]. As a rule, it concerns biodiversity, water resources (preserving their quality) and carbon emissions. At the same time, the purpose of such payments is to gain maximum social benefit at existing market incentives. As of 2011 in Europe, North America and Central Asia, many schemes have been developed (78 schemes, of which 37 deal with forests, 28 deal with watersheds, and 13 serve to ensure water quality) for agricultural and forest areas [28]. For example, in Sweden and Finland, compensation is paid (by state authorities) to private forest owners for the protection of part of their lands rather than for their exploitation. In Latvia, for example, a fee is charged for using hiking trails – it is an example of *governmental schemes*.

In the case when relations are established between private companies (for example, between farmers or forest owners and industrialists) to ensure groundwater quality through the abandonment of economic activity, it is an example of *private schemes*, as well as the repurchase of agricultural land from farmers with the aim of making them into protective forests, etc.

Banking schemes (or compensation schemes) are applied as a tool to reduce climate change – according to the Clean Development Mechanism expressed in the

afforestation of areas for the sequestration of carbon emissions (Georgia, Moldova, Albania, etc.)

Private-public schemes include the building of relationships between private owners (forest owners and farmers) and state-owned corporations, when the corporation collects higher tariffs (e.g. for water) and transfers part of the funds to these owners for the maintenance of groundwater quality so that they could reduce fertilizer application and replace coniferous with deciduous species.

Differences in the organization of natural resource management, in the monitoring of a strict compliance with laws and regulations, as well as differences in forms of ownership of natural resources in Russia and other countries determine the possibility of implementing many schemes for preserving the ecosystem services in the territories. However, the assessment of their value can be the starting point for their preservation and consideration in the planning of perspective natural resource management in Russia. The greatest distribution of such practices in Russia is observed in the recreational resources located on a specially protected natural area. Thus, initial developments concerned the arrangement of sustainable nature use on the territory of protected areas of Kamchatka, Altai Krai, the Smolensk and Kaluga oblasts, the Lower Volga area, and the Komi Republic. In the first phase of managerial decision-making, an economic assessment of the value of these areas was carried out and the recipients of benefits from the use of ecosystem services were determined. Further on, business plans for development of specific sites were worked out, they were based on the inclusion of tourist, agricultural and sports sectors of the economy and traditional economy. Taking the region under consideration as an example, we have presented an algorithm for evaluating the efficiency of development of protected areas based on an assessment of the value of ecosystem services [23].

World research on the assessment of natural capital significantly enhances the understanding of the value of ecosystems. Even despite the fact that the approaches and methods of assessment are still evolving and many of them are far from being perfect, they can provide a quality assessment of the benefits and costs associated with changes in environmental quality. The evaluation that we have conducted is important due to the fact that it provides specific data at the local level in the region on the potential of forest ecosystems to retain the volume of water differentiated by forestries. These calculations are necessary for the development of regulatory mechanisms, since the evaluation of natural capital forms the basis of many economic tools.

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Could Neighbourhood Ties Still Be Important for the Migrants in a Metropolitan City?

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Abstract. Although neighbourhood ties have diminishing roles in people's lives because the modern metropolis presents so much choice for its residents, they have not completely disappeared, especially for some groups. In metropolitan cities, migrants settle in the areas where other migrants from the same origin live. This situation represents more than socioeconomic factors, and the relationship forms that migrants maintain within and outside their neighbourhoods could be different from one migrant group to another. The aim of this study is to understand the importance of neighbourhood ties in the networks of the migrants in Istanbul, and to examine the type of ties by their geographical locations. According to the results of the analysis which demonstrates the concentration of different migrant groups in the districts of Istanbul, the focus is on the international migrants who came from Macedonia

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and old Yugoslavian countries (Sandzak region) and who live in Bayrampasa and Besiktas, and internal migrants who came from the biggest metropolitan city Ankara and its border city of Eskisehir and who live in Besiktas. By using personal network analysis, the study comparatively analyses the migrants' neighbourhood ties by the characteristics of the migrants and by type of their local and nonlocal ties. The results reveal a difference between the migrant groups regarding their dependence on neighbourhood ties and the type of ties that are distributed along different geographical locations.

Key words: personal networks of migrants, local ties, nonlocal ties, network analysis.

1. Introducion

social studies that consider contextual determination while examining social actions were more predominant before the second half of the 20th century than after (Coleman, 1986; Pattison and Robins, 2004). However, after the 1940s, contextual thinking was abandoned to another perspective which tries to explain the social world by looking at independent individuals without considering the contexts of their social actions (Emirbayer and Goodwin, 1994). This is called the 'substantial approach' in social studies by Emirbayer (1997). Contrary to this substantial approach, which ignores relations between social entities, or does not think of relations as independent of the concept of real being,[1] the focus of research in the 'relational approach' is the relations themselves.

In parallel with the developments in social studies, and in view of the inadequacy of conventional approaches in explaining migration phenomena relational analysis in migration studies began to develop. Rather than focusing on actors' attributes, these new approaches that bridge macro and micro levels in migration studies aim to reveal the structure and content of relationships between actors. A bulk of research examining the processes of decision-making, the choice of destination and the status of resettled migrants in host societies from a relational perspective exists (e.g. transnational social spaces). These studies focus on the concept of social capital and see social capital as both an accelerator of integration in the host society, and a provider of the continuation of ties in the sending region.

It is a fact that by technological improvements and transportation facilities, social networks in neighbourhoods are not as they used to be. The ties are dispersed over time and space. The literature on the ties of the metropolitan residents either highlights the continuing importance of local ties, or they emphasize the ties that are liberated from local settings. However, if migrants' residential segregation is still one of the main characteristics of metropolitan cities in spite of the alteration in the structure of the

[1] The substantial approach thinks of relations as if they are part of essences. Relations are only thought as if they only make complementary or external changes in essences without changing their nature.

networks of the residents, it is worth focusing on the forms of the relationships that the residents maintain with their neighbourhoods. This study is such an attempt that aims to understand the importance of neighbourhood ties in the networks of the migrants in Istanbul, and to examine the type of ties by their geographical locations. According to the results of the analysis demonstrating the concentration of different migrant groups in the districts of Istanbul, the focus is on the international migrants who came from Macedonia and old Yugoslavian countries (Sandzak region) and live in Bayrampasa and Besiktas and internal migrants who came from the biggest metropolitan city Ankara and its border city of Eskisehir and live in Besiktas. By using personal network analysis, the study comparatively analyses the migrants' neighbourhood ties by the characteristics of the migrants and type of their local and nonlocal ties.

Few studies on social networks of migrants handle the issue from a relational perspective. Quantitative studies that use survey data about the association between personal networks of migrants and their geographical locations actually do not focus on the relationships between individuals. The ties are reduced to variables without a consideration of in which contexts (what kind of a patterning of ties in what kind of networks) they operate. Qualitative studies on the other hand, give more detailed information about the ties between individuals. However, it is not possible to see the whole picture of the ties of individuals; for instance the types and their geographical locations could not be related. In this study, we will examine the networks of the migrants and focus on the local and nonlocal ties in these networks.

The next section evaluates the literature on the social networks of the resettled migrants. It starts with a brief discussion on the local and nonlocal ties of the residents in metropolitan cities. The third section which is the empirical part of this study introduces the study areas, migrants groups, data and method, and explains the results of the analysis. The fourth part summarizes and discusses the findings.

2. Social networks of resettled migrants in the modern metropolis

2.1. Local and Nonlocal Ties in Metropolitan Cities

By the effect of technological improvements and transportation facilities, social networks in neighbourhoods are not as they used to be. For instance, neighbourhoods have diminishing roles in people's lives, because the modern metropolis presents so much choice for its residents. People that live in modern cities are free to choose their friends based on common interests from several channels (Logan and Spitze, 1994). Along with social similarity, access to people is an important matter in forming and maintaining ties with people (Hampton and Wellman, 2003). Since new transportation and communication technologies shorten the distances, maintaining ties with people

from several channels is not an issue for the metropolitan resident,[2] and face-to-face interaction is not a must for maintaining social ties (Putnam, 2000). However, neighbourhoods are still important[3] -especially for some people- because of many common issues and similar statuses of the neighbourhood residents.[4] Neighbourhoods are the places in which people who do not have access to broader networks can socialize (Logan and Spitze, 1994). There are several personal characteristics (such as age, financial status, life cycle, minority racial status, gender etc.) that limit people from accessing broader networks. Furthermore, as people stay longer in a neighbourhood, they start to invest in their local ties. Therefore, length of residence is an important factor for people to develop and maintain ties in their neighbourhoods.

In a nutshell, the studies about neighbourhood and social networks highlight the existence and importance of dense social ties within neighbourhoods for some groups, yet for the others community is liberated from the neighbourhood to some extent. This line of studies (Wellman, 1979; Fischer, 1982; Campbell and Lee, 1992; Logan and Spitze, 1994; Hampton and Wellman, 2003; Bastani, 2007; Grossetti, 2007) underline mainly three issues. The first one is the type[5] of ties that still exist in the neighbourhoods. The second issue is the profiles of the residents for whom the neighbourhood ties are significant[6] or insignificant. Thirdly, they focus on the content of the ties (that are dispersed over the city) of the urbanites and sources that are extracted from them. Studies approaching these issues by network analysis are different than the others[7] in that they

[2] For an extensive study on how new communication technologies affected the amount of contact and support with members of the networks of the residents of Netville, see Hampton and Wellman (2002). The authors underline that new communication technologies should be considered as tools that bring new means of social contact with the members of personal networks of kinship, friendship, neighbours and workmates. They indicate that scenarios from both enthusiasts and dystopians about the consequences of using such technologies could all be real for different people or one person in different times.

[3] Physically accessible ties (i.e. neighbourhood ties) provide instrumental aid and support "such as lending and giving household items, help with household repairs, and aid in dealing with organizations. ...In general, neighbourhoods with high social capital are safer, better informed, higher in social trust and better equipped to deal with local issues" (Hampton and Wellman, 2003).

[4] On the other hand, Hampton and Wellman (2003) also draw attention to the decreasing access among neighbourhood residents -although they are physically close- because of other activities, lack of institutions at the neighbourhood level and lack of time that is stolen by long working and commuting hours. Therefore, empirical evidence helps us to see to what extent, in what cases and for whom neighbourhood ties are important.

[5] According to Bridge (2002), these types reflect the interaction in the neighbourhood that is happening outside of the work places.

[6] Quite a number of studies suggest that local social contacts are important only in low-income neighbourhoods or in ethnic enclaves. In poverty debates, it is generally assumed that individuals who live in segregated neighbourhoods tend to have limited networks, which reduces access to information, cultural repertoires and opportunities in general, and cause them to face negative socio-economic conditions (Marques, 2012). On the other hand, spatial segregation may prevent integration to mainstream society, but certainly helps to reinforce interaction in groups. For example, networks can help social improvement especially when it is hard to find opportunities in the formal labour market (van Kempen and Ozuekren, 1998).

[7] Wellman (1979: 1203) criticises the studies on community question that limit their study in a bounded area, assuming that "an urbanite's primary ties are organized by locality." This is why they prevalently conclude that community has decayed. He emphasizes the appropriateness of the network approach in community studies because of its way of analysing individuals as the linked nodes of complex network structures, not the members of discrete solidarities.

avoid a priori statements (Wellman, 1979). If the studies investigating social networks with a geographical reference are evaluated together, even in these modern times in modern cities, one can see that we still can and need to talk about local (i.e. neighbourhood) ties. Even though technological improvements and transportation facilities decreased the importance of neighbourhoods, they did not completely destruct local ties. What really happened to the local ties is their transformation rather than their destruction. Moreover, according to Wellman (1979), the metropolitan area bounds the field of interaction more than does the neighbourhood. Studies on social networks and physical space mainly address the association between the types of networks, characteristics of the residents and the content of ties from which people receive different kinds of support. Neighbourhood ties still exist in people's networks differentiating in volume, type and content with regard to people's characteristics. However, Wellman (1979) argues that in order to see to what extent neighbourhood ties are important, the whole networks of people should be examined. People's sparsely knit networks contain several components. If one solely focus on specific type of networks such as kinship systems or neighbourly relations, it is inevitable to discover densely knit networks.

2.2. Social Networks of Migrants

The structure of residential segregation patterns which are reproduced by the new migrants who settle in the areas where previous migrants from the same origin live, represent more than the socioeconomic factors. Social relations within and between groups play an important role in the formation and transformation of segregation patterns. Strong ties between migrants are seen as the most important reason of segregation (see e.g. Gijsberts and Dagevos, 2007; Van der Laan Bouma-Doff, 2007; Vervoort, 2012). *"Geographical proximity to their counterparts is preferred by the new migrants, while this situation leads to the formation of new ties and/or densification of the present ones"* (Erginli and Baycan, 2016).

It is a fact that by technological improvements and transportation facilities, social networks in neighbourhoods are not as they used to be. The ties are dispersed over time and space. However, if migrants' residential segregation is still one of the main characteristics of metropolitan cities in spite of the alteration in the structure of the networks of the residents, it is worth focusing on the research which investigate the ties of migrants. The authors of this line of research study these ties either by considering the local units of the migrants' residential places, or they prefer to investigate the subject independent of space. These studies of resettled migrants' social networks widely differ from each other by what they aim to examine and the methods they use. In the next lines, these studies are categorised with respect to what they aim to examine, and are viewed by the aspects they refer to.

One line of research about social networks of resettled migrants aims to find out '**the role of social networks on the adaptation and**

integration of migrants' in the host society (see e.g. Koser, 1997; Nannestad et.al, 2008; Fernandez, 2002; Cranford, 2005; Marschall and Stolle, 2004; Ryan, 2011; Zhou and Bankston, 1994; Barnes, 2001; Fong, 1997; Flores-Yeffal and Aysa-Lastra, 2011). In these studies, benefits and/or harms of social networks of individuals are generally examined in order to see if ethnic ties prevent integration in the host society.

Another line of research on the subject aims to examine '**the effects of neighbourhood characteristics on social networks'** (see e.g. van der Laan Bouma-Doff, 2007; Vervoort, 2012; Bakker and Dekker, 2012; Gijsberts and Dagevos, 2007; Boschman, 2012; Pinkster and V lker, 2009; Smets and den Uyl, 2008). These studies generally use quantitative methods with a few exceptions. Since the aim is to investigate neighbourhood effects, local units of the residents are considered while comparing these units according to their status (low-middle-high). Individual characteristics are also examined in order to see, for example, if concentration in a local unit on social networks is equally effectual for all types of individuals.

A very common research subject about migrants' social networks is '**their effects on migrants' job finding'** (see e.g. Aguilera, 2002; Sanders et al., 2002; Aguilera, 2003; Aguilera and Massey, 2003; Pinkster, 2007; Harvey, 2008; Beaman, 2012). As a matter of course, these studies examine the benefits and harms of social networks of migrants while investigating their effects on job finding. Studies in this area do not take into account local units of individuals in their analysis with a few exceptions. Both qualitative and quantitative studies consider individuals' status while examining the effects of their social networks on their access to job channels.

More recently, investigating '**social network structure and composition of migrants'** in host societies emerged as a new line of research (see i.e. Liu et al., 2012; Molina et al., 2012; Lubbers et.al, 2010; Lubbers et.al, 2007; Ooka and Wellman, 2006; Schweizer et al. 1998; Litwin, H., 1995). Although, some of these studies focus on the adaptation and integration of migrants, they are classified separately since the methods they use are quite different than the above-mentioned studies. The information on personal networks of migrants is gathered from specific surveys that generate migrants' networks by a limited number of persons. Some studies in this category do consider local networks at the neighbourhood or city level. The studies examining social network structure and composition of migrants from a network perspective give a more comprehensive picture of the networks. They focus on the relationship between individuals without reducing the relations to a characteristic of individuals. Type, local characters, strength of ties, support provided from ties could be related, structure and composition of the networks could be revealed and all these can be compared according to the characteristics of individuals. In this study, we adopt such an approach in order to examine the importance of neighbourhood ties in the migrants'

networks. As Wellman (1979) suggests, following the examination of the migrants' whole networks, the ties in these networks are investigated.

3. The case of migrants in Bayrampasa and Besiktas

3.1. Selecting the study areas and migrant groups

an exploratory analysis demonstrating the concentration of migrant groups is required for selecting which districts and migrant groups are to be studied. We applied Correspondence Analysis (Erginli and Baycan, 2016),[8] that revealed the districts in which internal and international migrant groups concentrate. By reason of the high over-representation of international migrants who came from Macedonia, Albania and old Yugoslavian[9] countries in the district of Bayrampasa; high over-representation of internal migrants who came from big metropolitan cities of Turkey and slight over-representation of international migrants who came from Macedonia, Albania and Sandzak region in the district of Besiktas, the study areas are dedicated as Bayrampasa and Besiktas districts. In this study, the focus is on the international migrants who came from Macedonia Sandzak region and live in Bayrampasa and Besiktas, and internal migrants who came from the biggest metropolitan city Ankara and its border city of Eskisehir and who live in Besiktas. These two districts are different from each other in terms of their geographical locations in the city, land use and social structures. Besiktas locates in the centre of the city, incorporating relatively high amount of CBD (Central Business District) functions and white-collar workers while Bayrampasa is a more peripheral district with industrial and wholesale activities. While it will be possible to compare the social networks of the same migrant groups –who came from Macedonia and Sandzak region- in two different districts, social networks of this migrant group could also be compared with another type of migrant group –those who came from Ankara and Eskisehir-.

Bayrampasa has an area of 961 hectares and a population of 269,677 inhabitants. It has an important role with its location considering the development history of Istanbul. It gained its district statute in 1990 by separating from Eyup. The district, with its East neighbour Eyup and South neighbour Zeytinburnu, is adjacent to the central area of Istanbul that is the Historical Peninsula. Furthermore, Bayrampasa has direct linking roads to E-5 and TEM highways which makes the district accessible from other parts of the city *(see Figure 1)*. Public transportation is provided by several modes such as metrobus (bus rapid transit), light railway and buses.

In respect of its strategic location, the district of Bayrampasa became an area of destination for all intra-urban mobility,

[8] The analyses are made by using TURKSTAT 2000 Census data which has information on the migrants' residential location from 5 years before the census and their current location at the time of the census.

[9] At the year of 2000, Yugoslavia (The Federal Republic of Yugoslavia) included the countries Serbia and Montenegro. Sandzak region in which the migrants are originated is located around the border of these two countries. From this point on, the origin of these migrants will be referred to as "Sandzak region".

Figure 1. Location of Bayrampasa and Besiktas districts

internal and international migration. By the result of development operations that occurred in order to construct Vatan and Millet roads, some of the dwellers moved to Bayrampasa in the 1950s (District Governorship of Bayrampasa, 2017). Mass migration from other provinces of Turkey to Istanbul because of the rapid urbanization of the country and industrial establishments that were constructed in Bayrampasa had an influence on the district, rendering it attractive for internal migrants after the 1950s. In the same period, a migration wave from Macedonia, Albania and former Yugoslavia[10] started and continued rapidly until the end of the 1960s. The analysis showing migration flows from these regions (Erginli and Baycan, 2016) demonstrate that this movement was still continuing in the period of 1995–2000.

Besiktas has an area of 1801 hectares and a population of 186,570 inhabitants. It is located on the European shore of the Bosphorus and has a coastal line of 8375 meters. It is surrounded by the districts of Beyoglu in the South, Sisli and Kagithane in the West and Sariyer in the North (see Figure 1). The district could be considered as central with the presence of universities and various faculties and workplaces. It has road connections to several districts of Istanbul next to the Bosphorus Bridge and can also be reached by seaway transportation.

[10] Mass migration from the Macedonia-Yugoslavia region has occurred mainly in four different periods. The first wave occurred by the 1877-1878 Ottoman-Russia War; the second wave occurred by the 1912-1913 Balkan War; the third wave occurred between 1923-1951; and the fourth wave occurred between 1951-1967 mainly from Macedonia in the 50's and Bosnia in the 60's.

According to the TURKSTAT census data of 2000, Bayrampasa is represented by blue-collar internal and international male migrants, unemployed, housewives, retired people and students. The educational attainment of the migrants is relatively low. Besiktas, on the other hand, is represented by both male and female white-collar internal and international migrants with high educational attainment and university students. Therefore, these two districts are different from each other in terms of their geographical locations in the city, land use and social structures. Besiktas locates in the centre of the city, incorporating relatively high amount of CBD functions and white-collar workers while Bayrampasa is a more peripheral district with industrial and wholesale activities.

In the beginning of the field study, migrant associations were investigated and it was observed that Rumelian Turks Culture and Solidarity Association *(Rumeli Türkleri Kültür ve Dayanışma Derneği)* in Bayrampasa and Besiktas and "Bosnia-Sandzak Culture and Fraternal Association *(Bosna-Sancak Kültür ve Yardımlaşma Derneği)* in Bayrampasa were carrying on regular activities. On the other hand, no migrant association could be found in Besiktas for the migrants coming from Ankara and Eskisehir. This situation points at strong ties and importance of local ties between migrants coming from Macedonia and Sandzak region, and relatively weak ties between migrants coming from Ankara and Eskisehir. Therefore, it will be significant to examine these two groups comparatively in order to reach the aim of the study.

3.2. Data and Method

126 face-to-face surveys were conducted for this study in the districts of Bayrampasa and Besiktas. First of all, migrants from Rumelian Turks Culture and Solidarity Associations in Bayrampasa and Besiktas and "Bosnia-Sandzak Culture and Fraternal Association in Bayrampasa were contacted. Secondly, snowball sampling method was used in order to reach people that were not affiliated to the migrant associations *(see Table 1)*.

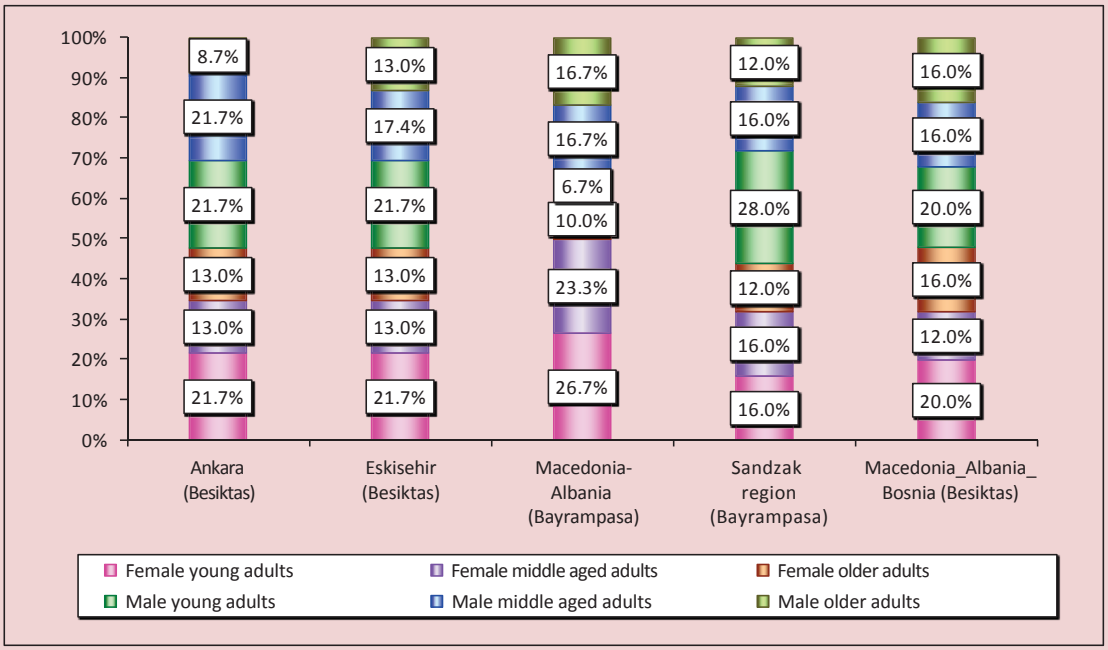
The sampling strategy was based on gender, age and affiliation to a migrant association. Equal number of male and female migrants and equal number of people from the age groups of young adults (18–35), middle-aged adults (36–55) and older adults (56+) of different migrant groups were targeted to be interviewed.

The age and sex distribution of the individuals is shown *in Figure 2*. 47.8% of migrants originating in Ankara living in Besiktas are female, while 52.2% are male. 43.5% of these migrants are young adults, 34.8% are middle-aged adults, and 21.7% are older adults. 47.8% of migrants originating in Eskisehir living in Besiktas are female, while 52.2% are male. 43.5% of these migrants are young adults, 30.4% are middle-aged adults, and 26.1% are older adults. 48% of migrants originating in Macedonia, Albania and Sandzak living in Besiktas are female, while 52% are male. 40% of these migrants are young adults, 28% are middle-aged adults, and 32% are older adults.

Table 1. Respondents in the sample

District of residence	Province/country of origin	No. of respondents that are affiliated to migrant associations	No. of respondents that are not affiliated to migrant associations	Total
Bayrampasa	Macedonia, Albania	14	16	30
	Sandzak region	12	13	25
Besiktas	Macedonia, Albania, Sandzak region	7	18	25
	Ankara	0	23	23
	Eskisehir	0	23	23

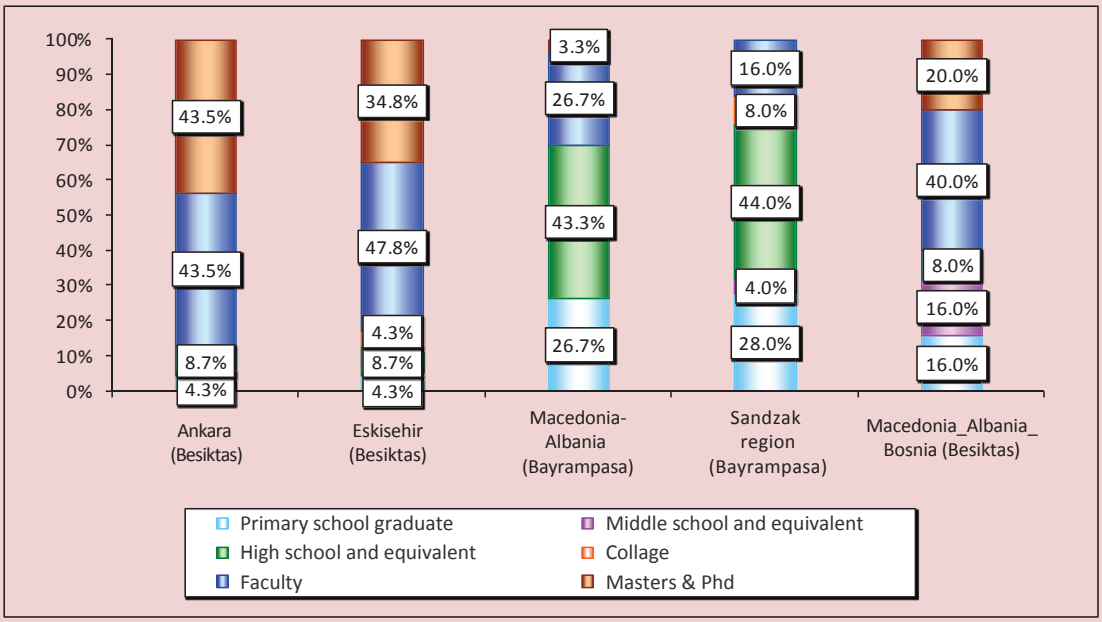
Figure 2. The age-sex distribution of the migrant groups in the sample (n=126)



60% of migrants originating in Macedonia and Albania living in Bayrampasa are female, while 40% are male. 33.3% of these migrants are young adults, 40% are middle-aged adults, and 26.7% are older adults. 44% of migrants originating in Sandzak region living in Bayrampasa are female, while 56% are male. 44% of these migrants are young adults, 32% are middle-aged adults, and 24% are older adults.

Figure 3 shows the educational attainments of the respondents. The migrants who originated in Ankara and Eskisehir and live in Besiktas have very a high level of educational attainment in that 87% of the migrants who originated in Ankara hold a bachelor's, master's or PhD degree while this percentage is 82.6% for the migrants who originated in Eskisehir. On the other hand, migrants who originated in Macedonia, Albania and

Figure 3. The educational level distribution of the migrant groups in the sample (n=126)



Sandzak region and who reside in Bayrampasa have lower educational profiles. Only 30% of the migrants from Macedonia and Albania hold a bachelor's, master's or PhD degree, while this percentage is lower (16%) for the migrants originated in Sandzak. Primary school graduates are almost 30% for both of the migrant groups. The educational level of the migrants who originated in Macedonia, Albania and Sandzak and who live in the district of Besiktas is higher than that of the migrants in Bayrampasa. 60% of these migrants hold a bachelor's, master's or PhD degree, while only 16% of them are primary school graduates.

In order to reach the aim of the study, it is crucial to have information about the ties between migrants and people who live in their neighbourhoods, districts, cities or elsewhere in the world. Therefore, in this study "egocentric (personal) network analysis" is used as a method that does not limit the network of individuals to a specified geographical or social space.

Personal network analysis requires a specific type of survey which provides information on a respondent's (ego) own attributes, generating their network with a determined number of persons whom the respondent has a relationship with and gaining information on attributes of these persons and the characteristics (type, duration and frequency) of ties they have with the respondent. The information gathered on the attributes of the respondents include their sex, age, educational level and neighbourhood of residence. After obtaining these pieces of information, a flexible name

generator question[11] (free-recall method, McCarty, 2002) was asked to the respondents to assign their social networks with a specific number. After that, information on the place of residence of these persons (alters) in the respondents' networks and type of ties between the ego (respondent) and the alters was obtained. Two levels of analyses are done. First, network-level descriptive analysis shows the neighbourhood ties within the networks of the different migrant groups and further evaluates the neighbourhood ties by the characteristics (sex, age, education) of the migrants. Second, ego-alter ties-level descriptive analysis demonstrates the geographical distribution of the ties of the migrant groups, and further evaluates the type of ties by their geographical locations.

3.3. Results

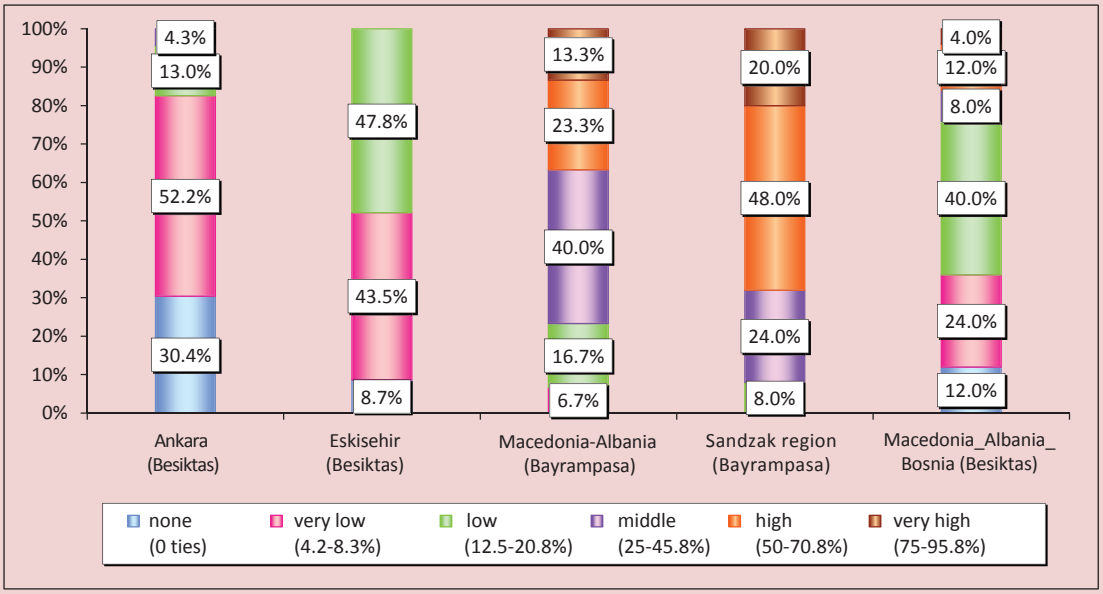
Local composition of networks

Figure 4 shows the concentration of alters that live in the same neighbourhood as the ego for each migrant group. While the networks of migrants originated in Ankara and Eskisehir that live in Besiktas are not dominantly generated by the alters that live in the same neighbourhood as the egos, local ties seems to be quite important for the migrants that live in Bayrampasa, especially for the ones that originate in the Sandzak region. If the percentages are evaluated for the migrants who originated in Ankara, it can be seen that 30.4% of them do not have any alters in their social networks who live in the same neighbourhood as theirs, while within the networks of 52.2% of these migrants, only a very low percentage of links (between 4.2–8.3 % of the network) consist of connections to other individuals in their neighbourhood. The networks of 4.3% of these migrants comprise a middle percentage of (between 25–45.8 % of the network) neighbourhood ties. The same evaluation for the migrants who originated in Eskisehir shows that 8.7% of them do not have any alters in their social networks who live in the same neighbourhood as theirs, while within the networks of 42.5% of these migrants, only a very low percentage of links consist of connections to other individuals in their neighbourhood. The networks of 47.8% of these migrants comprise a low percentage of (between 12.5–20.8% of the network) neighbourhood ties.

On the other hand, the networks of 40% of the migrants who originated in Macedonia and Albania that live in Bayrampasa comprise a middle percentage of neighbourhood ties. The networks of 23.3% and 13.3% of the same migrant group comprise a high percentage of (between 50–70.8% of the network) and a very high percentage of (between 75–95.8 % of the network) neighbourhood ties respectively. Among all the migrant groups in the sample, migrants who originated in Sandzak region that live in Bayrampasa have the most local-based social networks in that within the networks of 48% of these migrants, a high percentage of links, and within the networks of 20% of these migrants a very high percentage of links consist of connections to

[11] "Please write down a list of 24 people who you know by name and who know you by name, with whom you have had contact in the last two years by any means of communication, and who could be contacted again if necessary. Do not include people under 18".

Figure 4. The distribution of neighbourhood ties within the networks of the migrants in the sample (n=126)



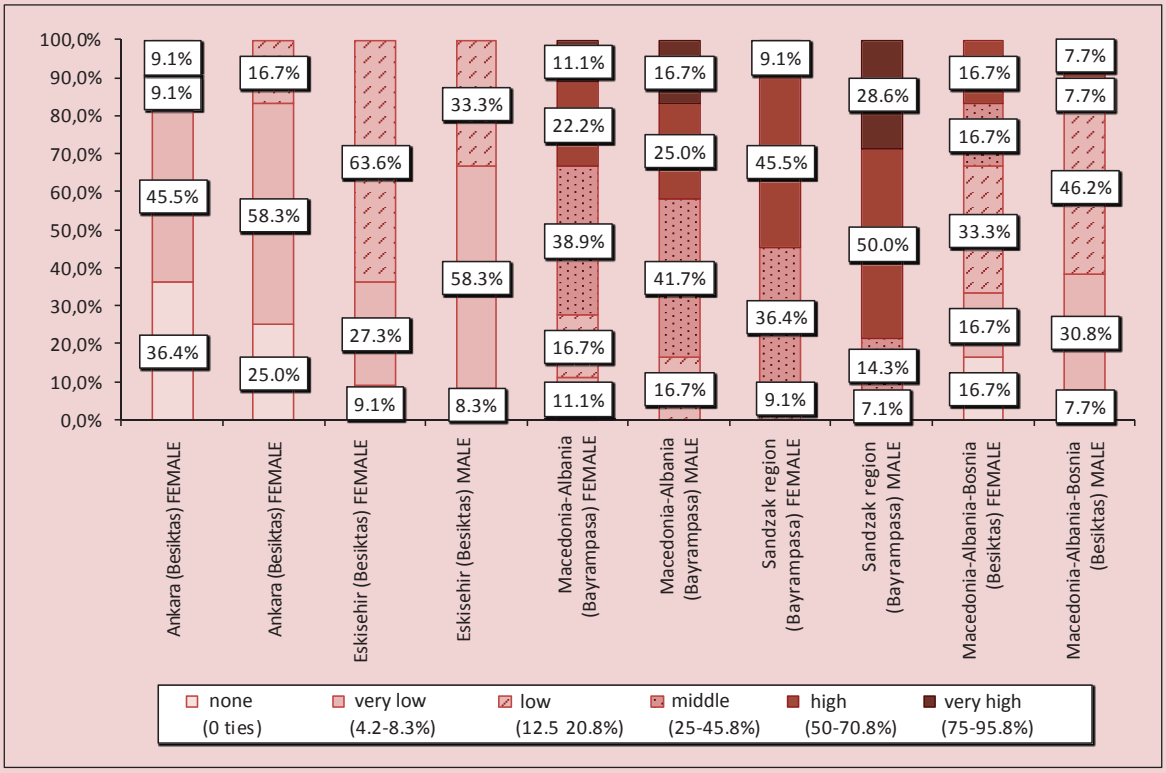
other individuals in their neighbourhood. The networks of the migrants who originated from Macedonia and Albania and Sandzak living in Besiktas consist of less local-based ties than the ones in Bayrampasa, but more than the ones originating from Ankara and Eskisehir.

Associating the share of neighbourhood ties in the migrants' whole networks with the migrants' profiles (sex, age and educational attainment) also gives interesting results. Female migrants who live in Besiktas are slightly more dependent on their neighbourhood ties than the male migrants from the same groups. On the other hand, the situation is quite the opposite for the migrants in Bayrampasa *(see Figure 5)*.

The networks of the young adult migrants who originated in Ankara and Eskisehir and live in Besiktas consist of a lower percentage of neighbourhood ties than that of the networks of the older migrants from the same groups *(see Figure 6)*. The same evaluation is more apparent for the migrants who came from Macedonia and Albania and who live in Bayrampasa, and those who came from Macedonia, Albania and Sandzak and who live in Besiktas. The elder adults are considerably more dependent on their neighbourhood ties than the middle-aged and young adults. However, an interesting result is that the networks of the young adults who originated in the Sandzak region and who reside in Bayrampasa comprise a higher percentage of neighbourhood ties than that of the older migrants.

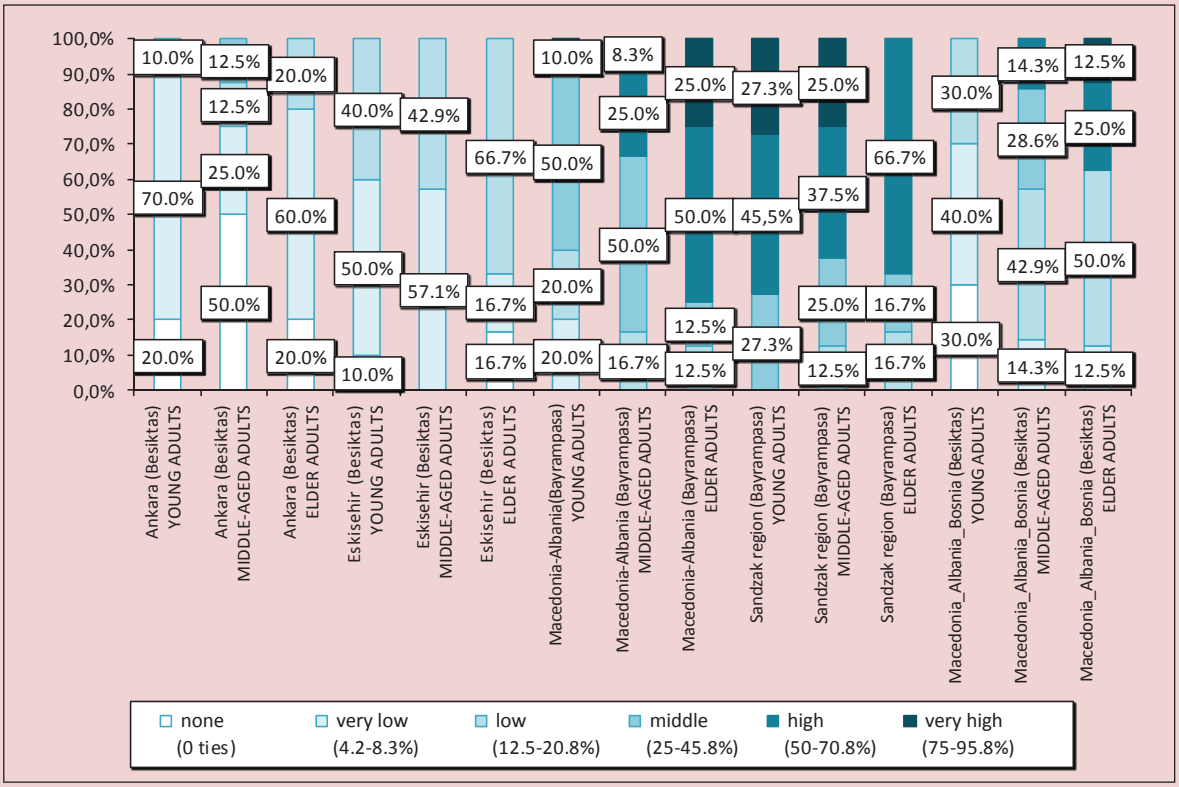
Comparing migrant groups by crosstabs of educational attainment and neighbourhood ties would not give consistent results since the

Figure 5. The distribution of neighbourhood ties within networks of the migrant groups by their sex (n=126)



distribution of educational levels are not equal. Hence, an overall evaluation is made without considering the difference between migrant groups *(See Figure 7)*. The networks of migrants with high educational attainment obviously consist of a low percentage of neighbourhood ties. While 53.1% of the total sample hold a bachelor's, master's or PhD degree, 83.3% of the migrants whose networks do not consist of neighbourhood ties hold the same. On the other hand, while 16.7% of the total sample graduated from a primary school, 36.4% of the migrants whose networks consist of a high percentage of neighbourhood ties, and 30% of the migrants whose networks consist of a very high percentage of neighbourhood ties graduated from a primary school. The overrepresented high percentage of neighbourhood ties in the networks of high school graduates is remarkable. While 23.8% of the total sample are high school graduates, 40.9% of the migrants whose networks consist of a high percentage of neighbourhood ties, and 40% of the migrants whose networks consist of a very high percentage of neighbourhood ties are high school graduates. Also, the overrepresented very high percentage of neighbourhood ties

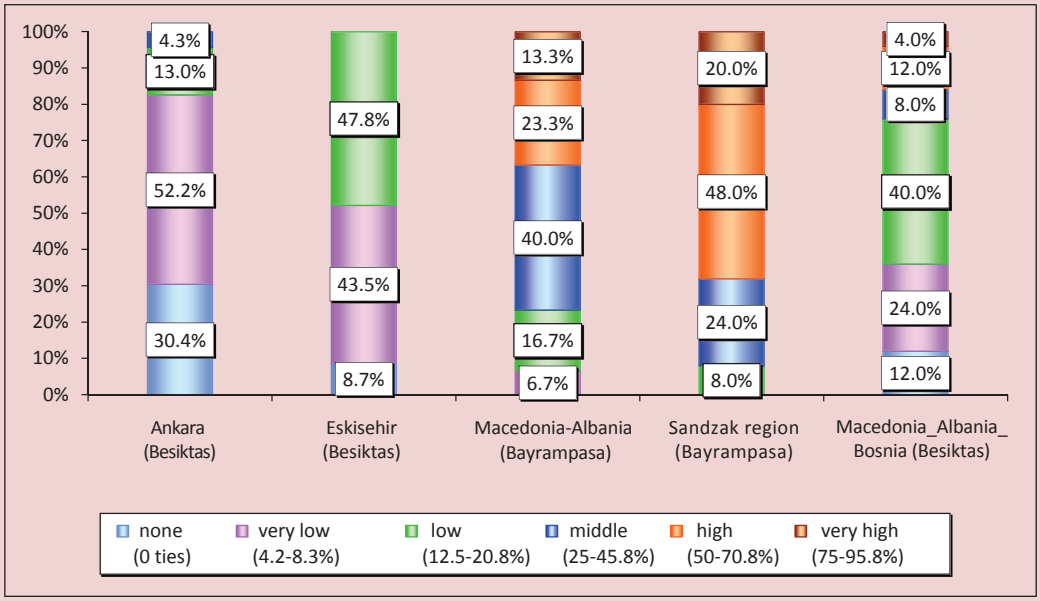
Figure 6. The distribution of neighbourhood ties within networks of the migrant groups by their age-group (n=126)



in the networks of masters and PhD graduates is remarkable. Returning back to the original data, it is seen that all these migrants are the ones that live in Bayrampasa.

The results are consistent with the arguments that neighbourhood ties are still important for some groups. While the networks of the migrants who originated in Ankara and Eskisehir and reside in Besiktas district do not depend on their neighbourhood ties, the networks of the migrants who originated in Albania, Macedonia and the Sandzak region and who reside in the Bayrampasa district consist of a considerable amount of neighbourhood ties. While there is not so much difference between the females and males of the same migrant groups regarding their neighbourhood ties in their networks, age seems to be an important factor affecting the amount of neighbourhood ties within the networks of the migrants. Except the migrants who originated in the Sandzak region and who are residing in Bayrampasa, the elder adult migrants are considerably more dependent on their neighbourhood ties than the middle-aged and young adults. The high dependence of the younger adult migrants who originated in the Sandzak region and who are residing in Bayrampasa

Figure 7. The distribution of neighbourhood ties within networks of the migrants by their educational attainment (n=126)



on their local ties may be explained by the characteristic of the neighbourhood they live in. This neighbourhood (Yildirim Mahallesi) hosts mostly the migrants from this region who have strong relations with the neighbourhood. The educational level of the migrants also play an important role on their networks' local composition. In general, the more the migrants are educated, the less they depend on their neighbourhood ties. All the high school, faculty and masters/PhD graduate migrants whose networks contain an overrepresented high and very high percentage of neighbourhood ties live in Bayrampasa. This finding supports the inference the neighbourhood ties are more important for the migrants in Bayrampasa than for the ones in Besiktas.

Type of ties by their geographical location

The geographical distribution of the ties in the networks of the migrant groups can be seen *in Figure 8*. A remarkable point is that the migrants who originated in Ankara and Eskisehir and who live in Besiktas have a low amount of neighbourhood ties. The networks of these migrants are predominantly generated by the ties in the other districts of Istanbul. The ties in the other provinces of Turkey also have a considerable share in their networks. This is probably because of their maintaining of connections in their origins. On the other hand, the shares of neighbourhood ties are quite high in the networks of the migrants who live in Bayrampasa, especially of the ones who originated in the Sandzak region. Their ties in the other districts of Istanbul

also have a considerable share. The migrants who originated in Macedonia, Albania and the Sandzak region and who live in Besiktas depend more on their neighbourhood ties than the migrants who originated in Ankara and Eskisehir, while less than the same migrant groups who live in Bayrampasa. Similar to the other groups in Besiktas, their networks are also predominantly generated by the ties in the other districts of Istanbul. However, they have less contacts in the other provinces of Turkey.

The results for all migrant groups supports Wellman's (1973) argument that the metropolitan area bounds the field of interaction more than the neighbourhood does. Furthermore, the results also demonstrate that neighbourhood ties are quite important for the migrant groups in Bayrampasa, supporting the arguments of Wellman (1973), Fischer (1982) and Hampton and Wellman (2003): local community is neither lost, nor completely saved.

Table 2 shows the distribution of type of ties that locate in the respondents' neighbourhood, district, other districts of Istanbul, other provinces of Turkey and other countries. The geographical location of type of ties according to the respondents' residential location differs by the migrant groups. Neighbourhood ties are predominantly generated by family/kin ties for all groups. Among all other groups, the migrants who originated in the Sandzak region and who reside in Bayrampasa have the highest percentage (68.1%) of the family/kin ties in their neighbourhood networks. Note that their neighbourhood ties generate 54.8% of

Figure 8. The geographical location of ties of the migrant groups (n=3024)

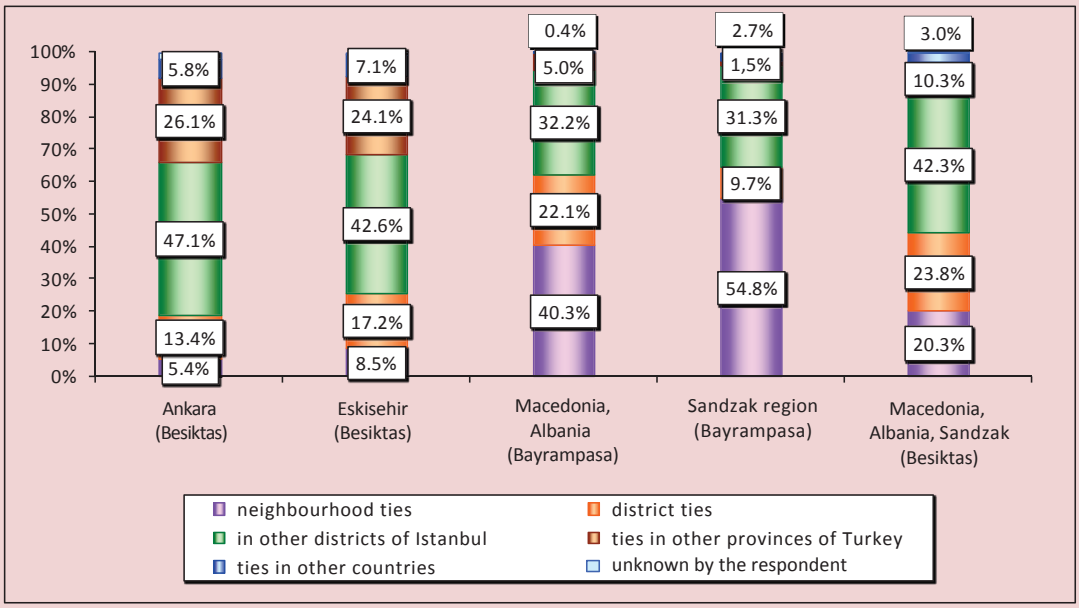


Table 2. Type of ties by their geographical location for the migrant groups (n=3024*)

	MIGRANT GROUP	Family/kin	Neighbour	From neighbourhood	Job/School	Association*	Online	From other connections	% of ties in total network
Neighbourhood Ties	Ankara (Besiktas)	53.3%	3.3%	6.7%	20.0%	0.0%	0.0%	16.7%	5.4%
	Eskisehir (Besiktas)	34.0%	21.3%	2.1%	12.8%	0.0%	0.0%	29.8%	8.5%
	Macedonia, Albania (Bayrampasa)	45.2%	20.0%	10.0%	9.0%	11.7%	0.0%	4.1%	40.3%
	Sandzak region (Bayrampasa)	68.1%	10.9%	7.3%	9.4%	3.0%	0.0%	1.2%	54.8%
	Macedonia, Albania, Sandzak (Besiktas)	37.7%	16.4%	23.0%	8.2%	4.1%	0.0%	10.7%	20.3%
District Ties (excluding neighbourhood)	Ankara (Besiktas)	14.9%	1.4%	5.4%	48.6%	8.1%	0.0%	21.6%	13.4%
	Eskisehir (Besiktas)	27.4%	1.1%	1.1%	36.8%	0.0%	1.1%	32.6%	17.2%
	Macedonia, Albania (Bayrampasa)	48.4%	4.4%	8.2%	13.8%	20.8%	0.0%	4.4%	22.1%
	Sandzak region (Bayrampasa)	74.1%	10.3%	5.2%	10.3%	0.0%	0.0%	0.0%	9.7%
	Macedonia, Albania, Sandzak (Besiktas)	24.5%	2.8%	13.3%	28.0%	16.8%	0.0%	14.7%	23.8%
Ties in the other districts of Istanbul	Ankara (Besiktas)	18.5%	0.4%	0.8%	49.2%	1.2%	0.4%	29.6%	47.1%
	Eskisehir (Besiktas)	20.9%	0.4%	0.9%	47.7%	2.6%	0.4%	27.2%	42.6%
	Macedonia, Albania (Bayrampasa)	55.2%	2.6%	1.7%	34.1%	2.6%	0.0%	3.9%	32.2%
	Sandzak region (Bayrampasa)	52.7%	1.6%	1.1%	25.0%	2.1%	0.5%	17.0%	31.3%
	Macedonia, Albania, Sandzak (Besiktas)	36.6%	3.1%	1.6%	31.5%	9.8%	0.8%	16.5%	42.3%
Ties in other provinces of Turkey	Ankara (Besiktas)	63.9%	0.0%	0.7%	21.5%	0.0%	0.0%	13.9%	26.1%
	Eskisehir (Besiktas)	73.7%	1.5%	0.0%	18.0%	0.0%	1.5%	5.3%	24.1%
	Macedonia, Albania (Bayrampasa)	86.1%	0.0%	0.0%	8.3%	0.0%	0.0%	5.6%	5.0%
	Sandzak region (Bayrampasa)	22.2%	0.0%	22.2%	33.3%	0.0%	0.0%	22.2%	1.5%
	Macedonia, Albania, Sandzak (Besiktas)	72.6%	3.2%	0.0%	8.1%	0.0%	1.6%	14.5%	10.3%
Ties in other countries	Ankara (Besiktas)	53.1%	0.0%	3.1%	18.8%	0.0%	0.0%	25.0%	5.8%
	Eskisehir (Besiktas)	41.0%	2.6%	0.0%	23.1%	0.0%	7.7%	25.6%	7.1%
	Macedonia, Albania (Bayrampasa)	66.7%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.4%
	Sandzak region (Bayrampasa)	56.3%	0.0%	0.0%	25.0%	0.0%	0.0%	18.8%	2.7%
	Macedonia, Albania, Sandzak (Besiktas)	44.4%	0.0%	0.0%	16.7%	0.0%	0.0%	38.9%	3.0%
Total	Ankara (Besiktas)	33.3%	0.5%	1.8%	39.3%	1.6%	0.2%	23.2%	97.8%**
	Eskisehir (Besiktas)	37.1%	2.7%	0.7%	34.2%	1.1%	1.3%	22.8%	99.5%**
	Macedonia, Albania (Bayrampasa)	51.3%	9.9%	6.4%	18.2%	10.1%	0.0%	4.2%	100.0%
	Sandzak region (Bayrampasa)	62.8%	7.5%	5.2%	15.2%	2.3%	0.2%	6.8%	100.0%
	Macedonia, Albania, Sandzak (Besiktas)	37.8%	5.7%	8.5%	23.2%	9.0%	0.5%	15.3%	99.8%**

* Number of the ties that the respondents have which is 126x24= 3024.
Migrant associations and others such as professional, political, sports/hobby associations.
** The total percentages of the ties do not make 100% because some egos do not know the residential locations of the alters in their networks. Note that all these egos are the migrants that live in Besiktas, and the unknown alters are their friends from school/work or friends from other connections.

their whole networks. As it is also mentioned above, these migrants who predominantly live in a neighbourhood called Yildirim have very dense neighbourhood relations.[12] The migrants who originated in Macedonia and Albania have a similar profile in that their family/kin ties generate 45.2% of their neighbourhood ties, while their neighbourhood ties' share in their whole network is also high (40.3%). On the other hand, migrants who originated in Ankara and who live in Besiktas have a high rate of family/kin ties in their neighbourhood ties. However, their neighbourhood ties generate only 5.4% of their whole networks. These family/kin members may be the ones who they live in the same house with. Even though the migrants who originated in Macedonia, Albania, and Sandzak and who live in Besiktas have a lower rate of family/kin ties in their neighbourhood ties, their neighbourhood ties generate a higher share in their whole networks (20.3%) than the neighbourhood ties of the migrants from Ankara and Eskisehir generate in their whole networks.

Neighbour ties have relatively high rate in the neighbourhood ties of the migrants that originate in Eskisehir and reside in Besiktas, and originated in Macedonia and Albania and reside in Bayrampasa. However, these ties do not show the overlapping relations that for instance, if one alter is a family/kin member of the ego and a neighbour at the same time, she is counted as the family/kin member. Thus, neighbour ties have higher rates than they are shown in the table, probably more for the migrants who reside in Bayrampasa. Ties that are known from the neighbourhood correspond to the ones that are met occasionally in the neighbourhood (in markets, shops, meeting places etc.). These ties generate a relatively high amount of the neighbourhood ties of the migrants who originated in Macedonia, Albania and the Sandzak region and who live in Besiktas. This is probably because of the migrant association members who have strong relations with their neighbourhoods.

A remarkable finding is that the migrants who have a high percentage of job/school ties and ties from other connections in their neighbourhood ties are the ones who originated in Ankara and Eskisehir. Even though they do not have strong relations with their neighbourhoods, these migrants share common neighbourhoods with their co-workers, friends from schools and other connections. If the districts ties (the ties in the other neighbourhoods of the district) of the migrants are evaluated, it can be seen that the migrants who live in Besiktas have a high percentage of job/school ties and ties from other connections in their district networks, while the migrants who live in Bayrampasa have a high rate of family/kin ties in their district networks. The same evaluation is more obvious for the ties in the other districts of Istanbul. However, although family/kin ties of the migrants who live in Bayrampasa generate

[12] During the field work, it is observed that some of these migrants in Yildirim Neighbourhood live in the same buildings with their family/kin members. They just lock the building door, and do not lock their apartment doors that every member of the building can access the houses in the building without knocking the door.

the majority of the ties in the other districts of Istanbul, the share of the job/school ties in these ties is also high. Note that the share of the ties in the other districts of Istanbul is more significant in the networks of the migrants who live in Besiktas (47.1% for the migrants who originated in Ankara, 42.6% for the migrants who originated in Eskisehir, and 42.3% for the migrants who originated in Macedonia, Albania and the Sandzak region) than they are in the networks of the migrants who live in Bayrampasa.

The ties in the other provinces of Turkey are predominantly generated by family/kin ties for all migrant groups except the migrants who are originated in the Sandzak region and who live in Bayrampasa. This may be because the migrants from this region directly migrated to Istanbul-Bayrampasa after 1965 so that they do not generally have connections (especially relatives) in the other provinces of Turkey. The amount of ties in the other provinces of Turkey in the networks of the migrants who originated in Ankara and Eskisehir and who live in Besiktas are quite high because these migrants still have connections with their origins. Also the ties in the other countries are predominantly generated by family/kin ties for all migrant groups. Family/kin ties are sustained regardless of the distance between individuals. The share of the ties in the other countries are higher in the networks of the migrants in Besiktas than in the networks of the migrants in Bayrampasa. This is interesting because migrants from Macedonia, Albania and the Sandzak region were expected to have more connections with their origins. However, it seems that the relations between these migrants and their origins have disappeared.

4. Conclusion

The literature on local ties in metropolitan cities present two contradictory arguments. While some argue that local ties do not have important roles in modern metropolitan residents, some highlight the continuing role of local ties. One line of research (Wellman, 1979; Fischer, 1982; Campbell and Lee, 1992; Logan and Spitze, 1994; Hampton and Wellman, 2003; Bastani, 2007; Grossetti, 2007) that explains the issue by looking at the whole networks of individuals shows that the significance of the local (i.e. neighbourhood) ties differs from one (group of) resident to another. For instance, migrants who settle in the segregated areas where other migrants from the same origin live may be more dependent on their local ties. This study attempted to examine the migrants' dependence on their local ties by comparing different migrant groups in the two districts of Istanbul, which are Bayrampasa and Besiktas. The research examines the ties of migrants by studying their whole networks, because focusing only on specific types of networks such as kinship systems or neighbourly relations, it is inevitable to discover densely knit networks, because people's sparsely knit networks contain several components. Therefore, the local ties phenomenon is examined as another component in migrants' whole networks which are distributed over space.

The results of the two levels of analyses (network level and ego-alter dyad level) are consistent with the arguments that neighbourhood ties are still important for some groups, supporting the arguments of Wellman (1973), Fischer (1982) and Hampton and Wellman (2003) which stipulate that local community is neither lost, nor completely saved. While the networks of the migrants who originated in Ankara and Eskisehir and who reside in the Besiktas district do not depend on their neighbourhood ties, the networks of the migrants who originated in Albania, Macedonia and the Sandzak region and who reside in the Bayrampasa district consist of a considerable amount of neighbourhood ties. For all migrant groups, Wellman's (1973) argument that the metropolitan area bounds the field of interaction more than the neighbourhood does is supported.

The results reveal differences between the migrant groups regarding the type of ties that are distributed over different geographical locations. The ties that are maintained in neighbourhoods are predominantly the family/kin ties for all migrant groups. Note that the neighbourhood ties of the migrants who originated in Ankara and Besiktas have a small share in their whole networks. These family/kin members may be the ones who they live in the same house with. However, the migrants who live in Bayrampasa have a very high share of both neighbourhood and family ties in their networks which points out the dense local social networks of these migrants. Within the networks of the migrants who originated in Ankara and Eskisehir, the district ties and the ties in the other districts of Istanbul are predominantly generated by the ties with friends from their school/job or friends from other connections, while the ties of the migrants in Bayrampasa are significantly generated by family/kin ties. This finding canof course be linked to the fact that the networks of the migrants in Bayrampasa are generated predominantly by family/kin ties so that they maintain ties with their kin who live in Istanbul. The ties that are maintained over long distances (in other provinces of Turkey and in other countries) are also predominantly the family/kin ties for all migrant groups. Family/kin ties are sustained regardless of the distance between individuals.

The results of the study reveal a difference between the migrant groups regarding their dependence on neighbourhood ties and the type of ties that are distributed over different geographical locations. When it is considered that the study is on the migrants who live in the segregated districts where other migrants from the same origin live, the following question can be proposed: why arelocal ties important in one district and not in the other? If local ties are not that important for the migrants in Besiktas why do they prefer to live with the other migrants from their origin? These questions and several others need further research on the mechanisms behind residential segregation and social network dynamics of the migrants.

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Barriers to the Fulfilment of Young People's Potential in Their Work Activities*

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Abstract. Young people comprise a special social community: on the one hand, it is most open to innovation and to new models of behavior; on the other hand, it is vulnerable from the viewpoint of competition for certain benefits and opportunities. The reason for the latter consists largely in a lack of social experience, whereby young people find themselves at a disadvantage compared to other socio-demographic groups. The paper highlights the problems that young people face when entering the labor market, and the initial problems are those related to the process of employment. Particular attention is paid to the use of young people's labor potential. A monitoring of the qualitative state

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of labor potential in the Vologda Oblast is used to consider the factors that prevent young people from implementing their potential in work activities. According to the analysis, the main factors that impede the use of young people's abilities and qualities on the labor market include lack of professional knowledge, employment outside one's specialty, inconvenient working hours, mismatch between the work, abilities and inclinations, lack of interest in the chosen profession. These barriers do not allow young people to implement their abilities to the fullest extent. The authors provide calculations that estimate the influence of various reasons on the extent of implementation of young people's labor potential quality. Thus, this figure reaches 83% among those whose work matches their abilities and interests; otherwise, it is about 75%. If individuals work within their specialty, then the extent of using qualitative characteristics is about 83%, if they work outside their specialty, the figure is 79%, and if they do not have any specialty, the figure is 73%. In this case the differences in the implementation of an intellectual component (the most important aspect in economic neo-industrialization) in the examples under consideration are even more significant. In conclusion the authors put forward several recommendations aimed to promote the use of young people's potential on the labor market.

Key words: labor potential, young people, barriers to implementation, inequality, discrimination, labor market, government regulation.

Currently, as developed countries are shifting to a socially-oriented economic model and to the sixth technological mode, Russia pays great attention to the problem of neo-industrialization. According to S.S. Gubanov, a key role in the new industrialization is given to social capital, which functions according to the laws of vertical integration and reproduction of man rather than profit [4, p. 50]. It is noted that the qualitative measure of this process is the share of automated workstations and its qualitative characteristic is "progressive changes in the nature of work and structure of employment" in the direction of increasing the share of intellectual work and encouraging labor-saving [4, p. 56]. Therefore, a significant role in achieving neo-industrialization belongs to the labor potential of territories, which is understood as a generalized feature of the extent and quality of a set of people's abilities to perform socially useful activities [14, p. 14]. Researcher A.V. Topilin shares this viewpoint and believes it necessary to develop a strategy for effective use of the aggregate labor potential as a major driver of neo-industrial reconstruction policy in Russia [21, p. 15]. In addition, he highlights labor reserves that can be used for the development of productive forces. Young people are one such resource; promoting their employment and work activities can contribute to the achievement of the goals.

Indeed, as a social group most receptive to innovation, young people can become a sort of engine for neo-industrialization in Russia.

Due to a flexibility of their axiological field they are better adapted to social change and modern challenges than other socio-demographic groups. But in practice, young people often face challenges that prevent them from fulfilling their potential. In most cases it is due to a lack of social experience, dependence on other people's opinions, imitativeness, lack or shortage of opportunities for self-actualization [5], etc. In addition, young people can "absorb" both positive and negative patterns of behavior, which causes negative transformation of value orientations (spread of hedonism, materialism, consumerism, etc.).

Young people's self-realization is one of the most pressing issues worldwide. Researchers I.V. Bondarenko, W. James, D.V. Egorov, L.A. Korostylyova, K. Campbell, A. Maslow, K. Rogers, A.A. Skripkin, E.F. Yashchenko and others study this phenomenon. According to experts [13, p. 56], the success of self-realization depends on a set of objective (financial situation, social status, place of residence etc.) and subjective (gender, age, education, character, etc.) factors. Moreover, of particular importance are the external conditions, in which the individuals live. According to the findings of a study conducted in the Murmansk Oblast [22, p. 136], solving the housing problem, starting one's own business, finding a good job and making a successful career are among the most pressing issues of self-realization. In contrast, the data on the Vologda Oblast suggest that a considerable part of young people (65%) is satisfied with their living conditions. However, these estimates depend largely on financial well-being: the proportion of positive responses among young people who do not have financial difficulties in buying certain goods is significantly higher than among those who can afford to spend money only on food and necessary items (81% vs. 47%, respectively)[1]. This is confirmed by a widely-known thesis about the prevalence of instrumental values among the younger generation. In particular, the majority perceive work activities as a source of livelihood. Note, however, that the philosophy of personal materialism is typical not only of young people in Russia. For instance, according to a study by R. Easterlin and E. Crimmins [29], this phenomenon is observed in the United States as well: young Americans, who are also affected by consumer society values, consider the prestige of a job and high wages above other things.

Among various areas of self-actualization in the social space, one of the most important is realization of the younger generation's

[1] The survey "Socio-cultural portrait of Vologda Oblast residents" 2015. Total sample is 1,500 people. The representativeness of the sample is ensured by the following conditions: maintaining the proportion between urban and rural population; proportion between the population of settlements of different types (rural settlements, small and medium towns); demographic structure of the adult population of the region; proportion between groups with different levels of education. Sampling error does not exceed 3%.

potential in the labor market. This area includes issues related to employment, which is a necessary condition for the use of the knowledge and skills accumulated by an individual and for their possible application in a particular job. Many Russian and foreign researchers (E.M. Avraamova, M.K. Gorshkov, E. Dunne, Yu.A. Zubok, M. Caliendo, D.L. Konstantinovsky, I. Murphy, S.Yu. Roshchin, C. Sandor, E.P. Tavokin, I. Tomic, R. Schmidt and others) study various aspects of youth employment, since there is a large number of issues in this sphere.

Job search is the first challenge facing young people as they enter the labor market. Often, young people cannot compete with individuals who already have professional experience, so they do not always manage to get a job that would correspond to their needs. Consequently, they have to take a job that does not meet their own expectations and abilities, which may lead to the development of counterproductive work behavior [18]. In this regard, lack of experience is the main barrier to youth employment, which is typical not only of Russia [15, p. 19], but of foreign countries too [25, 35, 37]. Often, such a circumstance is explained by the phenomenon of adultism[2] [27, 31], which is manifested in the infringement of children and young people's rights in the labor market by adults [26, 28, 30].

When young people get a job, they often have to learn new employment duties and attend training or retraining courses, all this results in additional expenses on the part of the employer [6, p. 121; 3, p. 357]. Consequently, the quality of jobs available for young people is, as a rule, lower than that for other social groups, who have already acquired work experience. As for working conditions, they are not the same even for young people with different levels of education [1]. The problem is aggravated by a mismatch between the structure of vacancies and the professional specialization of young people [20, p. 178]. It stems from a mismatch between the functioning of the education system and the labor market.

The above challenges affect the implementation of the potential accumulated by the young. Since young people constitute a significant part of labor force (over 20%[3]), the development of individual regions and the welfare of the country as a whole depends on their success in entering the labor market and on the extent to which they use their abilities directly on the job. At the same time, in modern Russia, the extent of young people's involvement in work activities is quite high. *Table 1* shows that in 2000–2015 the employment rate among people 15–29 years of age increased by 5.7 p.p. and reached 53%, thus exceeding the same indicator in the majority of OECD countries, in which the

[2] Originally this term denoted a child's condition, in which they feel grown up and show the behavior of an adult.

[3] Federal State Statistics Service Data. Available at: http://www.gks.ru/ (accessed 20.01.2017).

Table 1. Employment rate in young people 15–29 years of age, %

Country	Year				2015 to 2000, +/- p.p.
	2000	2005	2010	2015	
Switzerland	71.6	68.7	69.8	70.3	-1.3
The Netherlands	73.8	69.0	70.2	68.0	-5.8
UK	68,5	66,0	60,2	62,8	-5,7
USA	67,2	62,1	55,0	58,4	-8,8
Germany	57,0	51,5	56,9	57,7	+0,7
Sweden	58,6	55,2	50,5	56,3	-2,3
Japan	56,1	55,3	54,0	55,2	-0,9
Russian Federation	**47,7**	**47,8**	**50,7**	**53,4**	**+5,7**
Finland	52,7	53,8	52,4	52,6	-0,1
Latvia	42,4	44,9	40,1	52,2	+9,8
France	45,5	45,7	46,1	43,8	-1,7
Turkey	43,6	38,1	38,9	42,6	-1,0
South Korea	43,4	44,9	40,3	41,5	-1,9
Italy	40,1	40,3	36,3	30,5	-9,6
Average in OECD member states	***55,3***	***53,2***	***50,8***	***51,8***	***-3,5***

Note. Ranked according to the data as of 2015.
Sources: Organization for Economic Cooperation and Development. Available at: http://stats.oecd.org/ (accessed 01.03.2017); authors' calculations.

values of the indicator show a declining trend (from 55 to 52%). This enables one to speak about limited labor reserves in young people in Russia. It stands to reason that experts estimate their number at 100 thousand people [21, p. 15].

Thus, a relatively high level of employment of the Russian youth at relatively low labor productivity in the country [10, p. 23] dictates the need to identify key barriers to the implementation of labor potential quality of the younger generation in work activities and develop state policy to address them. This fact determined the goal of writing this paper. The information base of the research is presented by the data of a monitoring of the quality status of labor potential in the Vologda Oblast[4] and materials of the Federal State Statistics Service of the Russian Federation.

The research is based methodologically on theoretical statements about the quality of labor potential as a multilevel system that has eight basic elements: physical and mental

[4] The monitoring of a qualitative status of labor potential of population in the Vologda Oblast is held by ISEDT RAS since 1997. The object of the study is working-age population. Sampling method is zoning with proportional location of observation units. The sample is quoted by sex and age. The sample size is 1,500 people, sampling error does not exceed 3%.

health, cognitive and creative potential, communication skills, cultural and moral level, need for achievement [8]. The degree of implementation is assessed with the help of a technique based on the set of questions like: "How much do you commit yourself to your work? To what extent do you use your qualities and skills?"; the technique was developed by E.A. Chekmareva at the Institute of Socio-Economic Development of Territories of RAS. After the respondents' answers have been mathematically processed, eight indicators are formed that in the aggregate reflect the level of implementation of labor potential quality [24]. For the purposes of the present article, we used two indicators: the level of implementation of labor potential quality (the arithmetic average of all indexes) and the level of implementation of intellectual components (the arithmetic average of the indices of implementation of cognitive and creative potentials[5]). The importance of the second indicator is due to the key role of knowledge in economic neoindustrialization. Let us proceed directly to the findings of our research.

In 2016 in the framework of the monitoring of the quality status of labor potential in the Vologda Oblast, its respondents were asked the question: "In your opinion, what prevents you from realizing your personal potential, qualities and abilities in work activities?" Having analyzed the data obtained, we identified the main barriers that, according to the young people's opinions[6], hinder their professional realization *(Fig. 1)*. These barriers are as follows: lack of professional knowledge (18%), employment outside one's specialty (16%), inconvenient working hours (12%), mismatch between the job and one's abilities and attitudes (12%) and others. All in all, we selected ten most significant answers (out of 18 available). Since factors such as lack of organization (laziness) and family problems are virtually not amenable to state regulation, in our future work we excluded them from the analysis. Let us consider the remaining factors in more detail in the context of the implementation of labor potential quality.

1. The lack of professional knowledge. Studies show that professional competence is the most important criterion in choosing young professionals for a job [17]. Obviously, the performance of official duties, regardless of the type of economic activity of the enterprise is impossible without proper training. Unfortunately, at present, many Russian scientists mark that the quality of training is deteriorating. About 50% of heads of organizations believe that the level and quality of professional education in Russia

[5] Cognitive potential includes the following components: basic education and qualifications; attitude toward knowledge and education in general; activities aimed to replenish their general and professional knowledge and sources of knowledge by the respondents. Creative potential characterizes the attitude to creative activity and also includes the identification of real participation in creativity in professional activities and everyday life [8, p. 14].

[6] Age limit for young people are defined in accordance with Russian statistics: from 15 to 29 years.

Figure 1. Distribution of answers to the question: "In your opinion, what prevents you from realizing your personal potential, qualities and abilities in work activities?" (2016; percentage of young people)

Note. Each respondent could select up to three answers. The diagram shows 10 most popular answers.

Source: monitoring of the qualitative status of labor potential of the population in the Vologda Oblast (ISEDT RAS); authors' calculations.

does not meet modern requirements [2, p. 16-17], and the qualification of 30–40% of workers do not meet job requirements [9, p. 51]. This trend is observed at the regional level too [7, 16, 19]. Judging by the results of a monitoring of the functioning and development of industry in the Vologda Oblast[7] in 2016, professional training of approximately 15% of young professionals is of low quality.

However, the calculations indicate that the correspondence between the qualification of young people and the requirements of the job provides the most complete implementation of their labor potential (81%; *Tab. 2*). First of all, it concerns an intellectual component (77%) as the most important component of innovation economy.

A relatively small gap between the values of the indicators in the cases of compliance with the demands of the jobs and overqualification/lack of professional knowledge in young people is largely due to the need for strict execution of their official

[7] The monitoring of the functioning and development of industry in the Vologda Oblast is carried out by ISEDT RAS annually since 1993. In 2016, 68 leaders of large and medium industrial enterprises specializing in metallurgy, forestry, machinery, food, chemical, light and construction industries participated in the questionnaire survey.

Table 2. Distribution of answers to the question: "To what extent does your qualification (training) correspond to your job?" (2016; percentage of respondents among young people)

Answer option	Proportion	Level of implementation of labor potential, %	
		Intellectual component	Total
My qualification is higher than my job requires, I can perform more skilled work	27.5	73.0	79.1
My qualification meets the requirements of the job	48.5	76.6	81.2
My qualification is lower than my job requires	6.8	75.0	80.5
I don't know, it is difficult to say	17.3	64.7	73.4

Sources: Data of the monitoring of the qualitative status of labor potential of the population in the Vologda Oblast (ISEDT RAS); authors' calculations.

duties; as a result, they have to spend all their efforts to do the job. However, it should be emphasized that such mismatch in the future may cause various deformations in the work behavior (restrictionism, excessive activity, opportunism, etc.). In addition, studies show that the development of basic professional skills required by the job directly determines the degree of using the acquired knowledge, skills and abilities (43% at a low and lower-than-median level of development versus 78% at a high level) [23, p. 734].

2. Working outside one's specialty. Mismatch between professional education and the needs of the real economy along with an underdeveloped system for vocational guidance of young people in Russia mainly caused the spread of employment outside one's obtained specialty. This is largely a negative trend in the labor market. In the first place, due to the fact that the professional knowledge and skills that young people acquired over the years of continuous learning are not in demand; consequently, it is possible to draw a conclusion about a low efficiency of spending state funds to train the required specialists. Besides, employers (and sometimes even candidates) also bear additional costs due to a necessity to train new employees at the expense of own resources.

According to statistics, in 2015 among the graduates who completed their studies at professional educational organizations in 2012–2014 the correlation between the main job and the specialty obtained was identified on average in 66% of the cases *(Tab. 3)*. The highest degree of compliance of obtained specialty with the job was observed in young people with higher education (69%) and the lowest degree – in young people with initial vocational education (56%).

Data of the monitoring indicate a similar situation in the Vologda Oblast *(Tab. 4)*. Almost half of employed young people (48%) work within their obtained specialty, 36% are engaged in completely different activities and

Table 3. Correlation between the job and the obtained specialty in the graduates of professional education organizations in Russia (percentage of the number of those whose job is connected with the specialty obtained)

Education level	Graduates 2010–2012 as of 2013	Graduates 2011–2013 as of 2014	Graduates 2012–2014 as of 2015
Higher professional education	70.1	70.5	69.3
Secondary vocational education	59.2	58.8	60.9
Initial vocational education	56.4	57.6	56.2
Average for all levels of education	**65.6**	**65.9**	**65.6**
Sources: data of a survey on employment issues. Federal State Statistics Service of the Russian Federation; authors' calculations.			

Table 4. Distribution of answers to the question: "Do you work within the specialty obtained in a professional school (university, college, technical school)?" (percentage of respondents among young people)

Answer option	Proportion	Level of implementation of labor potential, %	
		Intellectual component	Total
Yes	36.6	79.4	82.7
I work within similar specialty	11.6	74.6	78.6
No, I work within other specialty	35.6	72.1	79.2
I haven't been trained in any specialty	16.1	63.6	72.5
Sources: Data of the monitoring of the qualitative status of labor potential of the population in the Vologda Oblast (ISEDT RAS); authors' calculations.			

16% do not have any profession yet. And just in the first case there is the greatest level of realization of labor potential quality (83%), and the smallest level is in the third case (73%). In turn, an intellectual component shows more sensitivity to the existence of a relationship between main job and obtained specialty.

As a result, the prevalence of employment outside the obtained specialty among young people is a significant factor in the reduction of their labor activity. As a result, a significant portion of the accumulated potential remains underutilized. Among the main reasons for working outside their specialty young people note the following: dissatisfaction with working conditions offered by the employer, inability to gain a high income and no prospects for professional growth in the future [10].

3–5. Inconvenient working hours; unfair wages; work organization. In our opinion, these barriers represent a consequence of the expansion of informal employment in the country. This form of employment, in addition to several positive aspects, involves

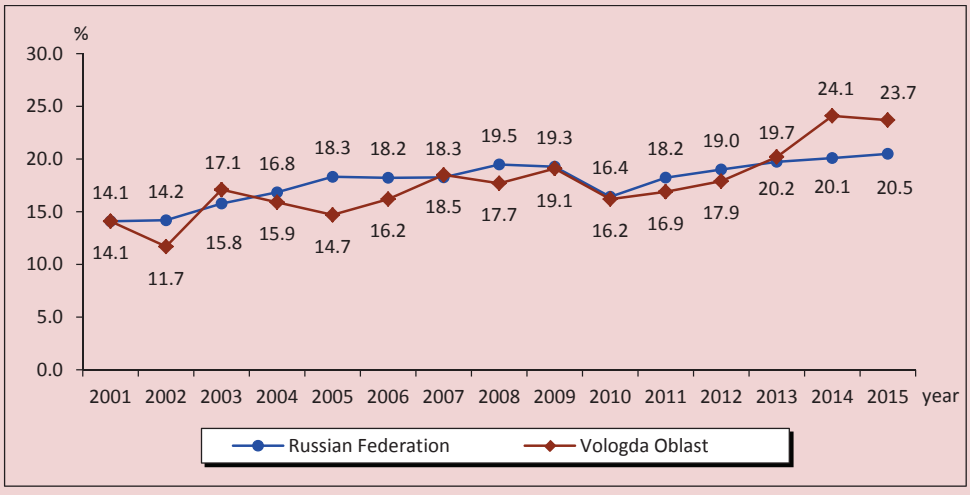
many risks, which adversely affects the realization of labor potential quality. So, growing welfare of workers caused by tax and some obligatory payments evasion on the part of their employers is often accompanied by non-transparency of payroll management and arrears in it payment, poor working conditions and schedules that operate outside the traditional workweek, absence of social guarantees, etc.

Currently, society perceives the work in the informal sector of the economy as the most attractive form of employment. In 2001–2015, informal employment in the Vologda Oblast and in Russia as a whole shows a growing trend *(Fig. 2)*. At the end of the period under consideration, the values of this indicator in the regions reached their peak (24%), exceeding the national average (21%). In this case, young people are at the greatest risk of inclusion in temporary, informal employment and precarization [36].

However, the data of the monitoring in the Vologda Oblast suggest that the institutionalization of labor relations gives young people more opportunities than informal employment *(Tab. 5)*. The level of implementation of labor potential quality in the presence of open-term employment contract reaches 81%, while in the presence of verbal agreement it is 75%. The gap in the use of an intellectual components increases even more (up to 9.2 p.p.).

6–7. Mismatch between the job and an individual's abilities and aptitudes; lack of interest in the job. The success of self-

Figure 2. Share of informal sector in total employment



Source: Federal State Statistics Service of the Russian Federation. Available at: http://www.gks.ru/ (accessed 01.02.2017).

Table 5. Distribution of answers to the question: "How is your employment relationship formalized at your main job?" (percentage of the number of respondents among young people)

Answer option	Proportion	Level of implementation of labor potential, %	
		Intellectual component	Total
Open-ended (permanent) contract	66.7	76.8	80.9
Fixed-term employment contract	6.9	65.6	74.8
Contracting agreement	5.2	68.3	78.3
Without signing an employment contract (verbal agreement)	13.4	67.6	75.3
Other	2.4	67.9	82.1
It's difficult to answer	5.5	69.5	78.3
Sources: Data of the monitoring of the qualitative status of labor potential of the population in the Vologda Oblast (ISEDT RAS); authors' calculations.			

Table 6. Correspondence of main activity to abilities, inclinations and vocation, and the level of realization of labor potential (percentage of respondents among young people)

Answer option	Proportion	Level of implementation of labor potential, %	
		Intellectual component	Total
Does your profession (main activity) correspond to your abilities and inclinations?			
Yes	65.8	76.8	81.4
No	18.3	66.2	74.8
It's difficult to answer	15.9	67.8	75.2
Does your profession (main activity) correspond to your vocation?			
Yes	49.2	79.6	83.4
No	24.7	65.6	75.0
It's difficult to answer	26.1	69.3	75.3
Sources: Data of the monitoring of the qualitative status of labor potential of the population in the Vologda Oblast (ISEDT RAS); authors' calculations.			

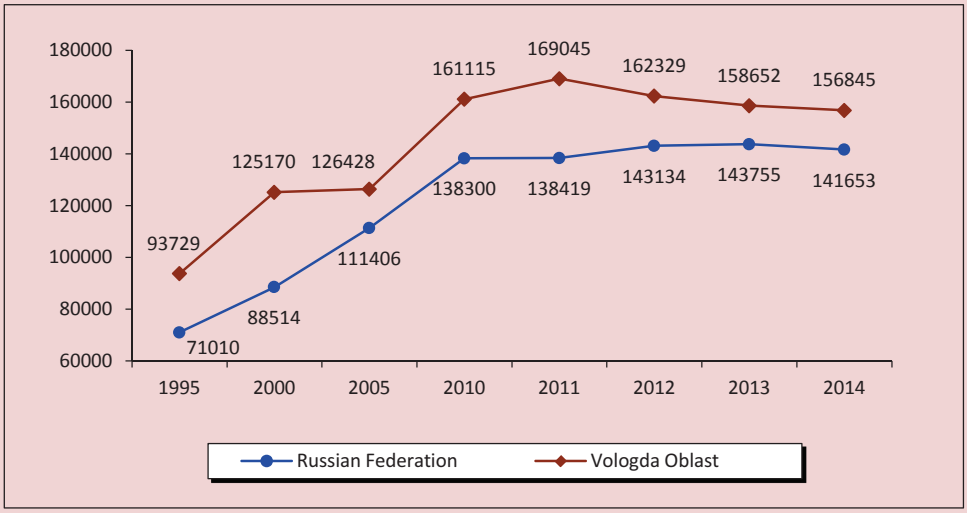
realization in a particular activity depends on the internal disposition of an individual to the activity chosen. This statement fully applies to the labor market *(Tab. 6)*. Calculations show that absence of relationship between the work being performed and young people's personal preferences (abilities, aptitudes, vocation) has a negative impact on the use of opportunities they have accumulated. In this case, the level of implementation of labor potential quality is an average of 75%. On the contrary, if main activity corresponds to internal predisposition, this contributes to more complete use of qualitative characteristics (the values of the index increase up to 83%).

8. Health problems. Health status directly determines the possibilities of participation of an individual in labor activity [11]. Although young people have better health than adults, a substantial part of this age group felt negative impact of this factor at the level of realization of labor potential. This may be due to the fact that over the past 20 years (1995 to 2014) primary morbidity among adolescents 15–17 years of age increased significantly (by 67% in the Vologda Oblast and almost twice in Russia; *Fig. 3*). Despite some improvement observed since 2011, the indicator values remain high.

According to the monitoring data, the gap in the level of implementation of labor potential among young people who evaluate their health as "excellent" and "poor" is 10 p.p. *(Tab. 7)*. An especially significant difference is observed in the extent of the use of an intellectual component (18 p.p.). Meanwhile, the negative impact of this factor on the opportunity to implement one's potential in work activities is observed not only among the few representatives of the group with the lowest self-assessments of health (2%), but also among young people who assess their health as "satisfactory" and "good", whose share in the total sample is 37 and 50%, respectively.

Thus, a lack of qualification, employment outside one's specialty, a job that does not

Figure 3. Morbidity in adolescents 15–17 years of age (diseases in patients with diagnosis established for the first time, per 100 thousand population of corresponding age)



Sources: Federal State Statistics Service of the Russian Federation. Available at: http://www.gks.ru/ (accessed 20.09.2016); *Osnovnye pokazateli deyatel'nosti uchrezhdenii zdravookhraneniya Vologodskoi oblasti za 2000–2010 god: stat. sbornik* [Key performance indicators of healthcare institutions of the Vologda Oblast for 2000–2010: statistics collection]. Vologda: Departament zdravookhraneniya Vologodskoi oblasti, GUZ DZ VO "MIATs", 2000–2015.

Table 7. Distribution of answers to the question: "How would you assess your health in general?" (percentage of respondents among young people)

Answer option	Proportion	Level of implementation of labor potential, %	
		Intellectual component	Total
Excellent	10.4	78.1	83.1
Good	50.4	74.4	79.5
Satisfactory	36.9	73.0	78.7
Poor	1.9	60.0	72.5
Very poor	-	-	-

Sources: Data of the monitoring of the qualitative status of labor potential of the population in the Vologda Oblast (ISEDT RAS); authors' calculations.

Table 8. Main barriers to the implementation of young people's labor potential in the Vologda Oblast, and ways to overcome these barriers

Barriers	Solutions
Lack of professional knowledge	Improving the quality of professional education and its conformity with the requirements of the economy Creating conditions that help combine study and work for senior students Developing a system for professional adaptation of young specialists, establishing mobile centers for employment Improving interaction between educational system and labor market institutions Promoting participation of employers in the development and adjustment of curricula, etc.
Employment outside one's specialty	Increasing employers' interest in hiring young specialists (providing certain benefits upon employment of graduates of educational institutions within their specialty, etc.) Enhancing the prestige of some socially important professions in education, health, science, social protection, etc. Improving the mechanism for the formation of social order on training specialists in accordance with labor market requirements Inclusion of educational practice of students in work experience with the conclusion of employment contract, etc.
Mismatch between the job and abilities and inclinations	Overcoming the inconsistencies between the aspirations of young people and opportunities to meet them in work activities, by improving the systems of vocational guidance for schoolchildren and supporting the professional development of students and graduates of educational institutions Promoting youth entrepreneurship, etc.
Lack of interest in the job	
Inconvenient working hours	Expanding the formal sector of the economy by removing various administrative barriers to entrepreneurship development Promoting the activities of trade union organizations aimed to protect the rights of working youth Developing effective programs for social support of youth Promoting the preservation of traditional labor values and teaching young people behavioral skills in the labor market, etc.
Unfair payroll management	
Organization of labor	
Health issues	Forming the culture of healthy lifestyle and self-preservation behavior among young people Promoting young people's health: prevention of diseases, among other things, socially significant diseases Promoting involvement of young people in systematic physical culture and sports, etc.

Source: compiled by the authors.

correspond to one's abilities and aptitudes, inconvenient working hours and lack of interest in the job, etc. serve as significant barriers to the self-realization of young people in the labor market. In the end, professional skills of a considerable part of young people obtained in the course of long training are not used in the labor market. It entails the loss of acquired skills and the need for additional training and, thereby, an increase in recruitment costs. It also reduces the effectiveness of public professional education system, as young people choose to work outside their specialty, which is why the demand of priority sectors of the economy for highly qualified personnel remains unsatisfied.

Therefore, it is necessary to undertake real efforts to reduce existing barriers to the implementation of young people's employment potential through the use of public policy measures that were voiced more than once, but were not always implemented in practice *(Tab. 8)*.

Expanding employment opportunities and harnessing the potential of young people are among major political challenges in many countries. However, as international experience shows, programs aimed to find solutions to this problem often prove inefficient in the short term and/or are quite costly. For example, in Germany, during Gerhard Schroeder's term as federal chancellor, a law was passed, according to which unemployed young people up to 25 years of age were deprived of the right to receive unemployment benefit, but the measure did not help solve the problem of long-term unemployment [12, p. 95]. In addition, the implementation of such programs in Europe faces a number of barriers in the labor market, which are a kind of limiters (legislation on employment protection, fixed-term employment contract, minimum wage, etc.) [34]. However, success can be achieved through an integrated approach starting with education and transition from education to work, career guidance, employment assistance, professional development, etc. (programs like Job Corps [32] in the USA, New Deal for Young People [38] in the UK, Jóvenes en Acción [33] in Colombia, etc.).

Efforts of all interested parties, from public authorities, employers and community organizations to representatives of youth itself should direct their efforts to finding a solution to the problem of the full realization of young people's potential in employment. The dialogue between the parties in the labor market can be held in the framework of existing platforms like coordinating councils, youth organizations (parliaments, trade unions, public councils under labor departments, etc.), tripartite commissions on regulation of social-labor relations, etc.

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