THE RUSSIAN ACADEMY OF SCIENCES
INSTITUTE OF SOCIO-ECONOMIC DEVELOPMENT OF TERRITORIES OF RAS


# ECONOMIC AND SOCIAL CHANGES:

## FACTS, TRENDS, FORECAST

2 (20) 2012

**The journal is published according to the decision of RAS economic institutions' administration in the North-West federal district**

Institute of Socio-Economic and Energy Problems of the North
Komi scientific centre of the Ural RAS department (Komi Republic)

Institute of Economics of Karelian scientific centre of RAS (Karelia Republic)

G.P. Luzin Institute of Economic Problems of Kola scientific centre of RAS (the Murmansk region)

Institute of Socio-Economic Development of Territories of RAS (the Vologda region)

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Institute of Social and Economic Research of Ufa Science Centre of RAS (Bashkortostan Republic)

The decision of Presidium of the Higher Attestation Commission of the Russian MES (№6/6, dated 19.02.2010) the journal is included in the list of leading scientific editions, recommended for publication of the main results of dissertations for the degree of Doctor and Candidate of Sciences.



ISSN 1998-0698


Internet address: **http://esc.vscc.ac.ru**

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# FROM THE CHIEF EDITOR

## Bifurcation of a new political cycle

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The cyclical phase of the central authorities' renovation will be completed by the final procedural arrangements in May 2012. There will be the inauguration of Vladimir Putin as the President of the Russian Federation. The new Prime Minister of Russia will be approved; the new heads of ministries and departments will be appointed; the official countdown of their practical activities in implementing the political and economic objectives, set out in the election papers by Vladimir V. Putin[1], will begin. These articles give a realistic assessment of systemic problems in the development of the Russian Federation, which have been accumulated since 1991:

"In fact, we have survived a massive deindustrialization";

"If we call things by their names, it is a systemic corruption";

"Eliminating tax evasion through offshore arrangements and fraudulent companies";

"Business often came down to nothing more than dividing up state property".

One of the leaders of the Governance and Problem Analysis Center Professor S.S. Sulakshin gives the following assessment of the current state of public administration,

*"Russian business is corrupted by super profitableness. Any attempts to regulate business in order to balance it for the sake of crisis sustainability and territorial justice, for the sake of socialization in the society and state in Russia are rejected as a whole".*

*"The state is managed by the rental business. Its qualities, mentioned in part, lead to the fact that Russia has become an asocial and political drift state, they lead to the social explosion, the semi-colonial type of economy (it's only a matter of perspective) and the type of semi-sovereign and archaizing state. This is an unsuccessful state, which is a derivative*

[1] Articles by V.V. Putin: Russia muscles up – the challenges we must rise to face. Izvestia. 2012. No. 6. January 17; Russia: The Ethnicity Issue. NezavisimayaGazeta. 2012. January 23; Economic tasks. Vedomosti. 2012. No. 15. January 30; Democracy and the quality of government. Kommersant. 2012. No. 20. February 6; Building justice: A social policy for Russia. Komsomolskaya Pravda. 2012. February 12; Being strong: National security guarantees for Russia. Rossiiskaya Gazeta. 2012. No. 35. February 20; Russia and the changing world. Moscow News. 2012. February 27.

*of a certain quality of Russian business; its role is known here. In America Roosevelt used to break the backbone of this wild and independent business pretended to be the first in the system of state – society and state – business. Russia seems to be waiting for such a leader and a situation"*[2].

There is the only leader in the country now, who can do this. He is the newly elected President of the Russian Federation Vladimir V. Putin, who got the strong support of voters in the first round (63.6%), which was almost 3.5 times more than the support for the candidate ranked second.

This result is not accidental. Most of people take into account the undoubted positive aspects in the activity of V.V. Putin in the period of 2000 – 2008 – 2011. Most of electors also support the measures stated in V. Putin's seven policy articles, which deal with the conceptual vision of the ways to solve the acute systemic problems, hampering the development of the country and threatening the country's existence.

This is proved in details by the academician of RAS Sergey Glazyev[3] in the article "Why is Putin?", which is published in our journal with the obliging permission of the author.

Will "new" V.V. Putin be able to lead himself to a new level of public administration? The answer is not obvious.

It was not clear before the election. Various groups had been trying to destroy the Putin-Medvedev tandem for four years of Dmitry Medvedev's Presidency. There was an extra-ordinary destroying activity during the "orange" revolutions abroad in 2011.

Thus, there was a direct appeal to Dmitry A. Medvedev for the resignation of the Prime Minister Vladimir V. Putin.

*"What will happen when Dmitri Medvedev due to some unknown reasons refuses to contest the presidency in 2012? It's safe to assume that the fact of a refusal of the current president to continue his functions would cause large-scale crisis in the country".*

*"There's only one "little" thing left: Dmitry Medvedev has to venture out and cross his own personal Rubicon, turning directly to society to jointly undertake the difficult work of pulling the country out of the swamp into which we all fell in together. It is necessary to create the mechanisms for the partnerships of government and society in order to answer this call".*

*"What would be very positive to emerge from this equal and impartial dialogue between Dmitry Medvedev and society would be the decentralization of the state, the ensuring of real freedom of the media (including the creation of Public Television), and the radical liberalization of the legislation on party building and non-profit organizations, and much more"*[4].

Here I would like to draw attention of our readers to the monograph "Power ideological transformation", which was prepared in the Governance and Problem Analysis Center[5]. It deals with the typology and historic realizations of power transformation as a change in ideology and senior management of the state. The authors of this monograph give a historical assessment to the authors of such articles.

"The betrayal of the elites in the scenario of coming "orange revolution" is inevitable. There was no dismantlement of any regimes overthrown by the color revolutions without such kind of betrayal. Few years have passed since the mass re-swearing of local party

[2] The quality of Russian business as a factor of unsuccessful Russian state. The materials of Science Seminar. Moscow: Science Expert, 2011. Vol. 7 (45).

[3] Glazyev S. Why is Putin? Zavtra. 2012. February – March 9.

[4] JurgensI., GontmakherE.The President shall declare himself. Vedomosti.2011.July27.

[5] Bagdasaryan V.E., Sulakshin S.S. Power ideological transformation: Historic experience and typology. Ed. by V.I. Yakunin. Moscow: Science Expert, 2011.

bureaucratic elite to the anti-communist Boris Yeltsin instead of the general secretary Mikhail Gorbachev. So, even the member of the top brass, co-opted into the power on the base of personal loyalty, cannot be absolutely reliable in the current conditions.

*Especially after their souls and thoughts are turned to the sense commercialization instead of service, they can be elementary overbought and reassigned to another person. This could not happen if there are ideological mechanisms of personnel selection".*

Our regular sociological measurements[6] of people trust to the main political and social public institutions during the period from 2000 to 2011 show that only the President was one of 16 institutions that was trusted by more than 50% of respondents (Vladimir V. Putin was trusted by the people from 57% in 2000 up to 60% in 2007; Dmitry A. Medvedev was trusted by the people from 65% in 2008 down to 50% in 2011).

Two institutions (church and govern-ment) were trusted by 42% in 2000 up to 47% in 2011.

Five institutions (the regional govern-ment, the court, the Federation Council, the Federal Security Service, the Procuracy) were trusted by 28 – 32% in 2000 up to 35 – 36% in 2011.

Four institutions (the army, the police, the State Duma and trade unions) were trusted by 23 – 37% in 2000 to 30 – 34% in 2011.

Another four institutions (mass media, political parties, CEOs, banking and business organizations) were trusted by 10 – 33% in 2000 to 20 – 28% in 2011.

There are more distrusters than trusters in the last group[7].

Thereby, only three public institutions are trusted by 50% of respondents, and the rest thirteen institutions are trusted by 20 – 35% of the population. This is an alarm signal that indicates the possible de-legitimization of the state.

And many recent events such as the meetings on Bolotnaya Square and Sakharov's Prospect, which were coordinated by the efforts of the people, who are dissatisfied with the Putin's comeback as the President of the Russian Federation, confirm this danger.

The problems of power de-legitimization are on the agenda. According to S. Glazyev, "There is a question point-blank: who will win?"[8]

Vladimir V. Putin, who had applied for the support to the people in the Luzhniki Stadium, received the support to the ideas of the final choice in favor of the interests of the country, social justice and national values against the interests of oligarchs and comprador elite, associated with the "sworn friends" of Russia.

But most of ordinary electors, who voted for V.V. Putin, are concerned about his ability to show the necessary political will to implement the nominated conceptual approaches to the development of the country for the next 10 years.

[6] The polls are held six times a year in Vologda, Cherepovets, and in eight districts of the region (Babayevsky District, Velikoustyugsky District, Vozhegodsky District, Gryazovetsky District, Kirillovsky District, Nikolsky District, Tarnogsky District, Sheksninsky District). The method of the survey is a questionnaire poll by place of residence of respondents. The volume of a sample population is 1500 people aged from 18 and older. The sample is purposeful and quoted. Representativeness of the sample is ensured by the observance of the proportions between the urban and rural populations, the proportions between the inhabitants of settlements of various types (rural communities, small and medium-sized city), age and sex structure of the adult population of the region. Sampling error does not exceed 3%.

The results of the ISEDT RAS polls are available at www.vscc.ac.ru.

[7] More detailed information is displayed on a color insert.

[8] Glazyev S. Why is Putin? Zavtra. 2012. February – March 9.

The article "The citizens have something to worry about"[9] by the well-known journalist Vladimir Tretyakov is devoted to the discussion on the article "The ways to prevent stealing the fruits of the victory"[10] by K. Zatulin, who argues that there is a treat to the victory of Vladimir Putin and his supporters to be emasculated or stolen.

V. Tretyakov isn't surprised at such attempts, "There is a feeling that everything will go on forever. Sometimes it seems that Putin gives in to the pressure of a losing party. It seems that this text, like a magnifying glass, collects all the questions in the same focus. It is a focus of the choice that will or won't be made by Putin in the coming weeks".

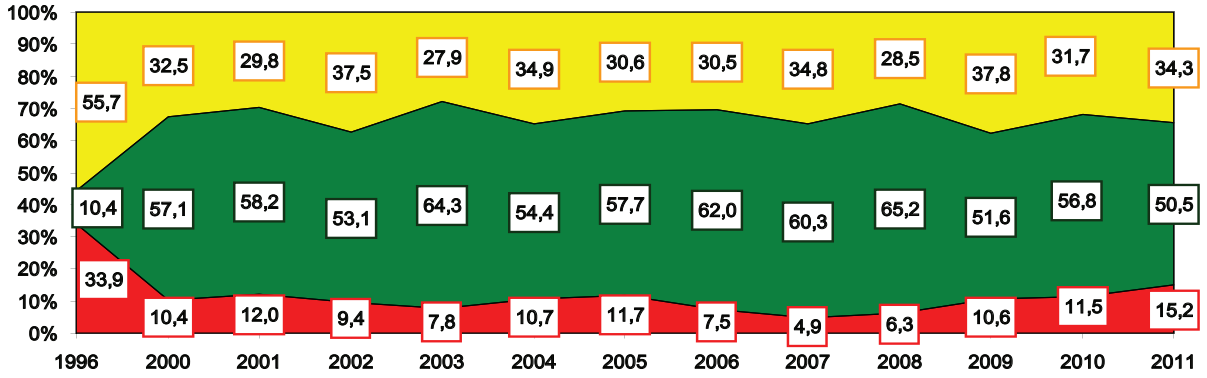
There is not much time before the inauguration of the President of the Russian Federation on May 7, 2012.

What will Vladimir V. Putin choose?

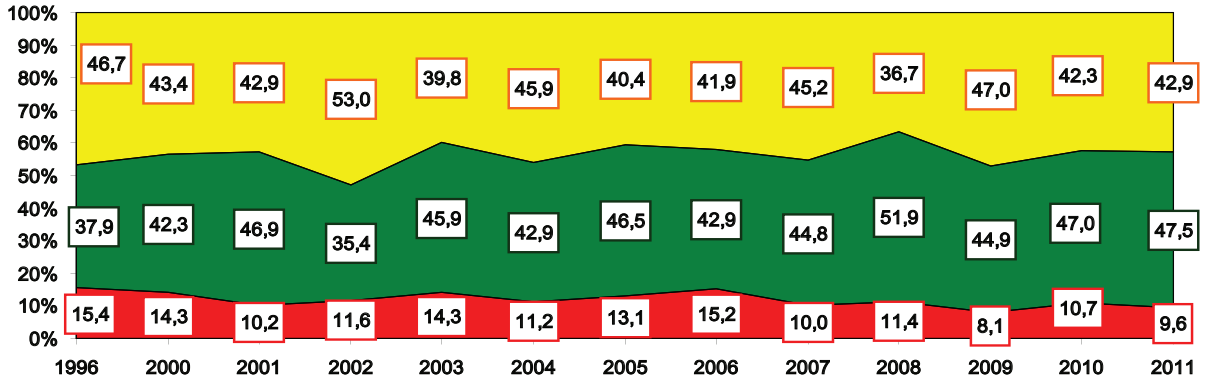
[9] Tretyakov V. The citizens have something to worry about. Literaturnaya Gazeta. 2012. No. 1213 (6363). March 28.

[10] Zatulin K. The ways to prevent stealing the fruits of the victory. Moskovsky Komsomolets. 2012. March 22.

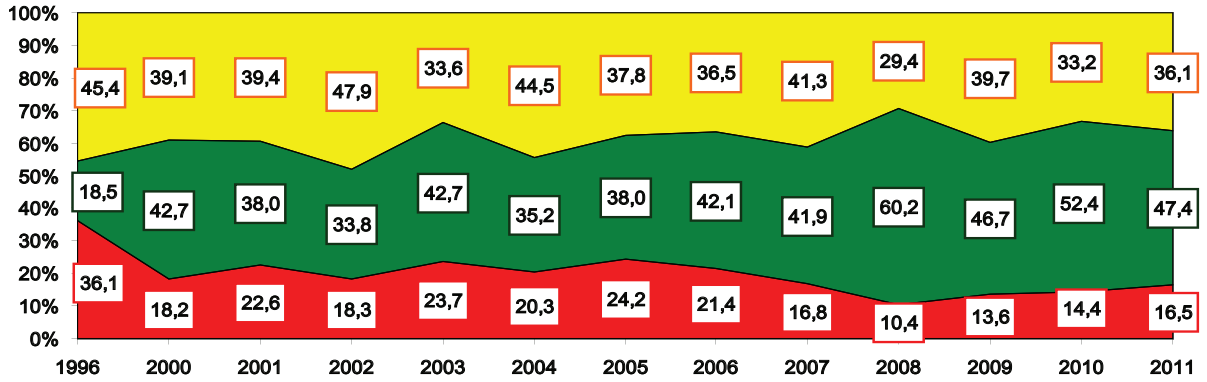
1. Attitude toward the President of the Russian Federation*



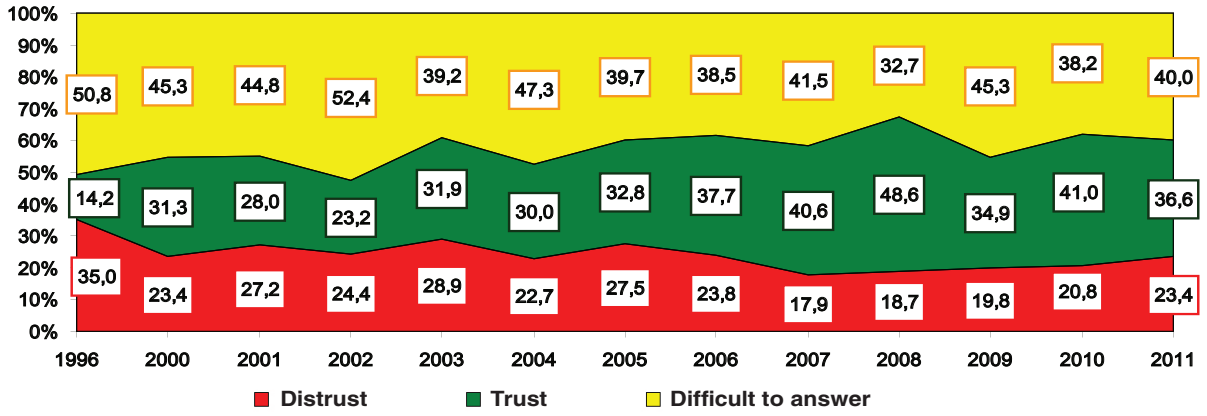

2. Attitude toward the Church




3. Attitude toward the Government of the Russian Federation

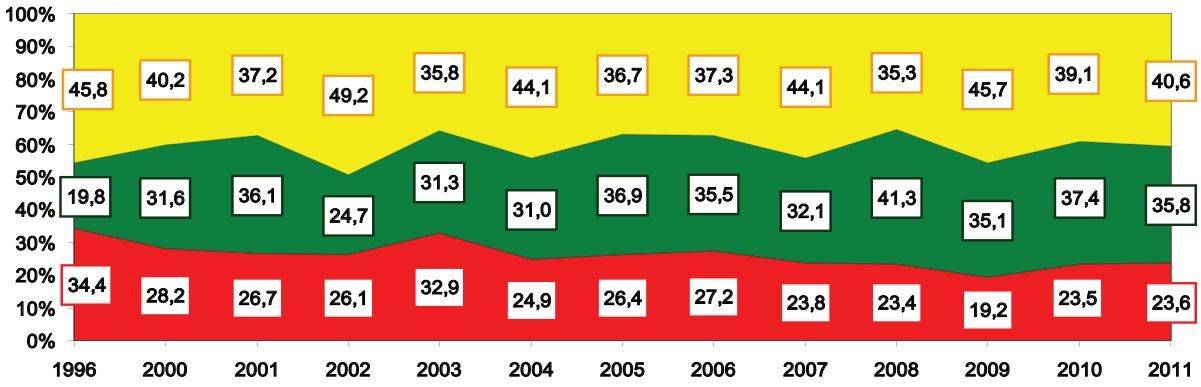



4. Attitude toward the Government of the Vologda Oblast

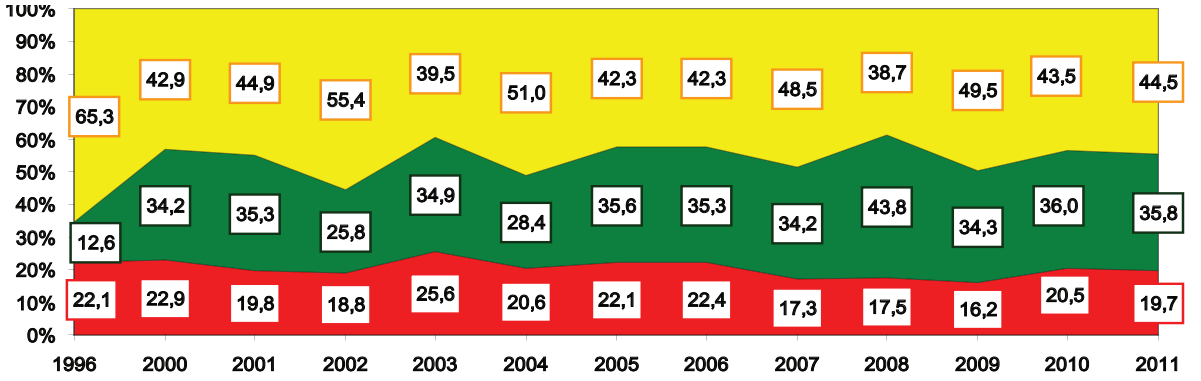



** Ranking has been made according to the trust indices toward the main political and social institutions in 2011.*

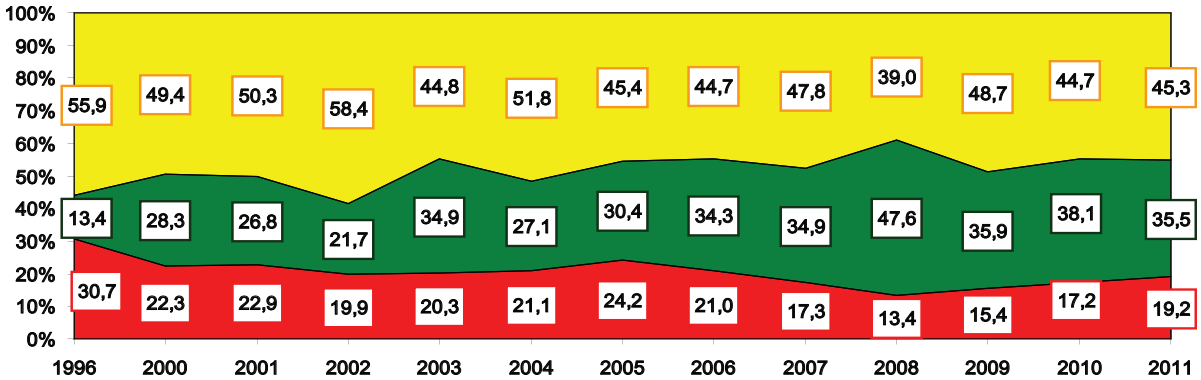
5. Attitude toward the Court



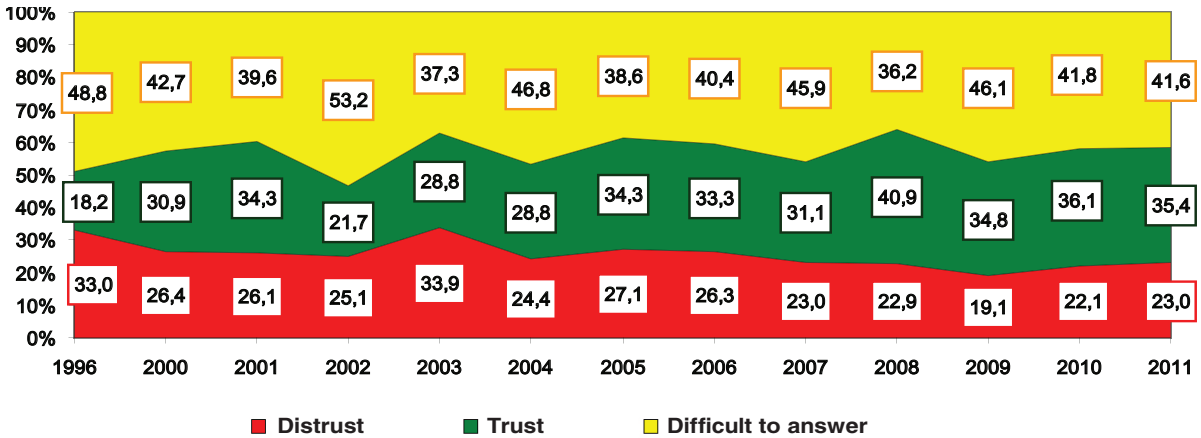

6. Attitude toward the Federal Security Service of the Russian Federation



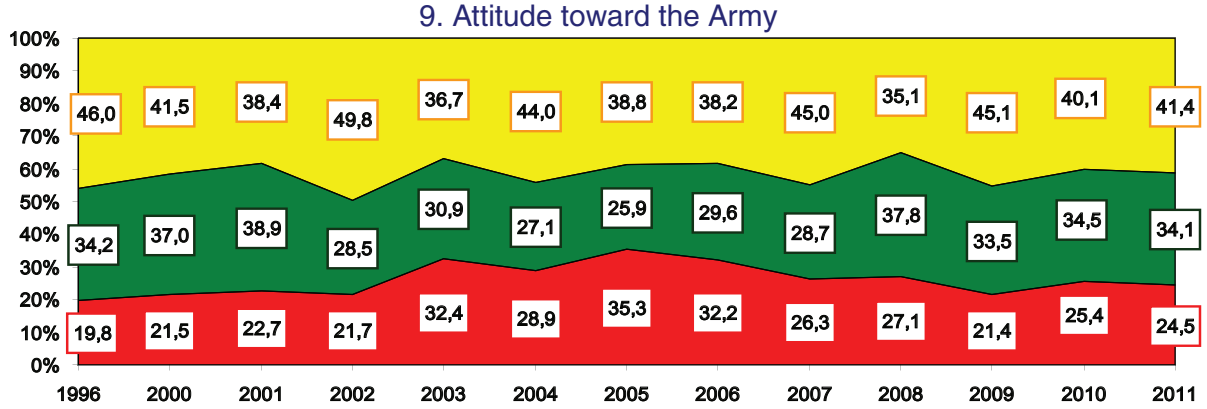

7. Attitude toward the Federation Council of Russia



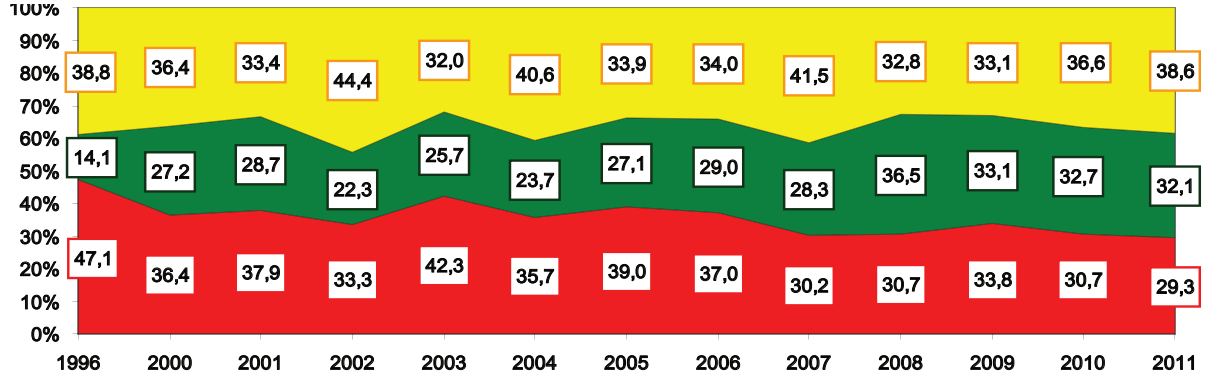

8. Attitude toward the Procuracy



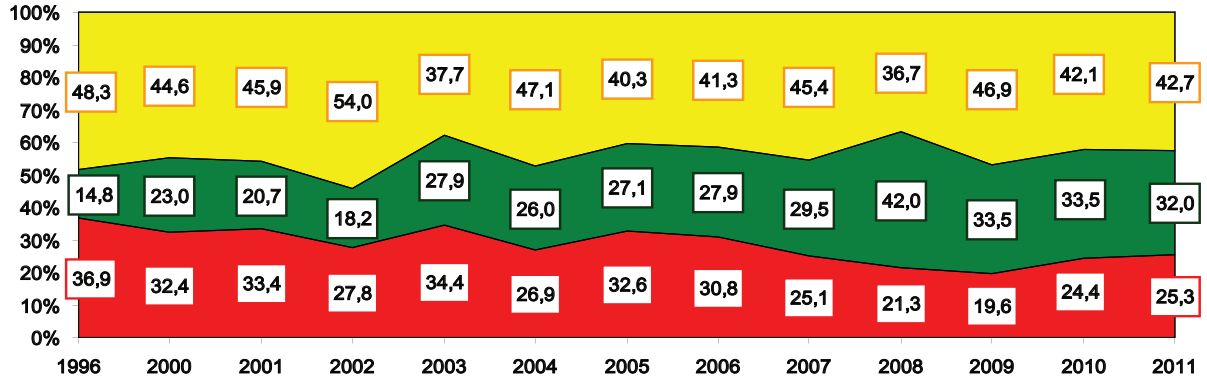
9. Attitude toward the Army



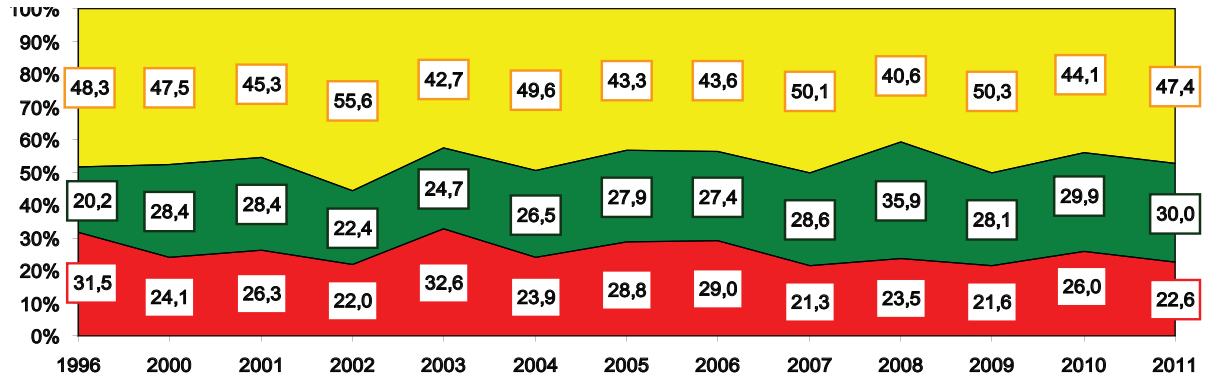

10. Attitude toward the Police



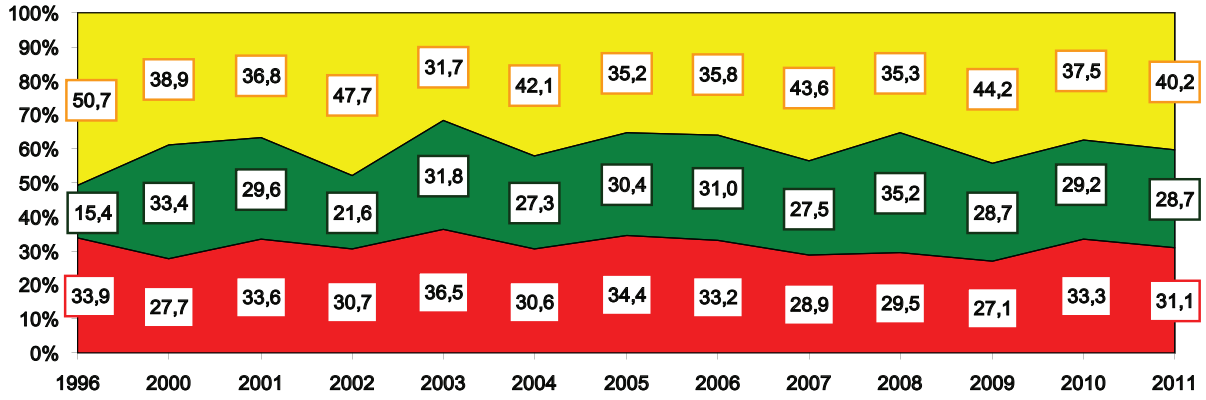

11. Attitude toward the State Duma



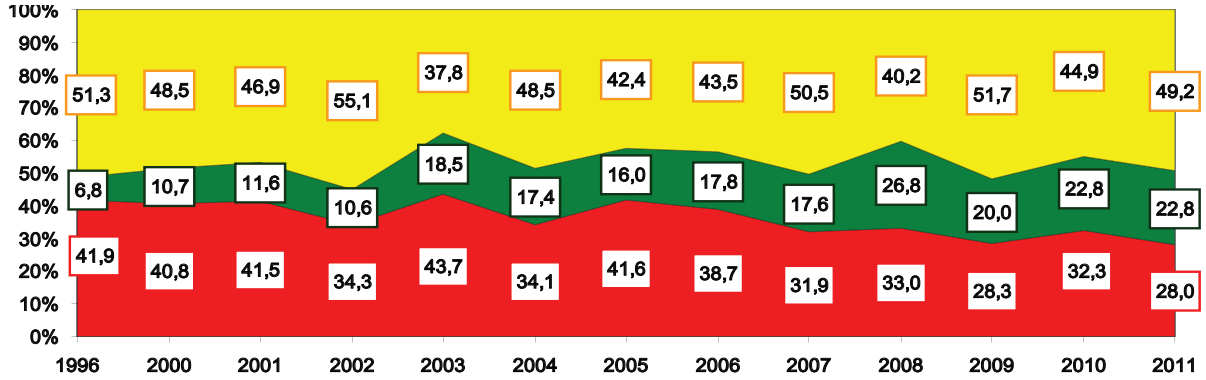

12. Attitude toward Trade Unions



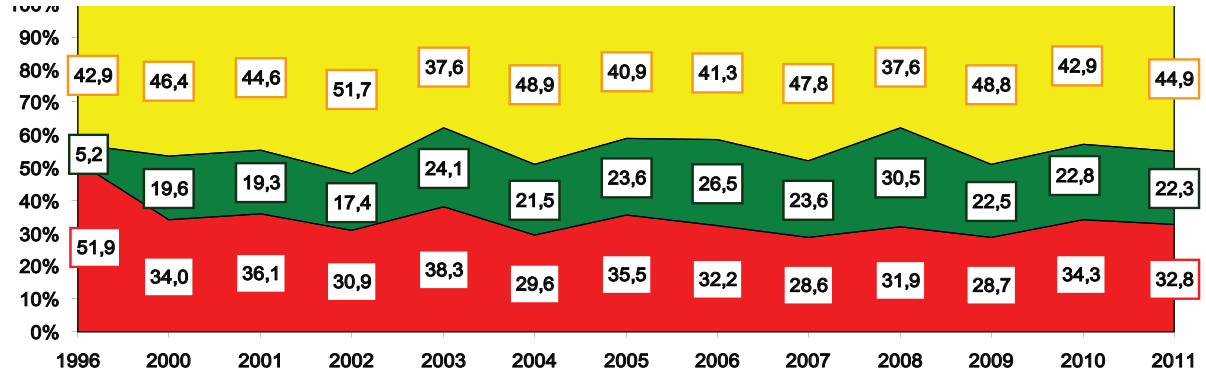
13. Attitude toward the mass media



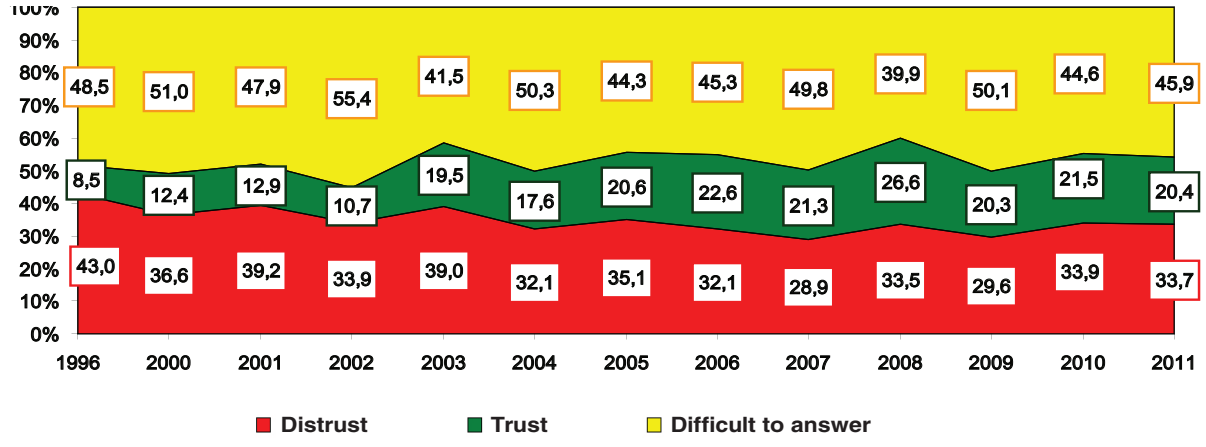

14. Attitude toward political parties and political movements




15. Attitude toward CEOs




16. Attitude toward banks and entrepreneurs



The first ten articles according to the frequency of their viewing for the recent 12 months (April 2011 – March 2012)

| Rating | Article | Total time of reading, minutes for the recent 12 months | Total time of reading, minutes for the whole period* | Number of views for the whole period | Number of views for the recent 12 months | Number of views for the recent 3 months | Average time of viewing (minutes) for the whole accounting period* | Issue | Release date | Authors |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Threats to the region's economic security and the ways to overcome them | 2042 | 2042 | 111 | 111 | 30 | 18 | №14 | April 2011 | Uskova Tamara Vitalyevna<br>Kondakov Igor Anatolyevich |
| 2 | Fiscal federalism and inter-budget relations in the Russian Federation | 1671 | 1718 | 133 | 127 | 45 | 13 | №13 | February 2011 | Avetisyan Ishkhan Artashovich |
| 3 | Methodology of the comparative estimation of the scientific and technical potential of the region | 1528 | 2669 | 143 | 97 | 23 | 19 | №12 | December 2010 | Zadumkin Konstantin Alexeyevich<br>Kondakov Igor Anatolyevich |
| 4 | Intellectual resources as the factor of the innovational development | 1352 | 3067 | 150 | 78 | 17 | 20 | №11 | September 2010 | Ilyin Vladimir Alexandrovich<br>Gulin Konstantin Anatolyevich<br>Uskova Tamara Vitalyevna |
| 5 | Agriculture on the European North: All-Russian agricultural census results | 1260 | 1878 | 115 | 81 | 50 | 16 | №11 | September 2010 | Ivanov Valentin Alexandrovich<br>Ivanova Elena Valentinovna |
| 6 | Modernization of the russian economy as the imperative of the country's prospective innovative development | 1001 | 1001 | 55 | 55 | 25 | 18 | №16 | August 2011 | Kondakov Igor Anatolyevich |
| 7 | Investment process in the region: the new century – old problems | 857 | 1056 | 72 | 51 | 2 | 15 | №11 | September 2010 | Gubanova Elena Sergeyevna<br>Vorontsova Tatyana Vladimirovna |
| 8 | Small business is an important reserve for development of a one company town | 787 | 2097 | 96 | 24 | 2 | 22 | №11 | September 2010 | Tkachuk Stepan Nikolayevich |
| 9 | Technologies substituting hospitalization (outpatient surgery) in regional health: economic-organizing aspect | 782 | 1036 | 71 | 55 | 6 | 15 | №10 | June 2010 | Duganov Mikhail Davidovich<br>Shabunova Alexandra Anatolyevna<br>Kalashnikov Konstantin Nikolayevich |
| 10 | Foreign economic activity of the NWFD regions and the republic of Belarus: condition and methodological aspects of modelling | 751 | 844 | 55 | 45 | 7 | 15 | №12 | December 2010 | Uskova Tamara Vitalyevna<br>Asanovich Valery Yakovlevich<br>Dedkov Sergey Maratovich<br>Selimenkov Roman Yuryevich |

* Account of the site's viewing has been carried out since 2009, December, 12.

UDC 316.324.8


# Post-industrialism: the experience of critical analysis

*A cycle of research, devoted to the genesis of the concept of postindustrial society, has been completed recently in the Governance and Problem Analysis Center (Moscow). This article was written based on those studies by the Scientific Director of the Center Vladimir I. Yakunin, and it was offered to be published in our journal.*

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The theory of post-industrial society or post-industrialism is a very interesting phenomenon in the humanities. Offering some explanatory and predictive potential for the understanding of modern global development, this theory also demonstrates political, project and even manipulative signs. The study suggests understanding these details. The question is not as simple as it might seem.

The problem of post-industrialism doesn't lie only in the plane of the socio-economic development. The insistence of the media and many publicists that are trying to introduce it into the public discourse, raises some questions about the political aspect of the problem. The concept of post-industrial society is considered as a well-established and confirmed scientific theory. However, what is the ratio of science and politics in it? This problem is non trivial, especially in the modern era, when the mechanisms of latent control over the main levers of the global development processes have replaced the direct ways of ensuring the political dominance of the powers on the global scene. In general, the question is the following: can sciences be used for other means of warfare and defeat on the geopolitical enemy[1] in the triad of "people, material objects and infrastructures?" Can the humanities be used for this purpose? Indeed, for example, if the government of the geopolitical opponents is impressed with the false theory of development and it leads the country to reach a deadlock, it won't be necessary to fight against it in the usual way. Let's look at contemporary history. For example, isn't the national flag of a geopolitical opponent changed in such cases? Doesn't its government become a satellite or a puppet even without "hot" conquest of a territory?

[1] Huntington S. The Clash of Civilizations. Moscow, 2006.

The answer is obvious. All these facts take place actually in the modern world. Do they apply to the methods and warfare between the states? It's absolutely so. We can only have two questions.

1. What is a name of this type of modern weapons and what are the methods of their application, i.e. what are the types of hostilities and modern wars?

2. What kinds of sciences are used to develop this type of weapons and the methods of their application?

This weapon is called "informational". Nowadays, the tools of the social sciences, which are being used as scientific rather than as a basic frame of demagoguery, is the most powerful lever of the influence on the socio-political processes across the globe. Were there defensive "information weapons" in Russia? Does our country use them nowadays? It's obviously, that we seriously underestimate the problems of information security[2].

The concept of post-industrialism, which has all outward signs of an artificial theoretical model used to achieve the special political goals, is studied in this context in the paper. That is why the verification of the theory of post-industrial society is a vital necessity today, not only from scientific feasibility point of view, but also from the standpoint of national security in Russia. What is real – the truth or falsity of the theory of post-industrial society? Are there any delusions or intentions under the practical guidance of this theory, if it is unreliable and destructive?

The matter of the research objectives consists of these questions. The working hypothesis is the following. Some countries reallocate their national production potentials in the world bringing out some of them in other states and, at the same time, keeping extremely profitable and ecological branches to themselves.

Thus, the world transformation of global domination and the formation of neo-colonialism's fundamentals are hidden with the help of informational techniques. The essence of the research approach, implemented within the framework of this study, consists in the analysis of the theory of post-industrial society founded by D. Bell and its closest modifications that focus on the stage-branch (sectoral) approach as the characteristics for the development of society and the determinants of further changes. Sectoral production patterns (with a view to define the role of the tertiary sector of services) and sectoral occupational patterns (with a view to increase the share of employment in the service sector) are the field of analysis here as the most typical signs of the transition to a new society *(fig. 1)*.

Particular attention should be paid here to the verification of the theory's fundamental thesis on the historical periodization of social production technological type *(fig. 2)*.

First of all, the thesis about the universality of this stage approach and the criteria for the classification of modern countries and regions with a view to its development should be verified. The main objectives of the study are the following:

– analysis of the theory of post-industrial society, its forming preconditions and history, the main trends and schools;

– study of the dynamics in sectoral production structure and employment in different countries, reconsideration of statistical data structure;

– the analysis based on statistical data of spatial and temporal dynamics of different types of social structures;

– opening manipulative and ideological components of the category of post-industrial society and its use as a cover for modern neo-colonialism;

– assessment of the prospects for socio-economic development of Russia in the context of the theory of post-industrial society.

[2] Yakunin V.I., Baghdasaryan V.E., Sulakshin S.S. New technologies to struggle against the Russian statehood. Moscow: Scientific Expert, 2009.

Figure 1.The field of analysis of the stage-sectoral approach to the transformation of social systems

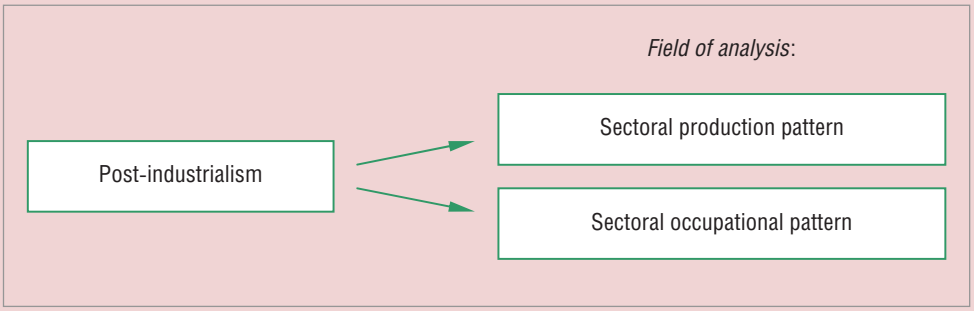
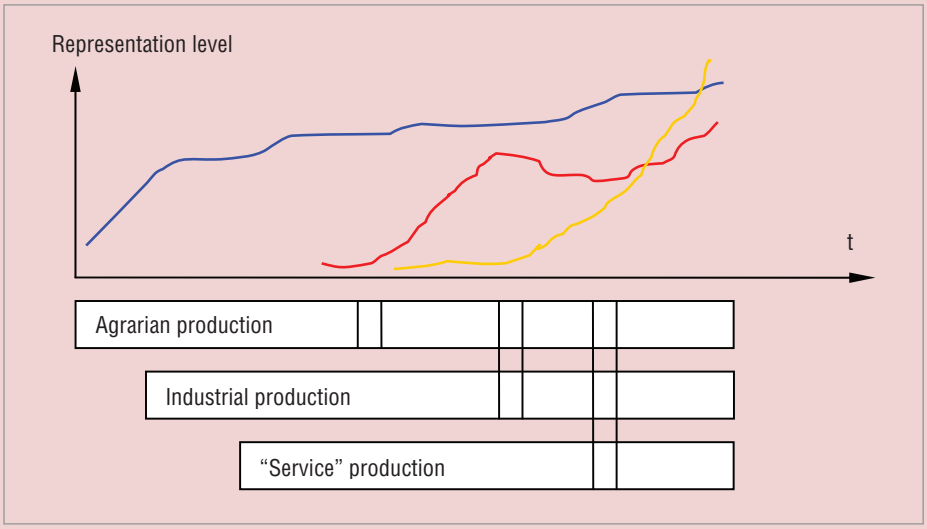



Figure 2. The historical periodization of technological production types in the theory of post-industrial society




It seems that we have achieved the conclusive results that confirmed the previous hypothesis in solving the problems of the study.

The theory of post-industrial society has been variously estimated for more than 50 years of its existence, ranging from such enthusiastic assessments as "the only theory of the XX century that has been confirmed in full" in the real history to such assessments as "anti-Marxism" and "ordinary bourgeois propaganda". In fact, the theory of post-industrialism has gone beyond a purely scientific concept and has transformed into the most sophisticated ideology. And just ideological characteristics determine the basic properties of the discussions on the idea of post-industrial society among scientists and experts. There are the main controversial points noted by critics below that are the core of the expert discussion on the scientific nature of post-industrial society. At the same time, it is important to focus on those aspects that provide the "vitality" and widespread occurrence of post-industrialism ideology.

The followers of the post-industrialism theory haven't defined clearly the notion of post-industrial society until now. Ambiguous statement of the concept of post-industrial society was typical even for the theory's founder D. Bell. So, V.L. Inozemtsev points out in his article devoted to Daniel Bell that the uniqueness of the postindustrial society concept is

precisely that "it provides a researcher with a general tool of social search and doesn't determine the rigid framework that could be found in other sociological doctrines"[3]. It should be noted that it is unclear what kind of approach combines with the scientific content, which requires the clearness and maximum definiteness of the basic concepts of the study.

A serious problem for the followers of post-industrialism is the fact that many conclusions and forecasts of the post-industrial theory, made by them over a half of century, haven't been confirmed in practice. Surprisingly, the latter fact doesn't force the followers of this theory to doubt or reconsider the basic principles of post-industrialism. Instead of this, there are a lot of attempts to prove its worth and the apologetics of the theory of post-industrial society in scientific literature. This can be explained within the framework of a certain non-scientific determinacy of this development.

It should be recognized that some conclusions, which are made by the researchers of post-industrialism, are not really based on the analysis of actual data but on the applying results of the methods that are not scientific enough in terms of modern sociology. For example, in the absence of "reliable sociometric data", the conclusions are grounded by personal impressions of life in America and Europe, of communication with foreign colleagues, as well as by "the comprehension of publications that throw light indirectly upon the differences, which we are interested in"[4].

The followers of post-industrial society are reproached with the non-holistic ideas of society as often as with fuzzy concept of post-industrialism. The notorious prefix "post", which implies a rejection of industrialism, doesn't define "a new state of civilization" in terms of its positive attributes. In order to avoid a sense trap, the apologists of post-industrialism have invented the concepts of "information society" (F. Machlup and T. Umesao), technetronic society (Z. Brzezinski) and "knowledge society"[5]. However, these theories suffer from the same defect because they focus on the phenomena that don't define the society as a social integration.

Technological determinism has obtained a strongly negative assessment today as a belief that technology plays a fundamental role in the evolution of society; according to critics, it lies in the core of the concept of post-industrial society. It's reasonable that the opponents of post-industrialism concept criticize it for the refusal to consider the social sphere, as well as motives, objectives and social, economic and humanitarian results of used technologies.

Finally, post-industrialism critics insist not only on the fact that, despite the emergence of new products and changes in many means of production (the introduction of automatics, microelectronics, synthetic and composite materials, etc.), there are no any fundamental changes in society[6]. They also point out the geographic location of many post-industrial processes; there is no denying this.

Summing up the interim analysis results of the discussion on the theory of postindustrial society, it should be noted that the position of apologists is not very stable. The followers of post-industrial society haven't disproved any moot point of their opponents.

The phenomenon of service requires the special understanding in the analysis of post-industrial society. Post-industrialism associates the prospects for the forth coming world order with its development. It is the service that is getting the main stage-replacing role in the adoption of a sectoral model of a post-industrial society.

[3] Inozemtsev V.L. Sociology of Daniel Bell and the contours of the modern post-industrial civilization. Problems of Philosophy. 2002. No. 5.

[4] Inozemtsev V.L. Post-industrial economy and post-industrial society: To the problem of social trends of the XXI century. Social Sciences and the present time. 2001. No. 3.

[5] Inozemtsev V.L. Beyond the economic society. Moscow, 1998.

[6] Tsaplin V.S. Post-industrialism: Are the claims justified? Sociological studies. 2006. No. 4.

However, this case is not so simple. The fuzzy definitions are the first things that attract attention. There is no generally accepted definition of service until now. There is no such definition not only in Russia, but also in Western science. The benchmark of post-industrial development is service, but nobody knows what it is. Its genesis is traditionally explained by the development process of labour division in the formation of new professional niche of activity. However, a more detailed historical analysis allows us to see a significant share of persons who are professionally related to service activities already in the traditional societies.

The concept of stageness in the case of service as a component of post-industrialism doesn't look like the convincing truth. Service was historically formed together with the oldest forms of manufacturing, but it didn't follow them stage by stage. So-called "service revolution", which many followers of post-industrialism write about, has been reduced, in fact, to the swell of a certain service sectors over the past 40 years in some developed Western countries. Thus, it shows a clear geographical "registration" *(see fig. 3)*.

There is an active growth of industrial potential in the former Third World countries that is simultaneous with the deindustrialization of the West. The current wage level of Asian and Latin American workers makes it more profitable to place industrial production in Asia or Latin America than in North America or Europe. In this case the costs are much lower at the expense of saved wages. There is a bonus in the fact that the environment load is taken out to other continents. The logic of profit maximization makes the European and American business to outsource their production to other regions of the world, therefore by this increases the industrial strength of the largest non-Western centers of power. The China's share of industry in GDP has already surpassed the U.S. *(fig. 4)*.

The western industrial workers, released from the sphere of commodity production, are retrained into the workers of nonproduction sectors. Thus, the rapid development of service infrastructure in the West is a direct consequence of its deindustrialization.

The concept of post-industrialism is often used, at least in Russian public discourse, as a theoretical basis for the justification of the global trends[7].

However, the analysis of long statistical arrays of the global development on the indicators of the employment structure and the structure of GDP allows us to state that there are no declared trends of the global post-industrial development in real life. Moreover, according to the structural growth dynamics in the rapidly developing countries such as China, India and Brazil, the humanity has entered the phase of neo-industrialization in the XXI century.

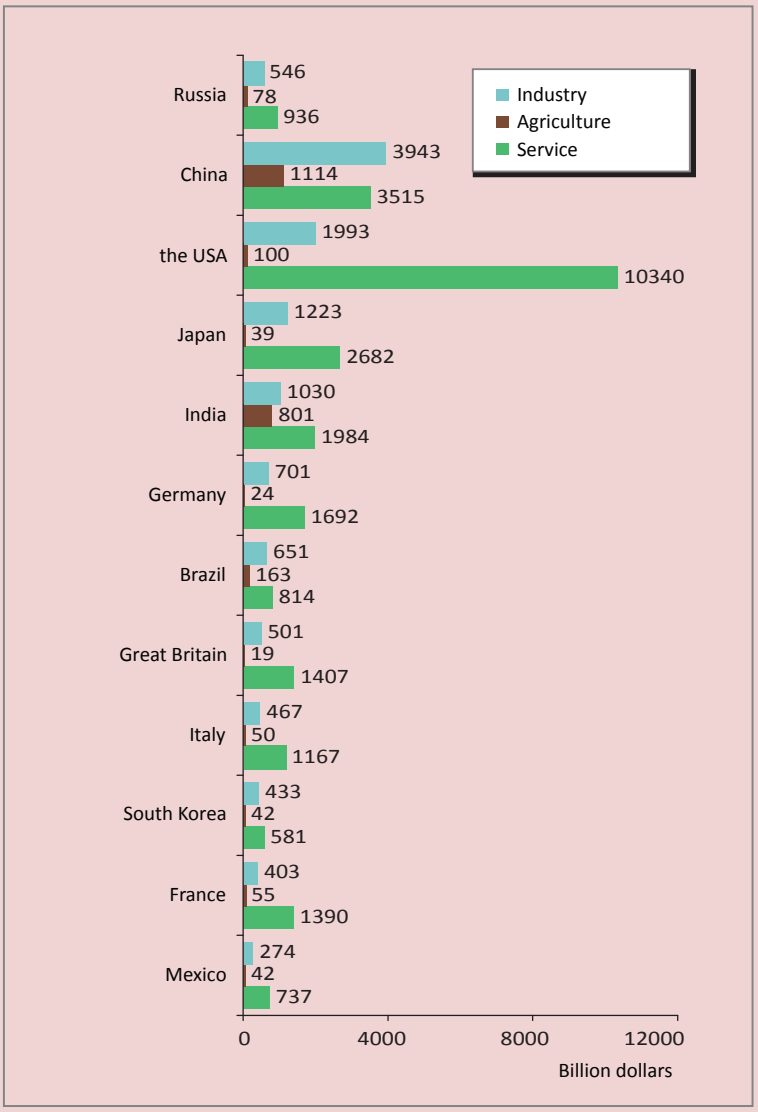
There is a clear trend to outsource the main industrial centers to Asia and Latin America. The current economic break down of the West seems to be especially obvious against the background of the Asian economy *(fig. 5)*[8].

The sustainable growth of the employment share in the industrial sector was fixed in the XX century in the non-West geographical areas *(fig. 6)*.

[7] Bell D. The coming of post-industrial society: A venture of social forecasting. Moscow, 1999; A new post-industrial wave in the West. Anthology, ed. V. Inozemtsev. Moscow, 1999; Toffler E. The Third Wave. Moscow, 2004; Krasilshchikov V.A. Guidelines for future: post-industrial society and the paradoxes of history. Social Sciences and the present time. 1993. No. 2. Inozemtsev V.L. Modern post-industrial society: nature, contradictions, prospects. Moscow, 2000; Khoros V.G. Post-industrial world – hopes and reality. Moscow, 2001; Webster F. Theories of the Information Society. Tr. from English by M.V. Arapova, N.V. Malykhina. Ed. E.L. Vartalova. Moscow, 2004.

[8] Lunev S.I. Socio-economic development of the largest countries of Eurasia. Civilizational context. East – West – Russia. Moscow, 2002; Maddison A. Monitoning the World Economy, 1820 – 1992. Paris, 1995; Radelet S., Sachs J. Asia's Reemergence. Foreign Affairs, 1997, vol. 76, No. 6.

Figure 3. GDP of the leading countries by the branches of production in 2005 (according to the data of the Institute of World Economy and International Relations of RAS)




We can see the same pattern across the globe. The share of industry in the global gross domestic product has been steadily increasing since the beginning of the twentieth century except for a period of Great Depression. Nowadays, these figures are raising even faster *(fig. 7)*.

Thus, contrary to the forecasts of post-industrialists, today the world is entering not a post-industrial period but a neo-industrial phase of development.

The same pattern is observed in the agricultural sector. The figures, that proved the declining share of employment in agriculture, were produced repeatedly. However, these figures are ambiguous. The conclusion that there is a trend to cut back the share of agrarian production has come from the rigid differentiation of three economic sectors, which can be found practically nowhere in real life.

The modern manufacturing process has a multistep technological structure. Today there

Figure 4. The comparison of the U.S. and China's GDP by the branches of production, billion dollars (2005) (according to the data of the Institute of World Economy and International Relations of RAS)

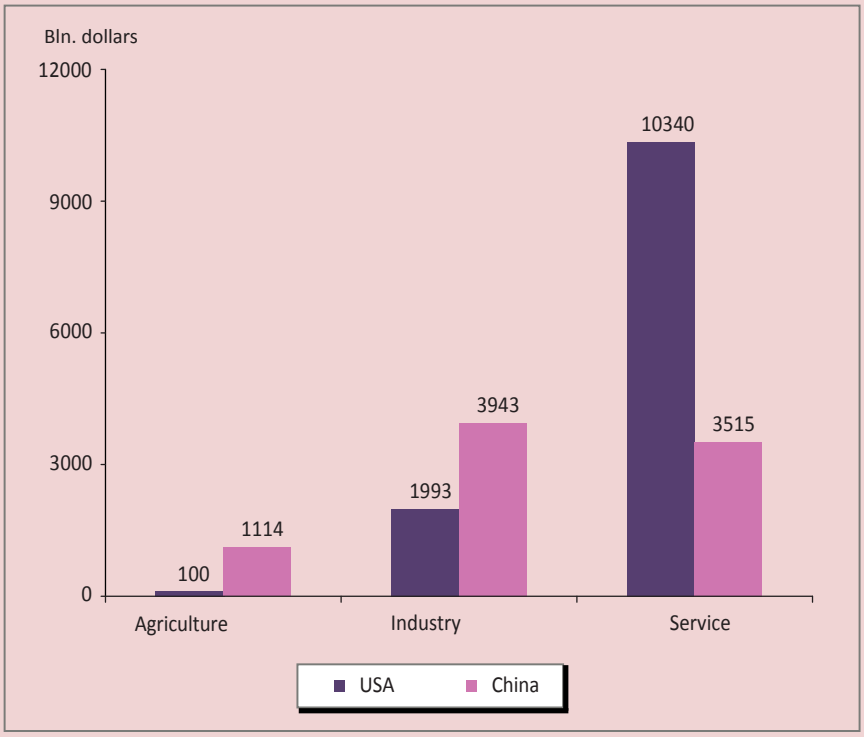



Figure 5. The share of the Western and Asian worlds in the total amount of global production (according to the data of the Institute of World Economy and International Relations of RAS)

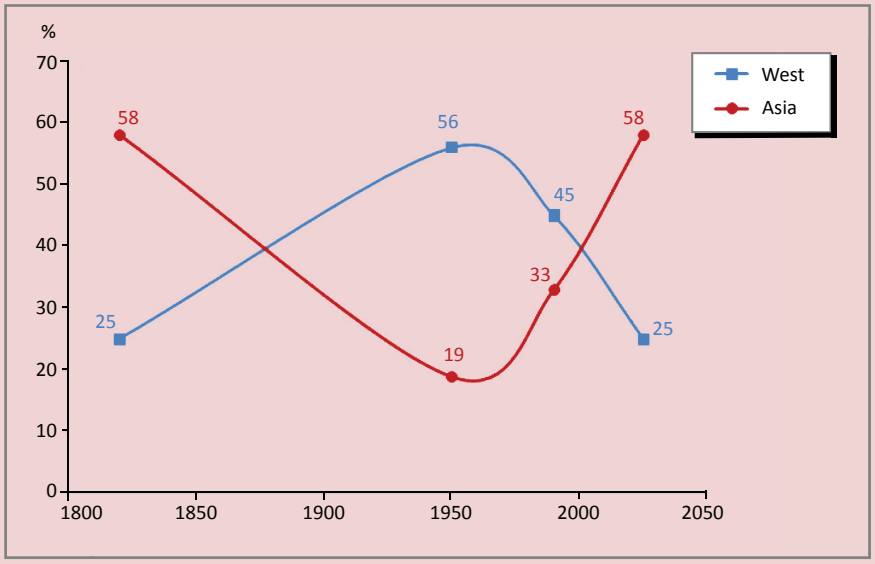


Figure 6. Industrial employment (in non-Western countries) (according to the data of the Institute of World Economy and International Relations of RAS)

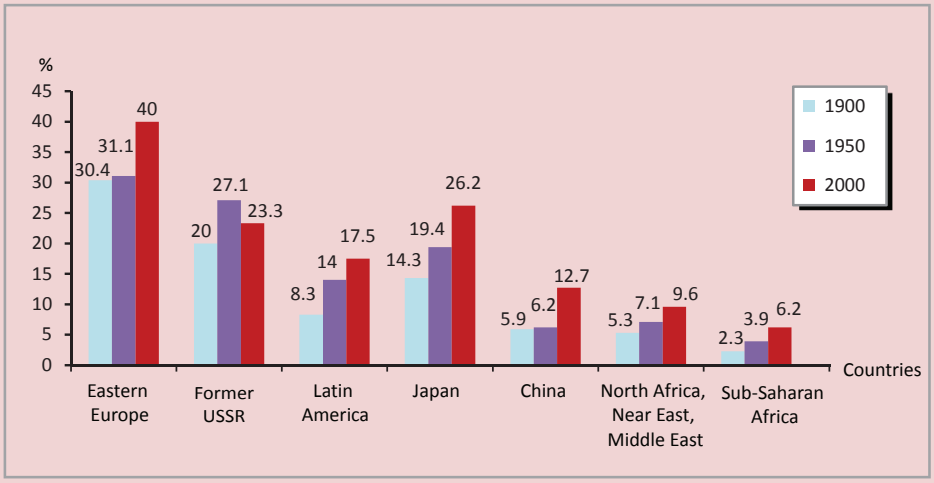
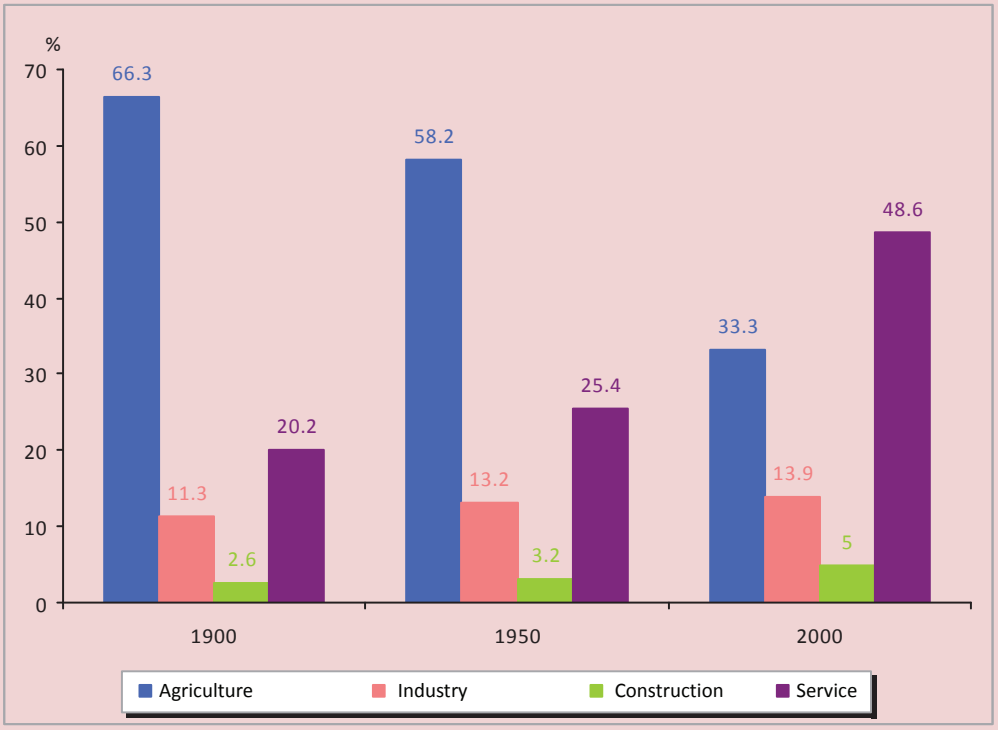


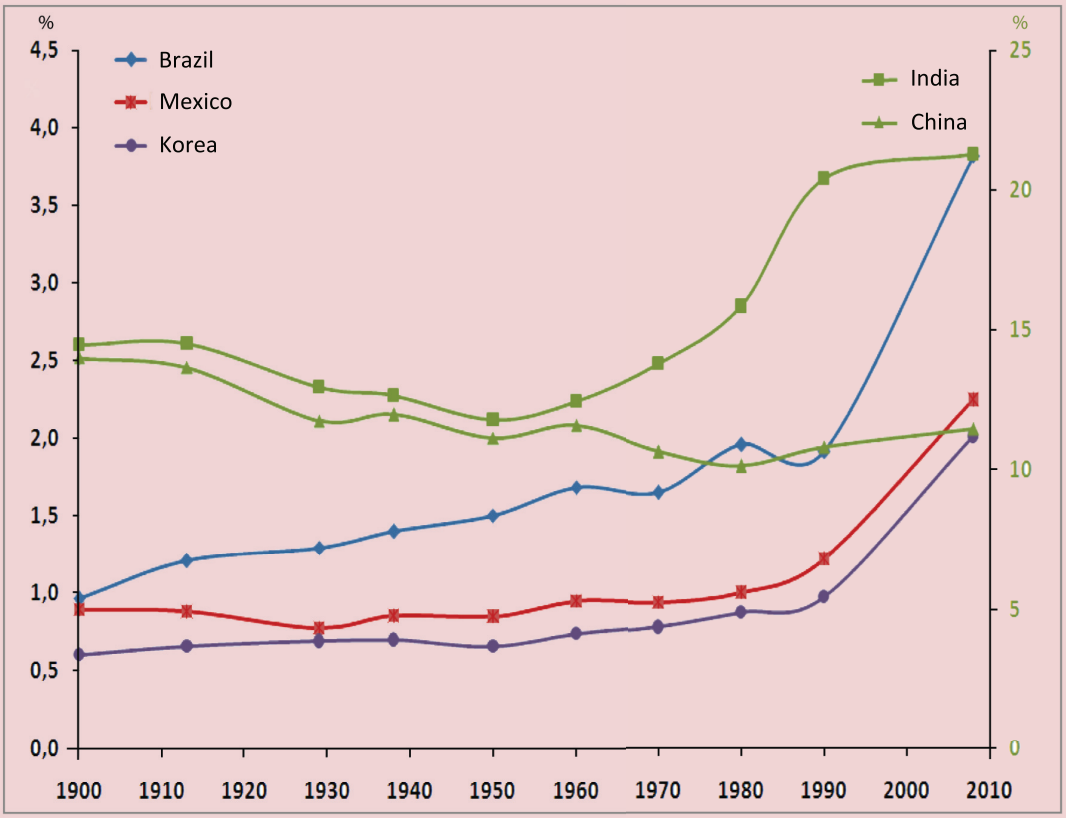

Figure 7. The dynamics of the sectoral structure of global employment (according to the data of the Institute of World Economy and International Relations of RAS)




are not so many peasants who work on the land. However, the agrarian sector is associated with a wide range of related branches. Which economic sector do they relate to, if agricultural production is a final target guide in this case? As a rule, related branches are included by modern statistics in industry or service. But is this differentiation correct?

The rapid industrial development has led the way for agriculture *(fig. 8)*. Technical equipment of Asian and Latin American rural areas has influenced positively over peasant labour productivity in the appropriate regions. The former periphery of the Third World is attacking the West, not only adapting the industrial technologies, but developing agriculture as a

Figure 8. The share of some non-Western countries in the global agricultural production (according to the data of the Institute of World Economy and International Relations of RAS)



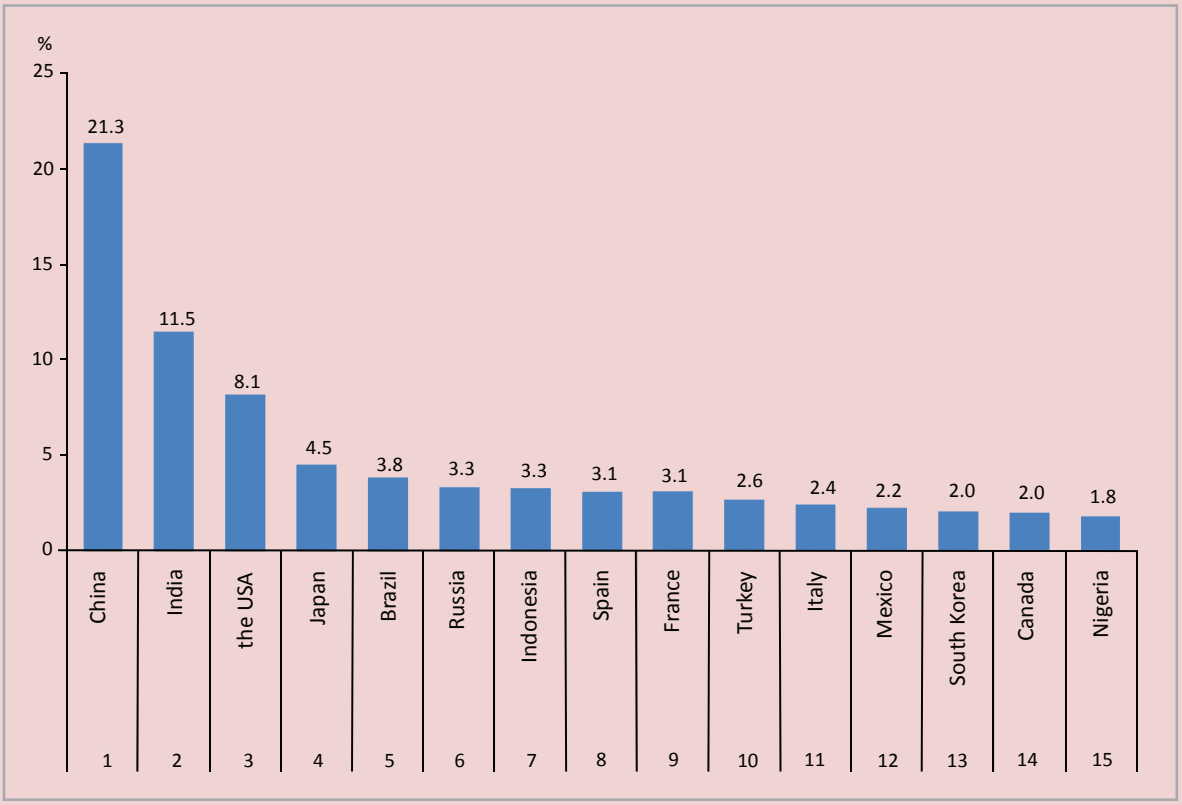

traditional sector. Western Europe was a key center of agrarian production as far back as in the 1980s.The present situation is fundamentally different – the leading positions belong to India and China *(fig. 9)*.

The development of agrarian sector includes not only its technical re-equipment, but also land development. This indicator is being increased in the world *(fig. 10)*.

It has been turned out that the basic thesis of the concept of post-industrial society on a cut back of commodity production sectors is not confirmed by its statistical verification either in time or in the geographical spaces. It is a matter of incorrect handling of actual data in the case of the industrial production and the substitution of absolute growth indicators for relative values in the agrarian production. A new geo-economic model of the global labour division, which reproduces the system of global domination in the form of the modern neo-colonialism, is issued as a trend of post-industrialism.

Thus, the wide-spread theory of post-industrialism, which aspires to have a place in world science, doesn't stand the logical and phenomenological verification. The concept of post-industrialism goes beyond the actual scientific theory. It contains a system of ideological investments used intensively in political practice both within the Western society and in the program of globalization. The Western system acting as a global core is positioned as a service center of the world. In practice the modern scheme of servicing in the financial sense is the same scheme, which was used by parent states to extract benefits from their colonies by force. Today, geopolitical "coordinates" are linked in it to a specific structure of the sectoral division of labor *(fig. 11)*.

Figure 9. The leading countries in the global agricultural production (according to the data of the Institute of World Economy and International Relations of RAS)




The present ideological design of this scheme includes intellectualized theories such as post-industrialism, or globalism.

Periphery provides the Western countries with the goods of real economic sectors. Moreover, each country included in the globalization peripheral system has its own niche in the world specialization. There are three types of such specialization:

1. "Banana republics".
2. "Raw-material republics".
3. "Assembly shop".

Due to the support of peripheral countries, the West has been able to retrain for the primary development of service sphere, which is dominated by finance.

Russia, which has been reforming the national economy over last two decades, is going to be a semi-peripheral country of the second type in the global division of labour.

The process of economical deindustrialization in Russia became collapsed in the 1990s. They were, apparently, the highest service transformation rates in the history of the global economy. Deindustrialization of the 1990s revealed itself even in some increase in the share of agricultural and forestry employment. According to formal immanent signs, post-industrialism has come to Russia and has taken a form of economic and social archaism *(fig. 12)*.

The Russians have been more engaged in trade and financial transactions, but at the same time, they produce fewer commodities in the industrial and agrarian sectors[9]. In general, the trends of the Russian development under the chosen model are practically unquestionable in

[9] La Rouche L. Physical economics. Moscow, 1997; Tukmakov D. Assimilation to God (Physical economics by La Rouche as overcoming entropy) / / www.zavtra.ru

Figure 10. The share of cultivated agricultural land in the total acres of the world, %
(according to the data of the Institute of World Economy and International Relations of RAS)

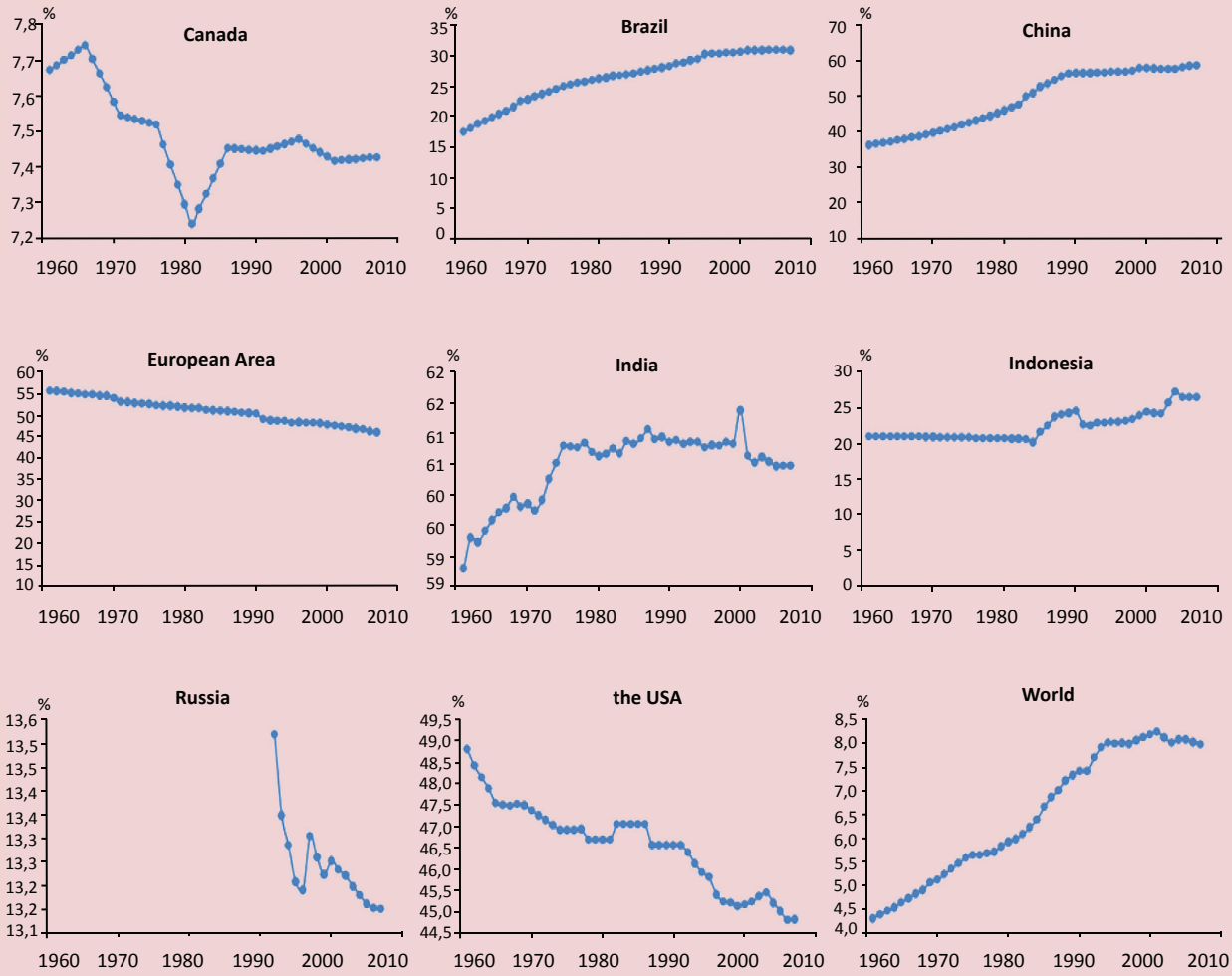



Figure 11. Modern neo-colonial model of the global division of labour

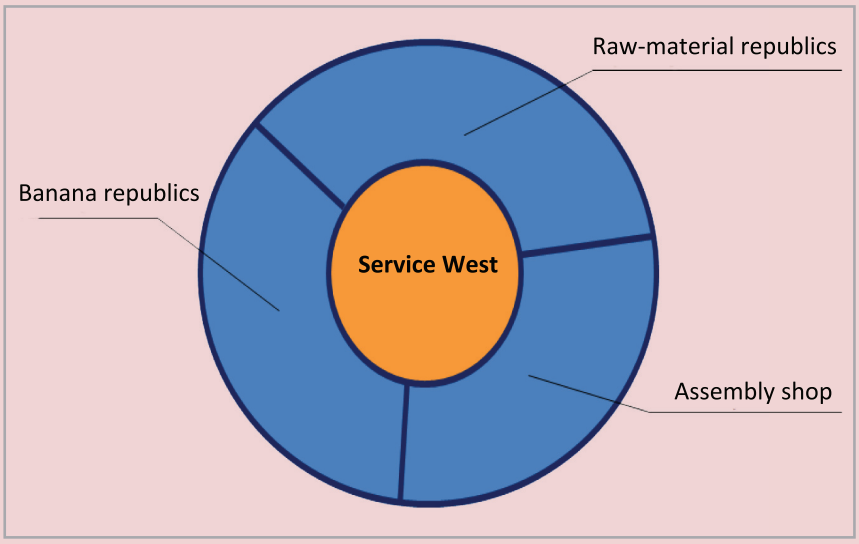
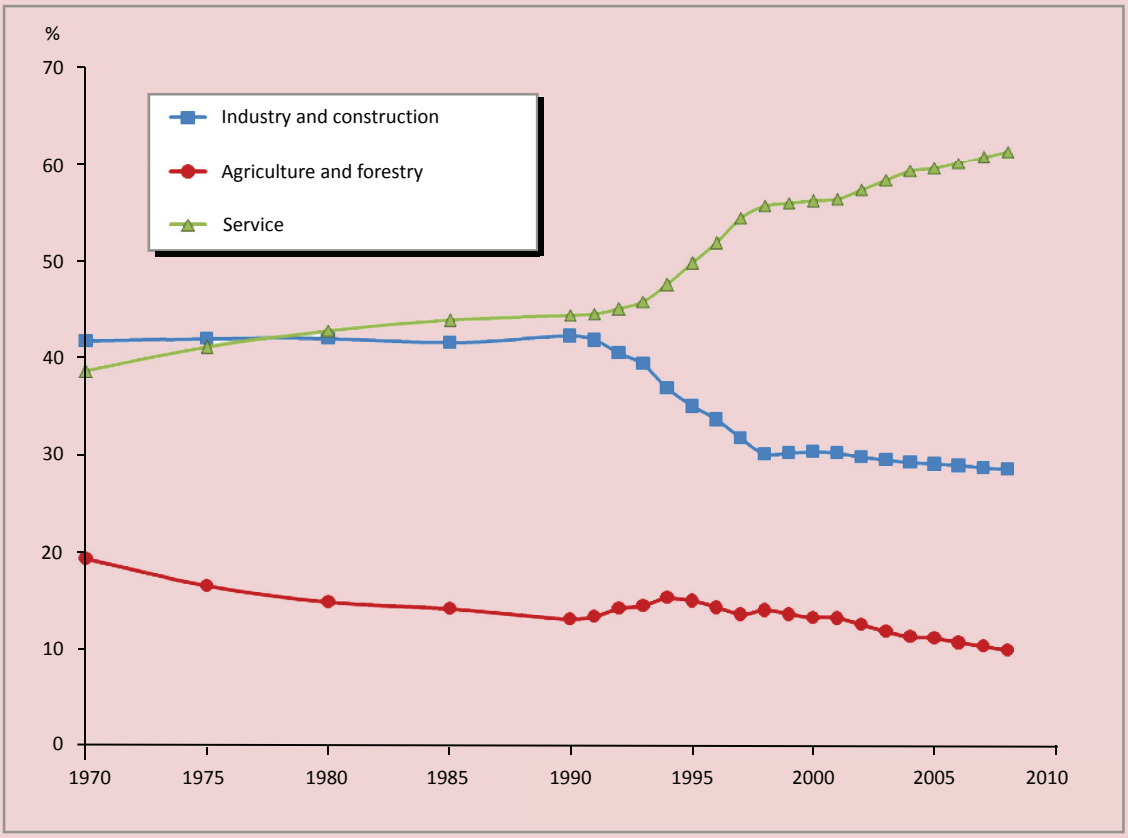


Figure 12. Average annual employment in the Russian economy (Source: Federal State Statistic Service)




the coordinates of "improvement – deterioration" over 10 years (2000 – 2010).There is a general deterioration of many economic, social and humanitarian indicators of the country. Except for the pre-crisis growth in frozen sovereign funds and foreign trade turnover, other indicators become worse at the unacceptable level that is often record-breaking.

Thus, if we put it specifically, there is neither frontal stage post-industrialism nor appropriate post-industrial society nor post-industrial transition in the strict sense of the terms.

We can talk about the only spatial and temporal dynamics of the sectoral production structure. Globally, the mechanism, described here, reproduces the spatial structure of neocolonialism, including its modern form of financial exploitation. Informational frame of this model is the theories of "the End of History", "The Clash of Civilizations", "Global Islamic Terrorism" and, finally, the theory of post-industrialism. These concepts will inevitably occur in future.

# Why is Putin?

*The following article by the Academician of RAS Sergey Glazyev was published in the newspaper "Zavtra" (№ 9, 2012) a few days before the presidential elections in Russia. In the opinion of the Editorial Board, the main advantage of the article consists in the fact that it outlines the key conditions that make it possible to realize the priority development policy in Russia. The article is a reissue of a newspaper text; it has been reprinted with the consent of the author.*

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The current presidential election campaign has put a lot of unexpected and thorny questions to the patriotic public. Many prominent figures of the patriotic forces preferred to support Vladimir Putin's candidacy for the President of Russia, although they had sharply criticized him and his close entourage previously. At the same time the claims to executive power' line on the full range of strategic issues and basic lines of policy have not changed. The commitment to the Washington Consensus in the interests of international capital is remained in the monetary and currency management; the dismantlement of social security cannot be compensated by the growth of social expenditure; the take-off in tariffs after the destruction of RAO UES cannot be stopped by the efforts of anti-monopoly services; drug addiction and alcoholism pandemic provoked by the demoralizing influence of TV cannot be stopped by the efforts of medical and security services.

Russia is remaining a financial donor and a raw materials' source for the West; oligarchs are still cashing in the exploitation of national resources. Hundreds of billions of dollars are taken out by them and invested in foreign football clubs, newspapers, palaces, while the Russian people continues to degrade, abuse alcohol and degenerate. However, most patriots have made their choice in favor of Vladimir Putin, hoping for a radical change in policy of the state under his leadership. This is motivated by highly serious circumstances.

Firstly, the international environment where Russia is situated has changed dramatically. The pressure on our country by the West, primarily the United States, has been increased sharply. It includes squeezing us out of the former Soviet Union, the provocation of Georgian aggression, growing anti-Russian regimes, especially in Ukraine, inspiring "counterrevolutions" in the Middle East and the preparation

for the wars against Iran and Syria, and then the time has come to wage a war against the Caucasus.

Secondly, Putin has made some important steps towards the consolidation of the Russian positions in the former Soviet Union. So, the Customs Union and the Eurasian Economic Community between Belarus, Kazakhstan, and Russia have been established; the multilateral CIS free trade agreement has been signed.

Thirdly, Vladimir Putin has managed to suppress most separatist tendencies in various areas of our vast country, and first in the North Caucasus. It is also important that he hasn't succumbed to the provocative pressure of American leadership and their influential agents in Russia who tried to prevent from his return to the presidential position.

Fourthly, Vladimir Putin has implemented a number of fundamental requirements of national-patriotic forces: today most of the resource rent is withdrawn by the recovery of export duties and tax on mining. So, a half of federal budget revenue is formed owing to them.

Fifthly, Putin has set a course for the modernization and diversification of our economy, its transition to the innovative way of development. Though, there are more statements on this subject and less real actions than desired, such necessary conditions for its implementation as developmental institutions, tax incentives, state corporations have been established; the allocations for research funding and support to innovation and investment activity have been increased. There are encouraging results of the commercially successful distribution of new Russian technologies in the global market – from computer games to electron microscopes.

Sixthly, Vladimir Putin delivered our country from debt bondage that had allowed Washington international organizations to impose upon our country the self-destructive policy of binding ruble emission to dollar-buying, which is very profitable for the U.S. Following the policy of the Washington Consensus turned the Russian economy into a resource colony of Europe and a financial donor country of the U.S. and deprived our country of the self-development opportunity.

Although some of its followers continue to lead the key economic departments, Putin has headed to the restoration of economic sovereignty of the country and creation of the conditions for its self-development. It was clearly seen in the anti-crisis policy of the Government, when the monetary authorities have moved away from binding ruble emission to dollar-buying, as well as in his decisions to establish developmental institutions and state corporations and a number of measures to stimulate investment and innovation activity.

Seventhly, we must recognize the certain objective results of the socio-economic development over the past decade: the GDP growth by 52%, increase in birth rate by 36%, increase of life expectancy by 3.3 years, decrease of poverty rate by more than a half, real wages growth by 2.4 times, increase in the population's income by 2.2 times and other positive signs of recovery after the previous crisis decade.

There is no doubt that advanced market-determined prices for the raw materials exported from Russia played a significant role in achieving of these results, and not all the possibilities to use petrodollars for economic development were implemented. But if Vladimir Putin didn't take the measures to centralize most of these revenues and restore state control over the oil and gas industry, then there would be no growth of budget revenues and the funds to finance national projects and increase salaries and pensions. These profits would be deposited on the offshore accounts of the oligarchs, as well as their privatization incomes in the 90s.

The above-mentioned positive changes in government policy are still very unstable. In order to ensure a strong upward flow of socio-economic development, the Government has to re-learn the tools of the appropriate policy that had been lost over two decades of the Washington Consensus.

The first of them is an independent monetary policy based on the needs of economic growth. Binding ruble emission to the increase in foreign exchange reserves has deprived the state of the ability to manage the economic development.

Emitting rubles just for the euro and dollar-buying, the Bank of Russia automatically sends the economy into the mainstream of external demand service and dooms it to be a resource colony and a financial donor of the neighboring countries. The second tool is a currency exchange regulation, protecting the financial system of the country from the destructive attacks of currency speculators and allowing them to increase internal sources of credit. Its removal made it possible for oligarchs to export capital illegally and keep back their incomes from taxation abroad. The third tool is an income levelling tax policy. Having rejected the progressive scale of income tax, inheritance taxes and gift taxes, the Government followed the oligarchs and corrupt officials' lead and exempted them from the tax burden of over-income legalization including illegal profits.

Vladimir Putin will have to master these well-known policy tools of the modern state. Otherwise, he will not be able to solve his own program objectives of economic modernization and transfer it to an innovative path of development; he won't be able to provide business with long-term loans, ensure the growth in labor productivity, support economic and creative activity of the population, reduce a poverty rate and social inequality, as well as he will not be able to improve the competitiveness of the national economy.

We must support the weak sprouts of positive changes in the government policy that has begun to reflect the national interests after two decades of the self-destructive policies. These sprouts have come up just over recent years, largely thanks to a new understanding of the main domestic and foreign policy trends by Putin.

Against the backdrop of internal alignment of forces only he can more rapidly and efficiently than other candidates defeat the prevalence of the comprador oligarchs in the economy, decomposing vulgarity in the culture and corrosive corruption in the government, inbreed healthy bases in our ailing public body. Putin can do this not because he is a prophet but because of a simple fact that only he can restrain the furies of oligarchic business, corrupt officials vampires, a gang of werewolves wearing police epaulets, TV nightmares and other evil spirit bred in abundance on the rotting remains of the Soviet empire. They are the products of the post-Soviet power, so they should be eliminated by it with the purpose of self-preservation. Otherwise, they will either gorge the power and statehood remnants, or they will be destroyed by the revolutionary fire. Both results will be catastrophic for Russia. The true Russian patriots must fight against them.

Now many experts are talking about the acute phase of the crisis and the recovery of economic stability. In fact, the global financial market continues to be in the turbulent state, and the world economy is in the deep depression. The historical experience of overcoming depression is not encouraging. The previous depression of a such type in the mid-70s – early 80s was overcome by the escalation of military expenditure on the "Star Wars", and the arms race deployed in the space weakened the economy of the USSR that was the primary cause of its subsequent collapse.

The Great Depression of the 30s wasn't less disastrous; the European countries had to use militarization and the Nazi regimes to overcome the Depression that resulted, ultimately, in World War II. The previous historical cataclysms of World War I and ensuing collapse of the Russian Empire were largely associated with the surges of socio-political system owing to fundamental structural changes in the economy.

Global economic crises similar to the current one cycle each half-century; they are accompanied by the dramatic changes not only in manufacturing but also in the social structure, management technologies, and in the political system. At the same time, the structures of the major economic sectors and a number of the countries, leading in the world politics, are changing. Three previous recoveries from recession were achieved by the Western countries at the expense of Russia, so this historical fact is giving rise to acute anxiety. Having provoked World War I and undermined the Russian Empire at the beginning of the previous century, Great Britain cashed in on the collapse of Russia including its gold reserve appropriated by the UK together with the U.S. and Japan. These reserves allowed Great Britain to extend the era of its world domination until World War II. It is known that this war was also provoked by Great Britain, France and the United States, based on Hitler's campaign against the Soviet Union. These countries tried to use the world war as the means of solving their economic problems and keeping the world hegemony due to the enormous sacrifices of our country. The U.S. unleashed the "Star Wars" and used the arms race in outer space to weaken the Soviet Union at the end of the last century. The collapse of the USSR brought them more than two trillion dollars of revenues from the export of raw materials, capital flight and brain drain from the former Soviet republics gripped by chaos. Western countries were able to pass the last "Great Depression" in the 1970 – 1980s relatively painlessly due to that support.

The studies of long-wave conditions have revealed the connection between structural crises of the economy and socio-political changes. The economic depression, mediating the changes in technological structures, influences over the growth of social and political tensions that lead to institutional changes, which are necessary for the arrangements of conditions to start new technologies and modernize the economy based on them. These changes are associated with increased state influence that is necessary to concentrate resources in the priority growth areas of a new technological structure. Until now, this enhancement was accompanied by the increase in military expenditure, economy militarization and formation of authoritarian political regimes. It is this process that is being witnessed today in North Africa and the Near and Middle East.

Under the deepening economic depression and growing geopolitical instability in the U.S., the core countries of the global financial system are trying to retain their domination based on the monopoly of the emission of world currencies. They are forced to sharply increase currency emission and strengthen the financial expansion to throw down their financial strains to the rest of the world. This policy is aimed at the exchange of blowing financial pyramids for the real assets of the developing countries. For this purpose the developing countries are persuaded and forced to keep the economies open to ensure the free movement of international capital including mostly American, European and Japanese capital. Thus, the core countries pull together periphery's resources in order to ensure their own development and export emissions in exchange for real assets, goods, intelligent persons.

The escalation of international tensions by the core countries of the global financial system will be objectively strengthened in order to retain their domination and the system of unequal economic exchange in favor of world currency issuers. And there is no doubt that our country will be the main focus of this escalation not only because of such facts over three previous global crises. Objectively, Russian natural resources and undercapitalized territories are attractive loot for the U.S. corporations that can allow them to stand for the global crisis and to finance the structural modernization of the economy of the NATO Member Countries.

These countries are preparing to the power protection of this expansion; they have conducted a training action against Russia in Georgia and continue to increase the number of missile defense systems near the western borders of our country.

This dangerous situation demands the consolidation of all creative forces, and, therefore, many leaders of the patriotic opposition have decided to support Putin in the election. But this support cannot be unconditional. The speeches on Poklonnaya Hill were the mandates given by voters to their candidate, but not the outpouring of their loyalty. It is just the right time to clarify the conditions of this support, whose implementation could be demanded by the patriotic public after the election.

The current knowledge about the mechanisms of global structural changes provides some deep-rooted causes to develop forecasts for the further global crisis deployment and developmental scenarios for our country that depend on the state measures. These crises are caused by the changes in the technological structures that dominate in the advanced economies and Kondratiev long waves of economic conditions relevant to them.

During the periods of such global crises the developing countries have a window of opportunity to perform an economic miracle – a leap in the development due to a new advanced technological structure and gaining of the technological (intellectual) rent based on this structure. On the one hand, under the scientifically substantiated policy Russia has a real chance to ride on the crest of a new long wave of economic growth and to reach the level of the world leaders in the shortest time. On the other hand, there are real threats for our country to get stuck in the periphery of the global commodity market forever and to lose finally the capacity for self-development. The choice between these alternatives of our country's future will have been done over the next three years.

The recovery from economic depression will occur during the formation of a new technological structure, whose core consists of the clusters of nano, bio, information and communication technologies. The growth rate of this core amounts to about 35% per year in the advanced countries; today it accounts for several percent of GDP. It will cumulate the critical mass enough to boost the economy in 3 – 5 years; it will attract the capital remained after the collapse of financial bubbles, and it will be able to play the role of a locomotive to pull up the economy on a new long wave of growth. The first countries that can straddle this wave will rush forward increasing competitive advantages, as well as economic, financial, military and political power. The countries, which are late, will have to finance their development by the deliveries of raw materials, capital and cheap-labour products. In order to avoid the position of doomed countries it is necessary for Russia to go over to a new economic policy, the outlines of which are designated in one of the policy articles of Vladimir Putin.

It's necessary to specify that the minimum program is given by Putin in the article about the new economy. The implementation of it will allow Russia to stay afloat during the regular restructuring of the global economy in connection with the transition to a new long wave of economic growth. But in order to straddle this wave, rush forward and join back the leaders of the global socio-economic development, it is necessary to go over to the priority development policy, the main components of which include: a dramatic increase of investment and innovative activity, resource concentration on the priority forming aspects of a new technological structure, strategic planning of modernization and the economic development on its basis, the establishment of long-term crediting mechanisms for economic development, a favorable environment for creative businesses. The implementation of the policy requires the state to mobilize all sources of investment and innovative activity growth.

Under these circumstances, the developmental policy cannot be half-hearted or ambiguous, as it has been until now. For example, it will not be possible to increase the capacity of developmental institutions and, at the same time, to put up with the illegal export of capital. We can't increase the accumulation rates and allow bankers to get rich on the currency speculations against the ruble.

Finally, it's impossible to realize the goal of priority development in the corrupt state. This implies the need for the rapid and definitive choice between the interests of our country and the interests of comprador oligarchs. So, we put a question point-blank – who will win? Vladimir Putin goes to the presidential election, indicating his clear choice for the benefit of the country based on the fundamental values of our national political culture, including social justice and community interests. That's how we interpret his slogan of support at the meeting in Luzhniki and the general ideology of his policy articles. And the duty of all patriots is to help making this choice. We won't be able to discharge our duty if we don't support him in the election and don't help him to bear the state government burden.

The implementation of the priority development policy requires the qualitative increase in efficiency of public administration, the mechanisms of rigid state officials' responsibility for the achievement of planned results, de-offshore economy, the introduction of the real exchange controls, the multiple increase in power capacity of developmental institutions and the state apparatus and state-owned corporations cleansing from corruption.

Vladimir Putin will be able to do this relying on a coalition of the patriotic forces interested in the priority development policy, which are represented by the vast majority of the Russian society and its productive elite, on Russian science, the engineering and technical intellectuals, the representatives of the national culture and our spiritual traditions and moral values. It is precisely this fact that explains the sense of the social contract proposed by us, which can't be refused without the main part of the electorate loss. On our side, it will be done – we encourage constructive creative patriotic forces not only to support Putin's election, but struggle for a new priority development course based on inner forces, which is necessary for Russia.

The alternative to this course is the final colonization of the Russian economy and the loss of its ability of self-development. At the same time, there will be no intermediate scenarios – to put it in mathematical language, Russia is going to pass one more bifurcation point in its history, after which the system will acquire new properties and a new life or it will be lost. The results of this process is determined by the combination of circumstances, the chief one among which is a national leader concentra-ting political will and knowledge necessary for the further development of the country. We can doubt Vladimir Putin's ability to fulfill this mission. But it's doubtless that there is no person apart from him at this phase of our history to implement it. The current environmental conditions don't leave us the time to wait for another leader. And our duty is to help him to accomplish this feat by uniting and inspiring all the creative forces of our people.

UDC 338.27(470.21)


# The priorities of the public policy in the northern regions

*The article deals with the current economic trends in the Russian North. It shows the stabilizing role of economic systems of northern regions in the national economy and shortcomings of the state regulation of activities under the specific nature-climatic conditions. The necessity and directions of making changes and additions in the tax and budget legislation as well as in the normative acts on state guarantees for the persons working and living in regions of the Far North are substantiated.*

*Economy, analysis, region, development, investments, wages, incomes, taxes, budget system, laws.*

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Back lands and less-developed areas, occupying ¾ of the Russian territory, become slowly adjusted to new economic conditions. Having comparatively high investment attractiveness due to their resource potential, they have significantly lower rates of economic modernization. These regions have lost a significant part of reproduction, especially of human capital, over the years of reforms.

More than two million people have left the northern territories of Russia over the last twenty years, i.e. nearly 20% of the total population in 1990. It may be noted that there is an opposite trend in the foreign North: the population of Alaska has increased by almost 30% over the same period, and its economic center Anchorage has caught up with Murmansk in the population size, although it had only a half of Murmansk population in 1990.

Migration outflow intensity has decreased a little bit in recent years, but it is still substantial, especially against the background of the surplus in the Russian Federation. In this case, as it is shown in *table 1,* the outflow from the European North is the double of the outflow from the Asian North. This situation can be explained by a number of reasons, the main of which include the implementation of a series of large investment projects in Siberia and the Russian Far East, as well as a strong influence of the reduction in the armed forces and the defense industry transformation in the European area.

The state policy in the sphere of wages, or rather a lack of it, is an important factor in this situation. Regional coefficients and bonuses for service in the North that compensated, on the one hand, the increased cost of life activity and, on the other hand, formed differed demand (including the possibility to move on coming of the retirement age) lost their importance in the economic sphere back in the 1990s. Since employers carry out the tariff policy by themselves, the coefficients and bonuses have turned into a "backward" quantity that inverts an average wage into a tariff. For example, the average wage of an electrician fitter is 18 thousand rubles (tariff is 14 thousand rubles) in the chemical plant Akron (the Novgorod Oblast), and it is 20 thousand rubles (tariff is 7thousand rubles) in the mining and chemical plant "Apatity". The monopsony market distorting the real cost of labour resources is being formed under the conditions of a low possibility to overflow labour force in many specific mining specialties.

For example, an average wage was 1.8 times higher in 1995 in the Murmansk Oblast (coefficient is 1.4 and maximum bonus for service in the North is 1.8) than the wages in the Russian Federation. Table 1 shows that the ratio amounted to only 1.4 in 2007, and it was 1.35 in 2010.Essentially, all the bonuses for service in the North were "cleaned out".

The development of northern territories, which is sustainable in theory, can and should be secured by at least two groups of factors. Firstly, it is a redistribution of rent payments, which would provide the people, who live and work in the extreme conditions, with a decent standard of living. Secondly, it is a diversification and innovative restructuring of the economy, which would increase the competitiveness of economic systems in the foreseeable future.

Based on the modern methodological and conceptual notions, achieved during the study of a sustainable development phenomenon, it

Table 1. Indicators of social and economic position of the northern Federal subjects of Russia [1]

| Federal subjects of Russia | Average monthly wage, thsd. rub. | | | | Migration of population, thsd. persons | | | |
|---|---|---|---|---|---|---|---|---|
| | 2007 | 2008 | 2009 | 2010 | 2007 | 2008 | 2009 | 2010 |
| Russian Federation | 13.5 | 17.2 | 18.8 | 21.2 | 239.9 | 242.1 | 247.4 | 158.1 |
| **Northern regions** | **24.6** | **29.0** | **32.4** | **35.7** | -20.8 | -40.8 | -28.5 | -39.1 |
| Republic of Karelia | 13.3 | 16.7 | 18.3 | 19.9 | 1.2 | 0.3 | -0.6 | -1.0 |
| Republic of Komi | 7.1 | 20.6 | 23.1 | 25.7 | -5.7 | -9.1 | -7.1 | -8.6 |
| Republic of Sakha (Yakutia) | 19.5 | 23.8 | 26.6 | 28.6 | -5.5 | -7.4 | -7.0 | -7.1 |
| Arkhangelsk Oblast | 14.5 | 18.0 | 20.0 | 22.2 | -4.6 | -6.5 | -5.1 | -8.0 |
| Kamchatka Krai | 21.9 | 27.1 | 31.7 | 36.5 | -1.5 | -2.2 | -1.3 | -0.5 |
| Magadan Oblast | 23.3 | 30.0 | 33.0 | 37.6 | -2.3 | -2.4 | -1.5 | -1.9 |
| Murmansk Oblast | 18.9 | 23.2 | 26.5 | 28.9 | -4.9 | -7.4 | -4.8 | -6.7 |
| Sakhalin Oblast | 23.1 | 30.4 | 33.3 | 35.8 | -1.4 | -2.9 | -2.5 | -3.1 |
| Nenets Autonomous Okrug | 34.4 | 41.5 | 44.3 | 47.3 | -0.1 | -0.2 | 0.1 | -0.1 |
| Khanty-Mansi Autonomous Okrug | 32.3 | 37.2 | 39.1 | 41.5 | 4.9 | 1.7 | 4.8 | 3.7 |
| Chukotka Autonomous Okrug | 31.5 | 38.8 | 42.9 | 47.4 | -0.4 | -0.9 | -1.0 | -0.9 |
| Yamalo-Nenets Autonomous Okrug | 37.4 | 43.6 | 46.9 | 52.6 | -0.6 | -4.0 | -2.4 | -5.0 |

is possible to formulate three criteria for sustainable development of the economic system:

- increase in the economic efficiency of operation;
- improvement of the population's life quality;
- balance security in the natural environment that implies the maximum reduction of damage to critical natural capital, the prevention of irreversible processes, limited consumption of renewable natural resources insuring their sustainability, substitution cost estimating and calculation.

The characteristics of sustainable development must involve all three spheres (economic, social and environmental) and include the following indicators: the assessment of the territory's natural resource potential; the amount of budget revenues due to the development of natural resource potential; the number of jobs created; the level of socio-economic stability; the level of natural resource management in the region; the technogenic burden on the environment; the value of environmental damage. Financial sphere is a key sector of the market economy (or the quasi-market economy). It is characterized by extremely high mobility, instability and vulnerability to speculative influences. At the same time, the real production centers and financial centers don't often coincide geographically, particularly in the natural-resource economies.

It may be noted that the regions of the North have heterogeneous natural resources and developmental levels. But other native zones are characterized by the same features. However, the northern territories have such a characteristic feature as severe natural and climatic conditions that determine the increased cost of their development, which can be ensured only through the resource rent in the market economy, of course, except non-economic relations, for example, when the state finances the development pursuing its political or defence objectives. However, they are intertwined closely in real life.

The spatial distribution of the northern and Arctic regions of Russia in the current classification of industries is rather conventional. However, the total share of mining (raw-material) regions is 82.1% of industrial production, manufacturing regions produce 12% of industrial output, and the share of the third group of regions is 2.3% *(tab. 2)*.

Despite the above-mentioned negative trends in migration and wages, the northern regions represent a fairly workable economic system. In any case, it has showed the better performances in the real sector than the national industrial production. As it can be seen from *table 3*, during the period from 2007 till 2010 most regions were demonstrating the growth rates, which exceeded the average growth in the Russian Federation.

In this case there is an important fact that the resource industries have comparatively high prices for basic resources including hydrocarbons, concentrate significant financial resources, and they can be the customers of innovative products in the domestic market acting as a kind of "locomotive" for process equipment producers.

Characteristically, industrial production index of all northern regions was better during the crisis of 2009 than the national economy index. Five regions (the Arkhangelsk Oblast, the Magadan Oblast, the Sakhalin Oblast, the Nenets Autonomous Okrug, the Chukotka Autonomous Okrug) have shown the increased indices, and the growth rate in the last three regions was rather significant. Nevertheless, it is considered in the economics that raw material markets are more "capricious", i.e. they can have swings of demand and supply and, consequently, the changes in pricing environment.

This situation can be considered relatively new even in the theoretical aspect because of the peculiarities of the latter global financial crisis (its impact on the real sector was less, but the influence over the financial sector was more

Table 2. Specialization of the northern regions in the volume of shipped goods and own services in 2008, %

| Regions | Mining operations | Manufacturing activities | Production and distribution of electric power, gas and water |
|---|---|---|---|
| Total | 79.3 | 13.4 | 7.2 |
| *Raw-material regions* | | | |
| Republic of Komi | 52.8 | 36.9 | 10.1 |
| Republic of Sakha (Yakutia) | 76.2 | 8.4 | 15.3 |
| Magadan Oblast | 62.9 | 11.5 | 25.5 |
| Murmansk Oblast | 42.6 | 36.0 | 21.3 |
| Sakhalin Oblast | 88.1 | 7.6 | 4.2 |
| Nenets Autonomous Okrug | 98.3 | 0.6 | 1.0 |
| Khanty-Mansi Autonomous Okrug | 87.7 | 7.1 | 5.0 |
| Chukotka Autonomous Okrug | 84.4 | 2.0 | 13.5 |
| Yamalo-Nenets Autonomous Okrug | 88.5 | 7.2 | 4.2 |
| *Manufacturing regions* | | | |
| Arkhangelsk Oblast | 1.7 | 79.7 | 18.5 |
| Republic of Karelia | 32.0 | 55.2 | 12.7 |
| *Regions with a leading sector of electricity, gas and water production* | | | |
| Kamchatka Oblast | 16.0 | 39.4 | 44.5 |

Table 3. Industrial production indices in the Russian North regions [1]

| Federal subjects of Russia | In % to the previous year | | | | 2010 to 2006, % |
|---|---|---|---|---|---|
| | 2007 | 2008 | 2009 | 2010 | |
| Russian Federation | 106.3 | 102.1 | 89.2 | 108.2 | 104.7 |
| **Northern regions** | | | | | |
| Republic of Karelia | 116.8 | 100.0 | 90.1 | 110.6 | 116.4 |
| Republicof Komi | 103.1 | 103.0 | 98.6 | 100.3 | 105.0 |
| Republic of Sakha (Yakutia) | 100.3 | 104.3 | 91.3 | 117.5 | 112.2 |
| Arkhangelsk Oblast | 109.0 | 108.7 | 103.8 | 102.3 | 125.8 |
| Kamchatka Krai | 102.0 | 105.0 | 92.5 | 105.0 | 104.0 |
| Magadan Oblast | 84.9 | 102.4 | 105.9 | 103.8 | 95.6 |
| Murmansk Oblast | 98.2 | 97.3 | 93.6 | 104.0 | 93.2 |
| Sakhalin Oblast | 210.0 | 87.0 | 121.9 | 101.2 | 223.7 |
| Nenets Autonomous Okrug | 103.7 | 104.1 | 130.8 | 96.2 | 135.8 |
| Khanty–Mansi Autonomous Okrug | 102.8 | 101.2 | 98.6 | 101.8 | 104.4 |
| Chukotka Autonomous Okrug | 94.0 | 107.6 | 138.1 | 93.8 | 130.9 |
| Yamalo-Nenets Autonomous Okrug | 95.2 | 98.1 | 90.8 | 107.3 | 92.0 |

significant) and the special position of the raw material sector in the economy, due to:

✓ strong domestic demand for energy supply (severe climate requires greater electricity consumption);

✓ long-term export contracts with stable prices that won't swing in the medium term;

✓ relatively high investment attractiveness of the northern sectors and regions.

Although, *table 4* shows that the share of northern investment isn't so high; in any case, it is not a predominant one.

Thus, their share in fixed capital investment is ranging from 15.5% to 18.9%, and the share in foreign investment hasn't exceeded 12.7%. If we take into account the increased capital intensity of the raw material branches and the fact that the northern regions produce about 17% of GDP, then the situation cannot be regarded even as satisfactory [2].Oil and gas corporations strongly constrain the investment in prospecting works. Due to this fact most mineral reserves have been halved over the last 20 years.

It should be noted that the geography of capital investments is extremely uneven: more than a half of fixed capital investment is a share of the Khanty-Mansi Autonomous Okrug and the Yamalo-Nenets Autonomous Okrug. The Sakhalin Oblast has the same share in foreign investment. At the same time, the current hypothesis on the dominant role of the latter is groundless. In general, domestic investments in the North exceed them by 3 – 5 times; they are ten times higher in some regions (the Murmansk Oblast, the Magadan Oblast, the Yamalo-Nenets Autonomous Okrug and the Khanty–Mansi Autonomous Okrug).

As for the types of industrial activities, it's impossible to point out one type that proves itself to be identical during the crisis in all the northern regions of the Russian Federation.

*Table 5* proves that the crisis of 2009 showed it self not only in manufacturing but in the certain types of industrial activity in different ways in all regions. Characteristically, even manufacturing activity was highly stable in the raw material regions of the North. The production index in this type of activity amounted to 82.9% in the North-West Federal District in total (the average index of the Russian Federation is 84%), but it was significantly higher

Table 4. Investment in the social and economic development of the Federal subjects of Russia [1]

| Federal subjects of Russia | Investment in fixed capital, bln. rub. | | | | Foreign investment, bln. dollars | | | |
|---|---|---|---|---|---|---|---|---|
| | 2007 | 2008 | 2009 | 2010 | 2007 | 2008 | 2009 | 2010 |
| Russian Federation | 6626.8 | 8764.9 | 7930.2 | 9151.4 | 120941 | 103769 | 81927 | 11474.6 |
| **Northern regions** | **1147.1** | **1501.2** | **1501.9** | **1420.2** | 8201.4 | 12705.7 | 10370.0 | 10613.6 |
| Republic of Karelia | 18.6 | 22.8 | 18.7 | 22.3 | 157.5 | 110.5 | 238.7 | 89.0 |
| Republic of Komi | 62.3 | 82.1 | 108.4 | 102.6 | 389.4 | 931.6 | 904.0 | 682.7 |
| Republic of Sakha (Yakutia) | 124.0 | 154.2 | 351.2 | 117.2 | 832.1 | 666.1 | 1117.7 | 1336.7 |
| Arkhangelsk Oblast | 121.7 | 131.5 | 66.0 | 78.6 | 990.0 | 1562.6 | 589.3 | 722.8 |
| including Nenets Autonomous Okrug | 88.6 | 75.8 | 34.4 | 38.5 | 795.6 | 1360.6 | 483.3 | 537.1 |
| Kamchatka Krai | 8.5 | 15.9 | 17.6 | 29.4 | 37.9 | 200.0 | 54.4 | 33.4 |
| Magadan Oblast | 7.6 | 12.0 | 12.2 | 13.6 | 14.3 | 5.0 | 4.8 | 0.3 |
| Murmansk Oblast | 25.9 | 45.6 | 41.3 | 35.0 | 62.5 | 55.0 | 62.3 | 99.5 |
| Sakhalin Oblast | 125.9 | 150.4 | 106.7 | 130.9 | 4963.8 | 6203.9 | 5768.7 | 4984.5 |
| Khanty–Mansi Autonomous Okrug | 377.8 | 477.7 | 426.9 | 498.5 | 152.7 | 294.0 | 105.4 | 1915.1 |
| Chukotka Autonomous Okrug | 5.3 | 8.8 | 13.2 | 4.4 | 211.1 | 403.0 | 468.8 | 25.5 |
| Yamalo-Nenets Autonomous Okrug | 269.5 | 400.2 | 339.7 | 387.7 | 390.0 | 913.6 | 1055.9 | 724.1 |
| The share of northern regions in the RF investment, % | 17.3 | 17.2 | 18.9 | 15.5 | 6.8 | 12.2 | 12.7 | 9.2 |

Table 5. Industrial production indices in 2009 (in % to the previous year) [1]

| | Industrial production index in 2009 | Industrial production indexes of the types of economic activities | | |
|---|---|---|---|---|
| | | Mining operations | Manufacturing activities | Production of electric power |
| **Russian Federation** | 89.2 | 98.8 | 84.0 | 85.2 |
| **North-West Federal District** | 88.6 | 103.4 | 82.9 | 100.4 |
| Republic of Karelia | 90.1 | 88.4 | 88.2 | 96.4 |
| Republic of Komi | 98.6 | 98.7 | 98.0 | 99.1 |
| Arkhangelsk Oblast | 103.8 | 130.6 | 86.5 | 98.7 |
| Murmansk Oblast | 93.6 | 96.4 | 90.4 | 96.2 |
| **Far Eastern Federal District** | 103.5 | 107.9 | 99.1 | 97.3 |
| Republic of Sakha (Yakutia) | 91.3 | 91.4 | 85.0 | 91.8 |
| Magadan Oblast | 105.9 | 104.9 | 121.6 | 100.7 |
| Sakhalin Oblast | 121.9 | 120.6 | 136.8 | 104.4 |
| Chukotka Autonomous Okrug | 138.1 | 139.4 | 120.9 | 98.0 |

in all the regions of the European North, and the index was kept at the level of 2008 in the Republic of Komi.

The dynamics of extractive industries shows that there is a maximum decline in the Republic of Karelia due to a sharp recession in demand for wood products, primarily for prefabricated houses. The crisis in the steel industry began before: there was a recession in demand in the Murmansk and Vologda Oblasts as far back as in 2008. It is also possible to point out the high stability of the energy sector not only in the European North but in the Asian North.

In general, all the northern regions of the Far Eastern Federal District, with the exception of the Republic of Sakha (Yakutia),showed high performance. The notable region was the Chukotka Autonomous Okrug, which was in the favorable position due to the instability of world currencies in the conditions of rapid growth in gold prices. The Sakhalin Oblast has also high performance due to the estimated capacity of the first and the only Russian liquefied petroleum gas plant.

Unfortunately, as it has been mentioned in the article, quite strong economic performance doesn't absolutely correlat with social performance. *Table 6* shows that the growth rates in the northern regions of the Russian Federation aren't even close to the average dynamics of the country, and the Nenets and Chukotka Autonomous Okrugs (the leaders of industrial growth – Table 3) had a reduction in income in the period under our review.

The reason is an "unequal" exchange both within the corporate finance and the state budget system [3]. The finance overflow tools in the corporations are calculating centers located outside the raw materials extraction centers. As for intergovernmental dealings, the current system has led to the fact that the northern Federal subjects of Russia provided the federal budget with almost 40% of taxes and charges (1457 billion rubles) in 2008, but they received less than 20% of that sum as inverse transfers.

In this case there is an alerting question, which has been widely debated lately, of the necessity to increase tax burden in order to find the funds for innovative reforms in the country. The increase in mining, oil and gas tax rates, as well as the duties on copper and nickel export will become the most obvious directions of fiscal impact [4]. It is disturbing to find the increase in gas production, declared repeatedly, up to 1 trln.$m^3$ by 2020. It is obvious that, on the one hand, it should compensate the oil production decline and, on the other hand, it should provide innovative transformations with financial resources.

Table 6. Active cash income of the population as a percentage to the previous year [1]

| Federal subjects of Russia | Income flows | | | | |
|---|---|---|---|---|---|
| | 2007 | 2008 | 2009 | 2010 | 2010 to 2006, % |
| Russian Federation | 112.3 | 105.0 | 100.9 | 103.8 | 123.5 |
| **Northern regions** | | | | | |
| Republic of Karelia | 102.9 | 99.4 | 97.5 | 102.5 | 102.2 |
| Republic of Komi | 107.4 | 99.4 | 94.3 | 101.0 | 101.7 |
| Republic of Sakha (Yakutia) | 102.7 | 105.2 | 101.4 | 102.1 | 111.8 |
| Arkhangelsk Oblast | 105.8 | 108.4 | 99.2 | 100.9 | 114.8 |
| Kamchatka Krai | 103.8 | 102.9 | 103.6 | 106.4 | 117.7 |
| Magadan Oblast | 101.4 | 98.1 | 99.1 | 101.8 | 100.4 |
| Murmansk Oblast | 109.1 | 106.6 | 98.2 | 100.9 | 115.2 |
| Sakhalin Oblast | 112.7 | 106.4 | 97.4 | 98.5 | 115.0 |
| Nenets Autonomous Okrug | 114.9 | 113.2 | 71.1 | 95.9 | 88.7 |
| Khanty–Mansi Autonomous Okrug | 113.3 | 110.8 | 90.3 | 33.0 | 105.4 |
| Chukotka Autonomous Okrug | 93.9 | 92.8 | 92.1 | 89.8 | 72.1 |
| Yamalo-Nenets Autonomous Okrug | 112.6 | 110.5 | 92.8 | 94.1 | 108.7 |

However, this task can be unsolved due to a lack of clear technical re-equipment programs, and the resource base of northern regions can be undermined in the next 15 – 20 years.

Thus, summing up the analysis, we can make the following conclusions:

- there are some negative socio-economic trends in the northern regions of Russia; the main of them are ongoing migratory outflow of population (against the background of the surplus in the Russian Federation) and long-term reduction of wages with regard to the average rate in the Russian Federation;
- nevertheless, northern Federal subjects of Russia were relatively resistant to the crisis, besides the main factors were long-term export contracts with fixed prices and stabile demand in the domestic market;
- in general, the policy of the government and some corporations in relation to northern regions is discriminatory; it is proved by the extremely low growth of active incomes, negative migration balance of population and depleted resource base.

As for the near-term outlook, there is a high probability of ensuring the financial stability of the state and innovation reforms at the expense of tax increase, especially mining tax. It is necessary to increase the fiscal burden at least to have a positive impact on the innovative development of the northern territories; at the same time, technological innovations should be oriented to improve mining operations, environmental protection and the security of life activity. The mobilization mechanisms of natural resource rent and its transformation into the financial resources should be presented by special funds formed in the northern regions of Russia at the expense of the taxes left at their disposal (primarily, in order to extract minerals) that have a legislated target order of expense.

It may be noted that the systematic improvement of tax and budget legislation should be used to ensure the sustainable social and economic development of the northern regions.

Considering the question of the improvement of tax and budget legislation in terms of revenue distribution among the budgets of the Russian Federation, it is necessary to note that, in general, the current system of revenue distribution among the budgets provides the conditions for a stable and timely execution of expenditure liabilities of the Federal subjects and municipalities of Russia, but it is necessary to improve it in future.

In this connection, the President of the Russian Federation Dmitry Medvedev set a task to the Russian Government to make proposals for changing the current proportion of revenue distribution among the budgets of different levels in the President's Message to the Federal Assembly of the Russian Federation on November 30, 2011 [5].

The significant differentiation of the Federal subjects of Russia according to their socio-economic development and their own budget procurement has been already mentioned in the article. The current system of intergovernmental dealings doesn't stimulate the authorities of the Federal subjects of Russia and the local self-government to raise their tax potential and use the effective measures to increase budget revenues.

In order to improve the financial and economic independence of the Federal subjects and municipalities of Russia, it is necessary to reduce the inefficient financial support and make the clearest and the most transparent assignment procedure of intergovernmental transfers, which should be provided due to the efficient activity of the government and local authorities. At the same time, it is necessary to keep providing the regional budgets with the financial support from the federal budget in the form of subventions for leveling of regional budgetary provision.

The Committee on Budget and Taxes of the Murmansk Regional Duma believes that it's necessary to change the distribution of subventions for leveling of regional budgetary provi-

sion in order to make the stimulating conditions for the steady raising of tax potential by the Federal subjects of Russia. At the same time, the size of subventions should be maintained in the budgeting for the next fiscal year at the current year level for the Federal subjects of Russia, which haven't reduced the growth rates of the economic development.

The regional budgets in Russia, which have a lack of own revenues, are overloaded with their expenditure liabilities. Therefore, in order to make the additional conditions for the increase in economic and financial independence of the Federal subjects and municipalities of Russia, it is necessary to improve the demarcation between the state and local authorities approved by the federal law, as well as to distribute the amount of tax revenues among the budgets of the Russian Federation, based on the expenditure liabilities of the Russian Federation and the Federal subjects and municipalities of Russia.

Nowadays, some responsibilities delegated to the authorities of the Federal subjects of Russia are financed at the expense of subventions from the federal budget, and it should be noted that the size of these subventions isn't equivalent to the Federal subjects' expenditures on the implementation of the delegated responsibilities.

One more problem of the northern regions in Russia is a lack of standards aimed at the assessment of financial expenses oriented to the implementation of their expenditure liabilities. This problem solving is the basis of intergovernmental dealings and tax revenues distribution among the budgets of the Russian Federation.

It's impossible to deny the fact that there is a significant dependence of the local budgets on the budgets of the Federal subjects of Russia, since the municipalities provide only a small part of total budget revenues with their tax and nontax revenues. One of the main problems of local budgeting is a lack of it's own secure and sufficient revenue sources at the local governments, as well as the imbalance of local budgets.

And it should be noted here that the abolition of statutory regional and local tax concessions could be an important reserve for increasing the revenues of regional and local budgets. For example: the amount of tax concessions established by legislation of the Russian Federation on the Regional and Local Taxes accounted for 181.9 billion rubles in 2009 on conditions that the amount does not include the statutory with drawal from the taxation object.

The problem analysis of the revenue distribution among the budgets of the Federal budget system in Russia, including the budgets of the northern regions, allows us to offer the following arrangements:

1) it's necessary to intensify efforts to improve intergovernmental dealings in order to create a mechanism that can stimulate the Federal subjects of Russia to increase their own revenue base and raise their interest in the economic development;

2) it's important to provide the Federal subjects and municipalities of Russia, following the responsible fiscal policy, with the incentives, as well as it's necessary to administer the regions and municipalities with poor financial management;

3) they should continue to improve the distributing system of the expenditure liabilities of the Russian Federation, the Federal subjects and municipalities of Russia, based on their financial support analysis;

4) it's necessary to change the method aiming at the distribution of subventions for leveling of the Federal subjects' budgetary provision taking into account during the calculation of subventions:

– the size of subventions should be maintained in the budgeting for the next fiscal year at the current year level for the Federal subjects of Russia, which haven't reduced the growth rates of tax and nontax revenues in comparison with the previous fiscal year;

– the amount of lost budget revenue as a result of statutory tax incentives is sent to the budgets of the Federal subjects of Russia;

5) it's important to develop a single mechanism to assess the value of public (municipal) services and estimate the expenditure liabilities of the Russian Federation, the Federal subjects and municipalities of Russia with the subsequent expansion of regional and municipal budget revenue sources;

6) the question of the inclusion of individual income tax into municipal budgets according to the permanent residence of their taxpayer should be considered;

7) it's necessary to develop and submit for consideration to the State Duma of the Russian Federation the Draft Federal Law On Introducing Amendments to the Budget Code of the Russian Federation on order to provide the regions of the Russian Federation with the responsibilities to set differentiated standards(based on the objective common criteria) for the certain tax and fees allocations to the municipal budgets, which should be included into the regional budgets of the Russian Federation, as well as it's important to provide the municipalities with the same responsibilities to set differentiated standards for the allocations to the settlements' budgets and the redistribution of the tax and nontax revenues in favor of regional and municipal budgets of the Russian Federation.

The legislative (representative) and local authorities of the northern regions in the Russian Federation in common with the Federal Tax Service, the Federal Service for State Registration, Cadaster and Cartography and other federal executive agencies should develop a package of measures in order to improve regional and local tax administration, to control the observance of the Federal Taxes and Fees legislation, the correctness of tax calculation and the full amount of the regional and municipal budget tax revenues.

In conclusion we are going to consider some specific questions of attracting and retaining human resources in the northern regions.

State guarantees and compensation payments to the employees working in the Far North regions and equivalent areas(hereinafter – the North)were mostly being decreased during the period from 2001 until the present.

At the same time, some of them were:

- placed in the dependence on the funding source of a company and its leadership;
- excluded from the legislation or limited through the budget legislation;
- kept under specific additional conditions of local regulation, that also determined their dependence on the company's leadership;

The documents of the Government of the Murmansk Oblast prove that most employers try to minimize all the compensation payments and decrease guarantees to their employees worsening their rights in comparison with the previous federal regulations. In order to stabilize the welfare standards of the employees in the northern companies regardless of their funding sources and their business forms, it's reasonable to amend the following current normative and legal acts [6, 7, 8]:

✓ article 313 "Guarantees and compensation payments to the employees working in the Far North regions and equivalent areas" of the Labour Code of the Russian Federation as of 30.12.2001 No. 197-FL (as amended on 22.11.2011, as amended on 12.15.2011);

✓ the Federal Law "On state guarantees and compensation payments to the employees working in the Far North regions and equivalent areas" as of 19.02.1993 No. 4520-1 (as amended on 24.07.2009);

✓ an order of the Ministry of Labor of the RSFSR "On approval of Regulations on the procedure for the provision of social guarantees and compensations to the persons working in the Far North and equivalent are as in accordance with the normative and legal acts currently in force" as of 22.11.1990 No. 2 (as amended on 07.11.1991, as amended on 10.06.2009).

In consideration of the need to stabilize the socio-economic situation in the northern regions, as well as the strategic challenges of attracting and retaining labour resources in order to develop the Arctic shelf in future, it's reasonable to restore the standards that provide:

- young people(persons under the age of 30) in all companies with the full rated increase in their wages since the first day of working in the Far North and equivalent areas, if they have been living in these regions for five years and more;
- students of higher and secondary vocational institutions in the northern regions with rated increase in their living allowances;
- all employees regardless of funding source with the reimbursement of their and their families' expenses for traveling to and from place of leave as well as carriage of their baggage, which sizes, terms and conditions are not less than the refund charges for the employees financed from the federal budget;
- all employees regardless of funding source with the reimbursement of their and their families' expenses for moving to other regions, which sizes, terms and conditions are not less than the refund charges for the employees financed from the federal budget;
- temporary disability benefits and maternity allowances in the amount of full salary without the maximum size limitation.

It's necessary to establish federal guarantees and compensations for the people working in the companies that don't belong to the public sector; their size shouldn't be less than the guarantees and compensations for the employees of the organizations funded from the federal budget. The responsibility of all the employers to provide guarantees and compensations should be embodied in the laws. It's important to develop a legal mechanism for the reimbursement of their expenses. It is also reasonable to clarify the notion of minimum wage rate, excluding the compensations and incentive payments (including regional coefficient and rated increases), and establish tariff rates, salaries, base salaries which couldn't be lower than the minimum wage rate.

Active and coordinated activity of the state, public institutions, business organizations in the field of socio-economic development of northern regions is a necessary prerequisite to eliminate negative impacts and ensure the sustainable development. Here of paramount importance are the following measures:

– the priorities of public policy that involve the problems of the socio-economic development of the Russian North in order to create favorable living conditions for the population;

– the renewal of a system of northern guarantees and compensation as the main mechanism for the socio-economic development of northern regions, the development of this system due to the new market conditions and the protection of social rights of the people living and working in the North;

– ensuring the effectiveness of all the elements of the labour and employment sphere in the North: migration processes optimization, decline in the unemployment rate and increase in the employment rate, improvement in working and resting conditions, etc.;

– improvement of the state regulation in the spheres that influence the employment development in the northern regions: providing housing, pension and other rights of the citizens living in the North.

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# RUSSIAN AND BELARUSIAN ACADEMIC SCIENTIFIC COOPERATION

UDC 001.83(470+476)


## Scientific collaboration between Russia and Belarus at the first stage of allied relations: the restoration of a single research area

*The article characterizes the current collaboration between the scientists from the academic institutions of Russia and Belarus. It shows the stages of this cooperation within the Union State and points out the main directions of the development of its common research space.*

*Russia, Belarus, scientific and technological cooperation, the problems of effectiveness increase, control mechanism.*

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The brief history of integration of Belarus and Russia is rich in difficult and contradictory events. Without going into the analysis and consequence assessment after the collapse of the Soviet Union, it's necessary to point out a very important fact from a historical point of view that less than 5 years after this event Russia and Belarus prepared to unite in the fundamentally new geopolitical situation.

Treaty on the Union between Belarus and Russia was signed in Moscow 16 years ago, on March 2, 1996. This treaty became the cornerstone in the legal foundation of the Union State, as the main provisions of the treaty, the statements of its purposes and objectives were kept and developed in the successive bilateral legal acts adopted by Russia and Belarus, including the Treaty on the Creation of the Union State as of December 8, 1999.

In order to introduce the discussion of the recovery of the common scientific space in Russia and Belarus, we would like to point out the provision of the Treaty of 1996, which stresses that a major function of the Commonwealth is "all possible assistance to the development of a common scientific, educational and cultural space". The InterAcademy Council for Problems of Development of the Union State (IAC) has been operating in this direction for eight years.

This Council as a new form of cooperation between the Russian and Belarusian academies was established by the National Academy of Science of Belarus and the Russian Academy of Sciences with the assistance of the Standing Committee of the Union State in 2004, based on the Decision of the Council of Ministers of the Union State as of December 10, 2002.

The Council consists of leading scientists of the Russian and Belarusian Academies of Sciences, as well as the representatives of the Standing Committee of the Union State. Three co-chairmen lead the InterAcademy Council; they are from the National Academy of Science of Belarus, the Russian Academy of Sciences and the Standing Committee of the Union State.

The main objectives of the Council include the coordination of the scientific activities of both academies in order to develop the Union State, studying the development problems of the Union State during individual and joint programs, determining the actual problems of science jointly with the government executive bodies of Russia, Belarus and the Union State.

The results of the Russian and Belarusian researches devoted to the developmental problems of the United State are discussed regularly during the meetings of the InterAcademy Council, as well as during the international scientific and practical conferences and round-table discussions that are run under the auspices of the IAC. There were seven meetings of the Council over the period of its activity.

They were held by turns in the cities of Belarus and Russia: in Moscow, Minsk, Veliky Novgorod, Vitebsk, Vologda, Cherepovets.

The most distinguished scientists from Russia and Belarus research such acute problems as a mechanism of Belarus and Russia's accession to the WTO, the development of common principles to provide the member-countries of the Union State with agricultural subsidies, the formation of a single innovative area of Belarus and Russia, the achievement of sustainable anti-recessionary condition of trade and economic cooperation between Russia and Belarus, the harmonization of national Belarusian and Russian legislations, the formation and implementation of scientific and technical programs of the Union State.

The scientists of both academies have repeatedly stressed that there are highly integrated components in the long and firmly established scientific and technical relations between Belarus and Russia, whose destruction is unacceptable. In the period, when the development of global science is moving towards the integration and consolidation of efforts, it is absurdly to divide the things that work successfully. In this case it's impossible to ignore the fact that our countries should have high-tech systems to ensure their own and public security. It was noted at the joint meeting of the Presidium of the National Academy of Sciences of Belarus and the Presidium of the Russian Academy of Sciences in Minsk on April 27, 2011 that the bilateral collaboration between our academies was developed effectively, the themes and geography of this relations were expanded, and the collaboration was one of the most powerful incentives for the integration of Russia and Belarus.

In this regard, it was emphasized at the meeting that, in particular, the InterAcademy Council should play an important role in focusing on the priority dimensions of the researches conducted by scientists from the RAS and NASB and on the expertise of their joint programs and projects.

The Standing Committee of the Union State, the Russian Academy of Sciences and the National Academy of Sciences of Belarus understood the urgent necessity for the IAC to get an opportunity to expertize target and thematic research programs of the Union State.

One of the most important tasks of the Russian and Belarusian scientists is the Concept for the development of the Union State of Russia and Belarus. The undisputed conceptual nature of the problem determines a high level of scientific understanding of not only the integration experience of two countries, but also the characteristics of the current integration processes in the former Soviet Union. First of all, it will be necessary to carry out a profound analysis of a qualitatively new character of interstate relations, which are formed in the former Soviet Union after the Agreement on the Customs Union and the Common Economic Space officially come into effect.

This comprehensive analysis will help to correlate the integration development within the scope of the Union State and the processes in the EurAsEC and the CSTO in the context of the European and global relationships. Therefore, the Concept for the development of the Union State was considered as a priority task at the Presidium sessions of the RAS and the NASB. It is also included in the operating plan of the InterAcademy Council.

There is no need to discuss the close relations between the academies that have common roots, history, scientific schools and traditions. All this lays the foundation of their cooperation, which helped to sail through a difficult period of serious transformations in the 1990s. The current development stage of the bilateral relations between Belarus and Russia allows them to expand and strengthen this foundation. The traditions, which are typical for the collaboration between Russia and Belarus, can be naturally and logically combined in the present conditions with modernization and innovative approaches to the most difficult problems of fundamental and applied sciences.

In recent years Russian and Belarusian scientists have been interacting closely within the most modern scientific fields: space research, nuclear energy, computing machinery, organic synthesis, oil and gas geology, biology and genetic engineering. They achieved the results in their joint research that meet the highest standards of the world level.

However, it should be recognized that the collaboration in the field of engineering, exact and natural sciences had the priority growth rates during the last few years as compared with social and humanitarian studies. It is a question of the pace and level of research. It is obvious that such objective prerequisites for the stimulation of the integration processes as common culture and history, confessional community and traditional close relations allow us to bring up the establishment of research and educational space along with common economic and innovative spaces. So, joint integrated research programs in economics, law, sociology, history and literature are necessary to do this. Strengthening of the integration basis requires the development of specific historical, philological, cultural projects and research programs in the near future.

Comprehensive analysis of the collaboration between the regions of our fraternal nations is very important to stimulate the integration processes. For example, in order to execute the decisions of the 5$^{th}$ meeting of IAC, in 2009 the scientists began to conduct the joint social studies and to research the problems of international trade integration between the regions of the North-West Federal District in the Russian Federation and the Republic of Belarus. The Institute of Socio-Economic Development of Territories of RAS, which is located in the Vologda Oblast, is carrying out a significant part of these studies within the scope of three joint projects funded by the Belarusian Fund for Fundamental Research and the Russian Humanitarian Science Foundation. In 2011 there was the International Exhibition that was devoted to

the 20th anniversary of the Commonwealth of Independent States; it had the exposition of the Union State with the stands that demonstrated the activity of the InterAcademy Council, including inter-regional cooperation. And the business program of the Union State Day included the extended meeting of the IAC and a scientific debate – a round-table discussion on the science integration within the scope of the Union State.

Academic science has an important social role because it is systematically integrated into the socio-economic complex of the states. Joint studies have contributed a lot to the development of computer science, mechanical engineering, optics, electronics, metallurgy, energy and resource-saving, preservation of natural and cultural heritage. They have been appreciated internationally.

The objectives of the Union State of Belarus and Russia, as well as a lack of visa and customs barriers create favorable conditions for the wide research and innovation cooperation between the Belarusian and Russian partners.

The scientific and technological development in Russia and in Belarus is carried out within the statutory priority dimensions. The similarity and coincidence of some priorities offer additional opportunities for the integration of scientific and technological activities. First of all, this applies to such priority directions of scientific and technological activities in Russia and Belarus, as power engineering and energy-saving, biotechnology and pharmaceuticals, information and telecommunication systems, nanosystem and new materials industry, conservancy and others.

Today an innovative component of the countries' cooperation is in the forefront: the National Academy of Sciences of Belarus and its partners from Russia have increased their activities in establishing the joint research laboratories and scientific and production centers, based on the subdivisions of the RAS and the NASB, working in close and complementary fields; they study the possibility to establish joint ventures and the organization of production within the scope of technological park zones, formed in Russia and Belarus. There are such organizations as the Scientific and Research Center for Oil and Wood Chemical Technology (at the Institute of Chemistry of New Materials of NASB and the Boreskov Institute of Catalysis of the Siberian Branch of RAS) and the Russian-Belarusian laboratory of electromagnetic and ionizing radiation (at the Institute of Radiobiology of NASB and the Emanuel Institute of Biochemical Physics of RAS). Joint studies are conducted in the international research centre "Joint Institute for Nuclear Research" in Dubna.

The expansion of cooperation with the regions of the Russian Federation mentioned above is an important aspect of the scientific and technical collaboration between Belarus and Russia. The National Academy of Sciences of Belarus is included as an executor in the Plans and Protocols of arrangements to promote the cooperation with 18 regions of the Russian Federation approved by the Council of Ministers of Belarus.

The Cooperation Program of NASB and the St. Petersburg Scientific Center of RAS was formed. It included 6 projects besides the projects funded by the Intergovernmental Agreement and RFBR BRFFR programs. They are planned to be implemented within the scope of the Union State program "Heterostructures: microwave radars, lasers, light emitting diodes" (Pramen), aimed at the development of the scientific and technological basis in order to improve geterostructural micro-and optoelectronics devices in the Union State and to manufacture a number of devices that meet the modern world standards, and that are suitable for the implementation in production.

A list of 25 joint research issues has been formed to develop the new technologies in the manufacturing sector in order to implement the Agreement on Scientific Cooperation between the National Academy of Sciences of Belarus and the Ural Branch of RAS.

Active interaction with the Belarusian Republican Foundation for Basic Research, the Russian Foundation for Basic Research and the Russian Humanitarian Science Foundation contributed a lot to the development of inter-academy cooperation.

The cooperation between the Councils of Young Scientists of the RAS and the NASB has been formed. The themes and geography of scientific and technical cooperation are being expanded, so the leaderships of the Russian and Belarusian academies must focus on the coordination of their researches, and they should be oriented to the priority tasks for Russia and Belarus. Thus, the preconditions for the formation of a common scientific and technological space in the Union State are being created.

The partnership of the National Academy of Sciences of Belarus and the Russian Academy of Sciences within the scope of scientific and technical programs of the Union State is also positive.

11 programs, funded from the budget of the Union State, have been already implemented and are being carried out now by the National Academy of Sciences of Belarus. They are: "Space BR", 1999 – 2002; "SKIF", 2000 – 2004; "BelRosTransgen" 2003 – 2006; "Space SG", 2004 – 2007; "Triad", 2005 – 2008; "SKIF-GRID", 2007 – 2010; "Space NT", 2008 – 2011; "Nanotechnology-SG", 2009 – 2012; "BelRosTransgen-2", 2009 – 2013; "Stem Cells", 2011 – 2013; "Standardization – SG", 2011 – 2014.

It is obvious that the growth rates of the common scientific and innovation space between the Republic of Belarus and the Russian Federation and other countries of economic integrated unions should be increased under the conditions of the intensive development of economic integration, the establishment of the Customs Union and the gradual formation of the Common Economic Space. So, it will be possible to modernize quickly the economies of partner countries, to ensure the competitive growth of businesses based on the innovative development and to form new integrated research and production structures.

In our opinion, in order to solve these problems successfully, first of all it is necessary to understand clearly the essence of two main objectives of the CIS countries in their innovation activity: the creation of the Common scientific and innovation space and the formation of the Interstate program for innovation cooperation between the CIS countries.

"Common space" means the common "rules" in the innovation sphere: tax remissions for developers and producers, the rules of technology transfer, the terms of intellectual property turnover, etc. In the end, it is a single configuration of national innovation systems of the CIS countries. It is believed that the efficient innovation system in the market competitive conditions will provide inevitably an intense stream of innovation, because competitiveness is the mother of innovation. In fact, it is a question of harmonious conditions for the economic activity that is inevitably confronted with the natural differences between the economic interests of states due to the different structures of their economies.

All the problems of the conciliation of the interests, as well as some solutions to these problems can be seen in the complicated establishment of the Union State, the Customs Union and the EurAsEC. In addition, the transition to innovation is a very complex process that requires systemic changes in the economic mechanism that causes a conflict of interest within the economic system of each country.

In this regard, we assume that the creation of the common scientific and innovation space is the most important task in future. This space corresponds to the fundamental interests of all countries. The most important positive result will be the achievement of a synergistic effect that will allow us to increase significantly innovation potential and strengthen the competitive positions of some scientists, scientific societies and academies, and, finally, of countries in whole.

This task solution involves the search for common interests and the harmonization of national legislations on this basis.

Competitiveness is the main motive of innovation activity in economics. But this is a theory. And there are the following questions in practice. Is it reasonable to develop the competitiveness between the countries of the same integrated union? Was the purpose of the European Union to confront the United States and South-East Asia in the global competitiveness? Are the duplicative researches and productions efficient?

The obvious answers to these questions lead to the use of a program-target method of innovation processes management. This dimension is efficient in the countries, where the government intervention in their economies is relatively high. This tool has proven its effectiveness in Belarus. So, the second State Program of Innovative Development of the Republic of Belarus (till 2015) was started in 2011. The Belarus-initiated Intergovernmental Target Program "Innovative biotechnology" was developed; it was approved by the Interstate Council of EurAsEC in May, 2010. This program was the first one among the interstate programs of the EurAsEC that had been decided to be implemented by the supreme bodies of the Commonwealth.

However, a country is one thing, but the union of the countries with their procedures, hierarchy and specificity is something else. Hence, there are the difficulties in the coordination of common documents. And until now, despite the drafting of a new edition of the Procedure of the program development and implementation in the Union State, the joint projects coordination in the Union State still takes a long time; the matching system is cumbersome, and it is in the need of simplification.

There is a persisting need for inter-regional scientific cooperation, arranged interaction between young scientists from both countries, joint implementation of research, which should form the basis of science, technology and innovation programs of the Union State and use their common knowledge in knowledge-intensive industries and technologies.

The National Academy of Science of Belarus includes scientific and practical centers and scientific and production associations, which join all the phases of innovative cycle on the basis on a single organizational structure. The structuring models, implemented in Belarus, have their analogs in Russia: science cities, technology parks and others. At the same time, Belarusian scientists are interested in the organization of an innovation process in such institutions of the RAS as the Ioffe Physical-Technical Institute of the Russian Academy of Sciences that is directed by the winner of Nobel Prize, Academician Zhores Alferov, or the Institute of Problems of Chemical Physics in Chernogolovka led by Academician S.M. Aldoshin.

In turn, in our opinion, Russia would be interested in the Belarusian experience in the concentration of intellectual resources within the scope of government complex target scientific and technical programs. 12 programs of such kind have been created since the last five-year period. Nowadays they include 18 Public Research Programs and 28 State Scientific and Technical Programs.

One of the key tools for achieving the goals can be the public-private partnerships in innovation sphere, whose implementation requires the special legislative basis. It's necessary to eliminate the Belarusian lag compared to the Russian Federation in the formation of the market economy (the main institutions, market relations) as a ground for the increase in competitive advantages.

The first step towards the successful cooperation between Russia and Belarus in the sphere of innovation can be the adoption of harmonized fundamental law of the Union State "On Innovation Activity" that should be followed by a series of normative and legal

acts governing intellectual property, technology transfer, the operation of innovation infrastructure's subjects, a single order to form and implement the programs of basic and applied researches.

The most severe situation in the field of scientific activity, the most important element of the knowledge economy, is turned out for the humanities. Today the bad financing of the humanities can be explained by the fact that they are generally believed to be useless because they don't provide for direct value added. At the same time, it is overlooked that humanitarian experts represent the largest part of most public and private administrative structures.

These people are usually responsible for the elaboration process of the strategic development programs for companies, society and state. In this regard, it's necessary to define the role and practical importance of the humanities in the society as the major transmitter and creator of the human (socio-intellectual) capital within the scope of integrated innovation system.

An important step in the development of humanitarian cooperation was the establishment of the Association of Research Philosophy Institutes of the CIS countries, Asia and Eastern Europe in Moscow in 2010, which was established by the organizations representing Armenia, Azerbaijan, Belarus, Kazakhstan, Russia, Tajikistan and other countries. The Executive Committee of the Association was formed. The decision to establish the International Institute of Philosophy destined to succeed the positive Soviet traditions of scientific dialogue and cooperation was made.

Joint work of philosophers has already produced significant results. Scientists from the Institute of Philosophy of the NASB jointly with their colleagues from the Russian Academy of Sciences and the universities of St. Petersburg, Tomsk and Perm have revealed an innovative potential of synergy methods in the diagnosis, synthesis and design of complex systems; they have carried out the philosophical and methodological analysis of the problem of space-time dimension. The monograph about self-organization processes and systems' evolution, prepared according to the results of these studies, was published two times in Moscow.

The importance of cooperation results in the humanities is proved by only the titles of some joint publications: "The social consolidation of society: A comparative analysis on the materials of Russia and Belarus" (Moscow, Minsk, 2004); "The formation of national and state interests in the context of increasing globalization: A comparative analysis on the materials of Russia and Belarus" (Moscow, Minsk, 2008). The analytical and predictive model of social transformation of post-Soviet societies in the case of Russia, Belarus and Kazakhstan was developed in cooperation with the philosophers of the Siberian Branch of RAS and the Institute of Philosophy and Political Science of Kazakhstan.

The cooperation between Belarusian and Russian scientists must rely on the strengths of its members and minimized parallel high-cost operations. It is necessary to create the common scientific and technological space of Russia and Belarus based on the principals approved in the formation of the Customs Union; it's important to coordinate the researches taking into account the specialization of prevailing scholar schools and their place in the global hierarchy, as well as to connect to the system of international scientific and technical cooperation (including the projects of the 7th EU Framework Program), if there are visible benefits to all participants, and a hidden leak of competitive domestic R & D results shouldn't be encouraged.

This article is published in the journal "Economical and social changes: facts, trends, forecast" that is a new ground for the Inter-Academy Council. The journal is published by the Institute of Socio-Economic Development of Territories of RAS, located in Vologda, one of the oldest cities in Russia.

The journal is published both in Russian and English, and it has an open web-site that allows the authors to share their ideas with a wide range of experts, who are interested in the development of interregional and international cooperation. At the same time it is an invitation to discuss and work together, because large-scale practical activities can be common only in real integration.

It is necessary to correct the approaches to the attraction of foreign investments in Belarus under the conditions of the common market. Firstly, it's necessary to create the conditions for the multinational corporations that produce high-tech innovative pro-ducts and provide their exports to other countries of the Customs Union. Secondly, a special decree should specify that such corporations couldn't use the usual for Belarus economic management, which consists in the final adjustment of targets, the government regulation of tariff policy, the prohibition of surplus labour dismissal, etc.

During the period from 1956 to 1991 more than 150 Belarusian specialists were participating in the study and exploration of Antarctica with the Soviet Antarctic expeditions. They conducted hundreds of studies and created dozens of scientific papers. Today it is necessary to focus on the joint multi-disciplinary complex projects on the geophysical monitoring of Antarctica. Belarusian scientists can offer unique research tools to study ozonosphere and assess the voids in the ice massif, as well as lidar systems to study atmosphere. It is possible to form a joint project to study the Arctic within the Union State programs.

The Belarusians have already made a number of concrete steps. The Ministry of Natural Resources and Environmental Protection of the Republic of Belarus and the National Academy of Sciences of Belarus have approved the State Draft Program "Monitoring of the Earth's polar regions and maintenance of the Arctic and Antarctic expeditions in 2011 – 2015" on the complex of issues associated with the implementation of measures to ensure the work in the Antarctic. The National Academy of Sciences of Belarus is now in charge of the Republican Center for Polar Research. It will be responsible for the study of this little-explored region of Earth. The position of Belarus in the Arctic is a political issue, which provides benefits to both parts.

Scientists from Belarus and Russia will be able to combine their efforts in studying the unique nature of neighboring countries. So, there is the largest lake Naroch, the chain of Braslav lakes, the forest reserve Belovezhskaya Pushcha and the unique wetland of Polesia in Belarus. Such projects are widely implemented in Belarus, including the joint projects with the colleagues from Russia.

For example, the Institute of Experimental Botany of NASB, the Kholodny Institute of Botany of NASU, the Institute of Ecology of the Carpathians, the Komarov Botanical Institute of RAS developed the Concept on the establishment of trans-boundary protected areas in Belarus, Ukraine and Russia. They have defined the trans-boundary natural complexes that are perspective for the biological diversity protection. The biospheric trans-boundary reserve "Western Polesia" has been established. It will be the fourth in the world and the second in Europe trilateral protected area (it is being established by Belarus, Russia and Poland) after the creation of a single protected territory.

The list of objects and the aspects of collaboration between the scientists from Russia and Belarus, mentioned above, isn't exhaustive. But it proves that the inter-academy cooperation between the RAS and the NASB, the expanded and intensified relationships with the research centers is a powerful incentive for the integration of two fraternal nations. The establishment of a common innovation space of Russia and Belarus could become a model for modernizing mechanisms in the economies of the Eurasian Community, based on their own scientific and technological potential.

UDC 339.92(470+476)


# Methodological modeling aspects of foreign-economic activity in the regions of the North-West Federal District and the Republic of Belarus

*The article is devoted to the urgent researching problems of integration and modeling of foreign economic activity in the little-studied aspect of the relation system "country – region of another country". It considers the developmental trends of trade and economic integration between the regions of the North-West Federal District and the Republic of Belarus. The article describes a mathematical apparatus of gravitational modeling of foreign-economic interaction that is tested on the base of statistical accountability of the regions of the North-West Federal District and the Republic of Belarus.*

*Foreign-economic activity of the regions, trade and economic integration, goods turnover, economic and mathematical modeling.*

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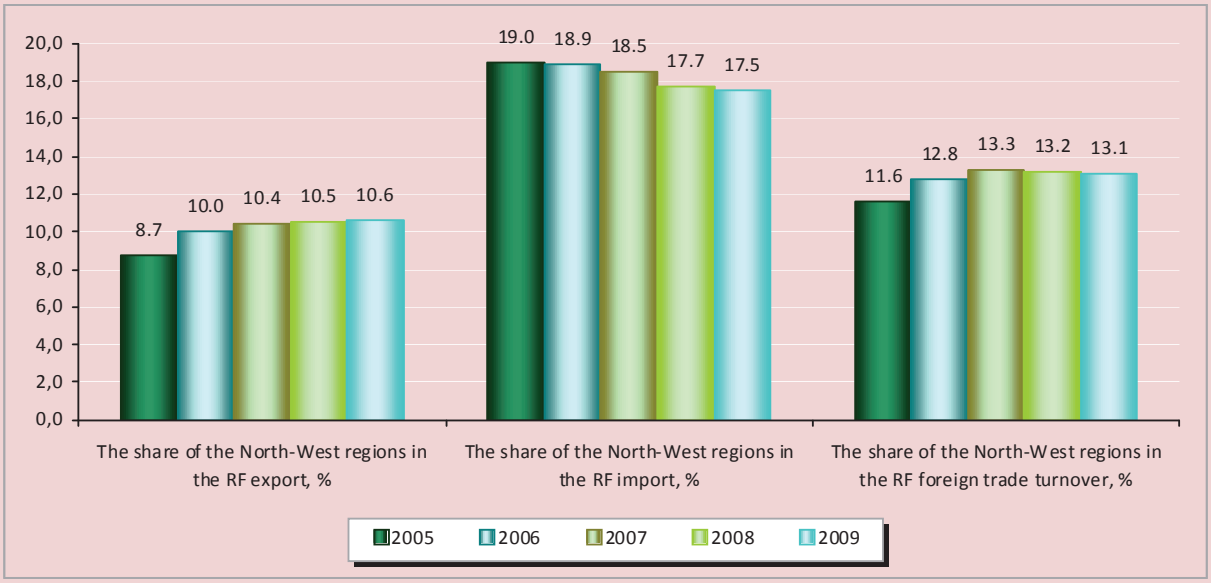
It is difficult to overestimate the value of foreign-economic activity. On the one hand, it is a result of intergovernmental and inter-regional geographical division of labour; on the other hand, it is a precondition for the increase in the regional economic efficiency.

Focusing on large-scale international exchange is safe and profitable, because it allows us to expand a range and increase a variety of consumer goods, which are offered to the population and used in the national economy [15].

Figure 1. The share of the North-West regions in the foreign trade activities of the Russian Federation




With the decline in domestic demand, export deliveries are one of the most important survival conditions for the regional economy. Import satisfies the need for goods and their expanded range, for raw materials and semi-manufactured goods that ensure the industrial processes, as well as for machinery and equipment. Therefore, foreign trade links are the necessary conditions for stable functioning of an economic complex in any region of Russia [10].

The North-Western regions of Russia are active participants in the international activities. Their share in the foreign trade turnover of the Russian Federation was 13.1% in 2009 *(fig. 1)*. At the same time, the increase in the share of the North-West regions in the RF export by 1.9% corresponded to the decrease in their share in the RF import by 1.5% in the period from 2005 to 2009.

It should be noted that the foreign-economic activity of the North-West regions had the positive growth rates up to 2009: for example, the foreign trade turnover grew up by 31.3% in 2008 as compared with 2007. Those figures were reduced to 36.6% in 2009 due to the worsened macroeconomic environment, caused by the global financial crisis [7].

The foreign trade cooperation between the subjects of the North-West Federal District in the period under our review was being built up simultaneously with the far-abroad and near-abroad countries *(table 1 and 2)*.

However, if in the case of foreign countries the foreign trade balance for the entire period from 2005 to 2009 was close to zero, then the export to CIS countries exceeded the import by 2.9 times in 2005 and by 3.5 times in 2009. The largest difference in the period of our study was observed in 2008, when the export exceeded the import by 5.9 times. It is an evidence of the high economic potential competitiveness of the regions of the North-West Federal District in the CIS market.

St. Petersburg was showing the largest foreign trade activity among the regions of the North-West Federal District during the whole period under our study: its share in the foreign trade turnover of the NWFD amounted to 51% in 2009. According to this indicator, the Vologda Oblast (4%) ranked fifth after the Leningrad Oblast (18%), the Kaliningrad Oblast (10%) and the Arkhangelsk Oblast (7%) *(fig. 2)*.

Table 1. Foreign-economic activity in the regions of the North-West Federal District (export) (in actual prices; billion US dollars) [14]

| Federal subject of Russia | Export | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | With far-abroad countries | | | | | With CIS countries | | | | |
| | 2005 | 2006 | 2007 | 2008 | 2009 | 2005 | 2006 | 2007 | 2008 | 2009 |
| North-West Federal District | 19390.7 | 28118.2 | 33237.2 | 44961.4 | 28956.4 | 1502,4 | 2035,2 | 3403.4 | 4359.8 | 3017.0 |
| Republic of Karelia | 965.3 | 1164.9 | 1168.6 | 1345.0 | 968.8 | 33.3 | 41.1 | 59.6 | 57.7 | 37.8 |
| Republic of Komi | 522.6 | 682.6 | 845.9 | 966.0 | 651.3 | 173.7 | 155.5 | 231.3 | 227.9 | 139.5 |
| Arkhangelsk Oblast | 972.3 | 1509.8 | 1311.9 | 2291.8 | 3997.2 | 65.0 | 71.1 | 95.6 | 107.8 | 89.4 |
| Vologda Oblast | 2838.9 | 2180.7 | 2629.9 | 4112.0 | 2112.0 | 177.4 | 232.7 | 297.6 | 438.3 | 228.8 |
| Kaliningrad Oblast | 1688.0 | 1182.3 | 502.5 | 593.2 | 540.2 | 137.6 | 65.6 | 95.2 | 103.9 | 178.6 |
| Leningrad Oblast | 5781.3 | 6614.9 | 8033.7 | 11225.1 | 6918.6 | 267.6 | 214.7 | 247.2 | 340.1 | 243.4 |
| Murmansk Oblast | 1187.3 | 2074.7 | 2107.8 | 2295.6 | 1596.9 | 3.4 | 3.6 | 10.7 | 12.3 | 44.4 |
| Novgorod Oblast | 721.1 | 764.3 | 835.5 | 1227.8 | 650.3 | 41.7 | 69.1 | 94.6 | 98.4 | 76.2 |
| Pskov Oblast | 388.5 | 438.1 | 231.5 | 188.1 | 37.5 | 13.6 | 21.0 | 32.5 | 37.3 | 23.3 |
| Saint Petersburg | 4325.4 | 11505.9 | 15569.9 | 20716.7 | 11483.6 | 589.1 | 1160.8 | 2239.1 | 2936.1 | 1955.6 |
| Total in Russia, bln. | 208.8 | 259.7 | 299.3 | 398.1 | 255.0 | 32.6 | 42.3 | 52.7 | 69.8 | 46.8 |

Table 2. Foreign-economic activity in the regions of the North-West Federal District (import) (in actual prices; billion US dollars) [14]

| Federal subject of Russia | Import | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | With far-abroad countries | | | | | With CIS countries | | | | |
| | 2005 | 2006 | 2007 | 2008 | 2009 | 2005 | 2006 | 2007 | 2008 | 2009 |
| North-West Federal District | 18211.4 | 25498,5 | 36320.9 | 46618.6 | 28477.1 | 510.3 | 514.4 | 674.8 | 741.5 | 861.9 |
| Republic of Karelia | 180.5 | 207.6 | 328.8 | 391.8 | 221.5 | 2.8 | 3.3 | 10.7 | 4.0 | 3.3 |
| Republic of Komi | 208.8 | 167.6 | 220.8 | 368.3 | 343.3 | 15.5 | 6.8 | 6.2 | 10.2 | 7.7 |
| Arkhangelsk Oblast | 117.8 | 368.7 | 304.7 | 382.6 | 226.3 | 14.6 | 20.2 | 23.4 | 17.6 | 8.2 |
| Vologda Oblast | 274.3 | 339.7 | 459.0 | 514.8 | 391.1 | 42.6 | 45.0 | 44.4 | 57.0 | 20.2 |
| Kaliningrad Oblast | 3703.4 | 5056.2 | 7728.5 | 9279.4 | 5182.3 | 92.1 | 100.6 | 130.2 | 146.4 | 144.6 |
| Leningrad Oblast | 3164.8 | 4665.6 | 6491.0 | 8685.8 | 3604.9 | 22.3 | 24.5 | 47.3 | 51.1 | 55.5 |
| Murmansk Oblast | 196.5 | 141.5 | 276.7 | 350.3 | 333.7 | 6.8 | 3.9 | 3.9 | 6.9 | 9.4 |
| Novgorod Oblast | 281.5 | 234.6 | 304.3 | 432.7 | 12.8 | 17.4 | 14.5 | 11.8 | 14.4 | 288.5 |
| Pskov Oblast | 322.3 | 434.4 | 584.6 | 897.0 | 639.3 | 3.8 | 5.9 | 9,3 | 11.3 | 4.8 |
| Saint Petersburg | 9761.5 | 13882.6 | 19622.4 | 25315.8 | 17521.9 | 292.5 | 289.7 | 387.5 | 422.7 | 319.7 |
| Total in Russia, bln. | 79.7 | 115.2 | 169.9 | 230.4 | 145.7 | 19.0 | 22.3 | 29.9 | 36.7 | 21.8 |

Despite the positive balance of foreign trade, the active foreign trade balance of the North Western Federal District was formed only in the groups of raw materials and low processing goods: fuel and energy products, timber, pulp and paper products, metals and metal products.

There is a passive balance in the product groups of higher value added; this fact indicates a lack of competitiveness in the foreign markets of this range of products manufactured in the North-West regions.

The development of mutually advantageous cooperation is one of the objectives of the Union State of Russia and Belarus. However, the global financial crisis has made the significant changes in the development of trade and economic integration between two countries in recent years. The decline in demand has led to a drop in the growth rate of both economies and, consequently, to the decrease in their trade turnover *(tab. 3)*.

A similar trend is being observed at the regional level. The trade turnover between the regions of the North-West Federal District and the Republic of Belarus declined from 3.8 billion dollars down to 2.4 billion dollars (37%) during the crisis.

Figure 2. The share of the regions in the foreign trade of the North-West Federal District in 2009

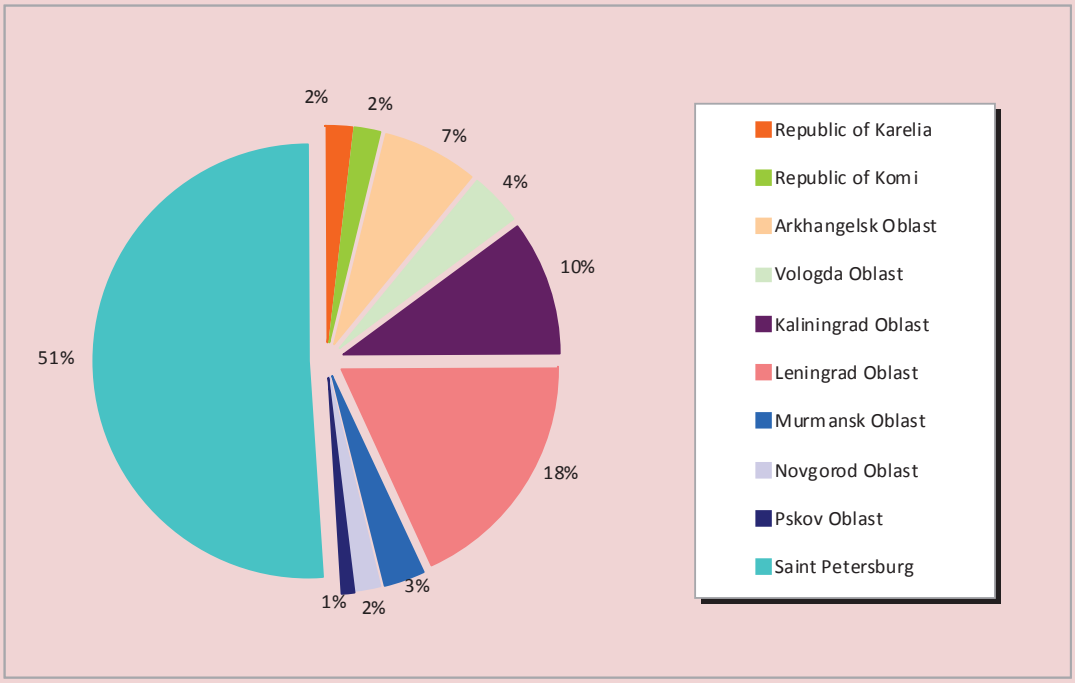



Table 3. The dynamics of the trade and economic development of the Republic of Belarus and Russia, % to the relevant period of the previous year [14]

| Indicator | Country | 2006 | 2007 | 2008 | 2009 | Average annual growth rate in 2006 – 2009 |
|---|---|---|---|---|---|---|
| Growth rate of GDP, % | Belarus | 109.9 | 108.2 | 110 | 100.2 | 107.0 |
| | Russia | 106.7 | 108.1 | 105.6 | 92.1 | 102.9 |
| Industrial production index, % | Belarus | 111.4 | 108.7 | 111.5 | 97.2 | 107.0 |
| | Russia | 106.3 | 106.3 | 102.1 | 90.7 | 101.1 |
| Growth rate of foreign trade turnover, % | Belarus | 123.5 | 123 | 134.2 | 69.3 | 109.0 |
| | Russia | 124.7 | 116.8 | 133.1 | 63.8 | 105.5 |

The study of foreign trade activity of the North-West regions and the Republic of Belarus allows us to conclude that there is a decline in the trade and economic integration between them. The regional foreign trade quota was reduced in seven regions of the North-West Federal District during the period under review. Only the Arkhangelsk and Murmansk Oblasts and the Republic of Komi increased their regional goods turnover with the partner country *(tab. 4)*.

However, the degree of the NWFD regions' production dependence on the export of their goods to the market of Belarus is still high *(tab. 5)*.

At the same time, the system of international labour division involved less regional resources in the acute phase of the crisis. This is evidenced by the reduced coefficient of the advancing growth of regional export towards the GRP growth rates in all the North-West regions except of the Arkhangelsk Oblast and the Republic of Komi *(tab. 6)*.

However, the development of mutually beneficial trade relations between the regions of the North-West Federal District and the Republic of Belarus is very important for the national and regional economies within the Union State.

Figure 3. Foreign trade cooperation between the regions of the North-West Federal District and the Republic of Belarus, bln. dollars [14]

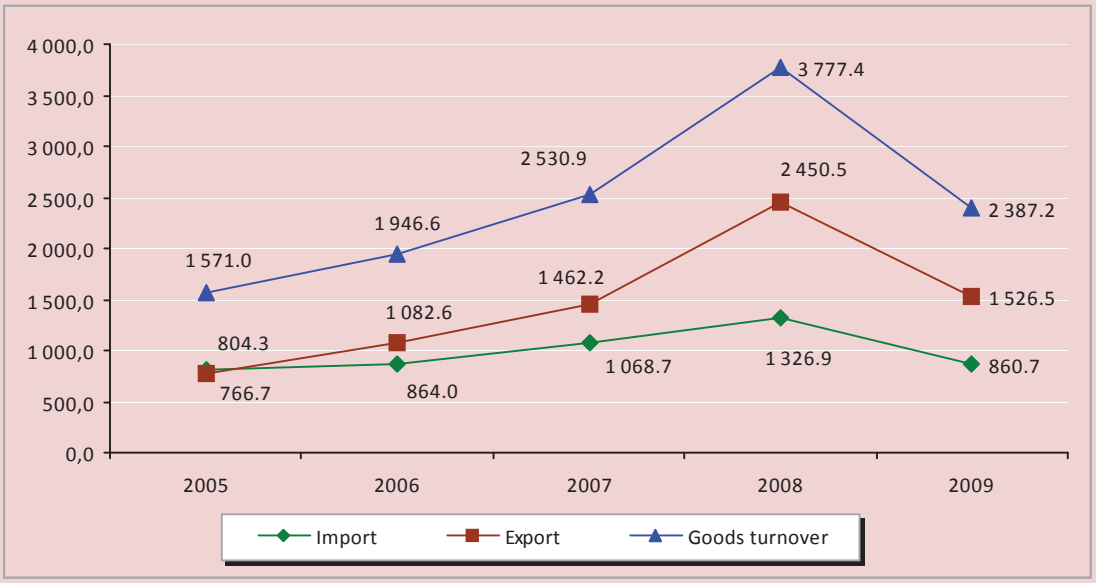



Table 4. Regional foreign trade quota of the regions of the North-West Federal District and the Republic of Belarus, %

| Region | 2005 | 2006 | 2007 | 2008 | 2009 | 2009 to 2005, p.p. |
|---|---|---|---|---|---|---|
| Pskov Oblast | 4.49 | 6.04 | 6.78 | 8.91 | 4.15 | -0.34 |
| Republic of Komi | 0.88 | 0.53 | 1.01 | 1.05 | 3.78 | 2.90 |
| Vologda Oblast | 3.75 | 4.15 | 3.93 | 4.29 | 3.34 | -0.42 |
| Kaliningrad Oblast | 4.41 | 3.78 | 2.65 | 6.75 | 2.78 | -1.63 |
| Novgorod Oblast | 3.93 | 3.29 | 2.95 | 2.54 | 2.41 | -1.52 |
| Saint Petersburg | 3.12 | 3,15 | 2.80 | 3.02 | 2.03 | -1.09 |
| Leningrad Oblast | 2.13 | 1.94 | 2.24 | 2.97 | 1.79 | -0.34 |
| Murmansk Oblast | 0.87 | 0.97 | 0.86 | 2.19 | 1.47 | 0.61 |
| Republic of Karelia | 1.01 | 1.49 | 1.08 | 1.13 | 0.74 | -0.27 |
| Arkhangelsk Oblast | 0.32 | 0.32 | 0.32 | 0.58 | 0.59 | 0.27 |

Table 5. The share of exports to the Republic of Belarus in the GRP of the NWFD regions, %

| Region | 2005 | 2006 | 2007 | 2008 | 2009 | 2009 to 2005, p.p. |
|---|---|---|---|---|---|---|
| Republic of Komi | 0.69 | 0.37 | 0.90 | 0.94 | 3.70 | 3.01 |
| Vologda Oblast | 2.69 | 3.19 | 3.04 | 3.50 | 2.84 | 0.15 |
| Pskov Oblast | 2.04 | 4.33 | 5.05 | 7.22 | 2.80 | 0.76 |
| Kaliningrad Oblast | 1.96 | 1.98 | 1.08 | 5.35 | 1.98 | 0.02 |
| Novgorod Oblast | 1.73 | 2.09 | 2.01 | 1.52 | 1.47 | -0.27 |
| Leningrad Oblast | 1.38 | 1.34 | 1.52 | 2.24 | 1.30 | -0.08 |
| Murmansk Oblast | 0.65 | 0.63 | 0.54 | 1.75 | 1.16 | 0.51 |
| Saint Petersburg | 1.13 | 1.36 | 1.31 | 1.48 | 0.83 | -0.29 |
| Arkhangelsk Oblast | 0.11 | 0.09 | 0.10 | 0.23 | 0.40 | 0.29 |
| Republic of Karelia | 0.40 | 0.92 | 0.52 | 0.58 | 0.39 | -0.01 |

Table 6. Coefficient of the advancing growth of regional export towards GRP growth rates in the North-West regions

| Region | 2006 | 2007 | 2008 | 2009 | 2009 to 2005, % |
|---|---|---|---|---|---|
| Republic of Komi | 0.54 | 2.43 | 1.05 | 3.94 | by 7 times |
| Arkhangelsk Oblast | 0.81 | 1.07 | 2.43 | 1.71 | by 2 times |
| Novgorod Oblast | 1.21 | 0.96 | 0.76 | 0.97 | 80.05 |
| Vologda Oblast | 1.18 | 0.95 | 1.15 | 0.81 | 68.60 |
| Republic of Karelia | 2.30 | 0.56 | 1.13 | 0.67 | 29.22 |
| Murmansk Oblast | 0.97 | 0.86 | 3.22 | 0.66 | 68.65 |
| Leningrad Oblast | 0.97 | 1.13 | 1.48 | 0.58 | 59.82 |
| Saint Petersburg | 1.20 | 0.97 | 1.13 | 0.56 | 46.78 |
| Pskov Oblast | 2.12 | 1.17 | 1.43 | 0.39 | 18.26 |
| Kaliningrad Oblast | 1.01 | 0.54 | 4.96 | 0.37 | 36.49 |

Thereupon, the question of predicting and determining the effectiveness of the integration process is still acute from the scientific and practical points of view.

The modeling of trade and economic integration is an important methodological task that could be solved through the use of gravity models. These models allow us to predict the potential long-term trade flows, and they characterize the factors influencing the size and structure of foreign trade turnover: the possibility of export and import expressed in some goods supply in the foreign markets and the demand for other goods; recognizing of the deterrents of the foreign trade turnover between the countries (transport charges, tariff system) [1, 2, 6, 16]. The influence of these factors, on their part, is estimated on the basis of the actual amount of goods turnover between the countries though a regression analysis. The resulting parameters of a gravity model characterize its flexibility and show the changes in the goods turnover between the countries if the relevant factor is changed by 1%. This model is usually represented either in a power form or in a logarithmic form.

We used the gravity models of J. Tinbergen and H. Linneman in order to predict the foreign trade turnover between the regions of the North-West Federal District and the Republic of Belarus [2, 16].

The model of J. Tinbergen is the following:

$$X_{ij} = \alpha_0 (Y_i)^{\alpha_1} (Y_j)^{\alpha_2} (D_{ij})^{\alpha_5} = \varepsilon. \quad (1)$$

The model of H. Linneman is more general in arrangement:

$$X_{ij} = \alpha_0 (Y_i)^{\alpha_1} (Y_j)^{\alpha_2} (N_i)^{\alpha_3} (N_j)^{\alpha_4} \times \times (D_{ij})^{\alpha_5} (A_{ij})^{\alpha_6} (P_{ij})^{\alpha_7} + \varepsilon, \quad (2)$$

where $X_{ij}$ – the value of trade flow from a country i to a country j;

$Y_i$, $Y_j$ – indicators of nominal GDP of the countries, in national currency;

$D_{ij}$ – the physical remoteness of economic centers of the countries i and j, km;

$N_i$, и $N_j$ – the population size in this country;

$A_{ij}$ – any other factor that favors or prevents the trade (such as barriers or anti-dumping regimes in one country);

$P_{ij}$ – trade preferences that exist between the states (in the absence of preferential agreements $P_{ij} = 1$; otherwise $P_{ij} = 2$);

$\alpha_1$, $\alpha_2$, $\alpha_3$, $\alpha_4$, $\alpha_5$, $\alpha_6$, $\alpha_7$ – export elasticity coefficients of the exporting country GDP, of the population in the country i, of the population in the country j, of the distance between the countries, any other factor, trade preferences;

$\alpha_0$ – an absolute term of the equation;

$\varepsilon$ – a random error.

The gravity model construction based on the original data matrix *(tab. 7)* has allowed us to determine the parameters of regression equations.

The result of calculations was an equation of the J. Tinbergen's gravity model that described the dynamics of the foreign trade turnover between the regions of the North-West Federal District and the Republic of Belarus over the period from 2005 to 2009:

$$X_{ij} = 14,17875 \cdot (Y_i)^{-0,5728} \cdot (Y_j)^{1,5959}, \quad R^2 = 0,96 \qquad (3)$$

It should be noted that the model is highly strict, because a determination coefficient is 0.96. The economic interpretation of this model allows us to conclude that the increase in the GRP of the North-West regions by 1% provokes the increase in their goods turnover by 1.6%. However, the goods turnover between the regions of the North-West Federal District and the Republic of Belarus will decrease by 0.57% if the GDP of Belarus increases by 1%. In our opinion, this dependence is determined by the features of the commodity composition of export and import in the regions of the North-West Federal District and in the Republic of Belarus.

Since the export structure of the North-West Federal District and the Republic of Belarus is represented by mineral products, steel products and chemicals *(fig. 4)*, the increase in the GRP of the regions depends on the growth of export deliveries.

At the same time, the import from the Republic of Belarus to the regions of the North-West Federal District is represented mainly by engineering goods that have a limited circle of customers *(fig. 5)*. Thus, if the demand of the North-West regions for these products is met, it will be possible to increase the GDP of Belarus due to the expansion of supply geography leading to the reduction of the goods turnover between the regions of the North-West Federal District and the Republic of Belarus.

Another result can be obtained by using the H. Linneman's gravity model:

$$X_{ij} = 1396046571\ 76576 \cdot (Y_i)^{1,6206} \times \times (Y_j)^{0,4171} \cdot (N_i)^{-1,1959} \cdot (N_j)^{-10,7299}, \quad R^2 = 0,99 . \qquad (4)$$

A determination coefficient is higher – 0.99, because this model takes into account more factors that can influence on the turnover of goods. However, we can conclude on the basis of this equation that the increase in the GDP of Belarus by 1% will provoke the increase in the goods turnover between the regions of the North-West Federal District and the Republic of Belarus by 1.62%; if the GRP of the North-West regions increases by 1%, the turnover of goods will increase by 0.41%. If the size of population grows by 1%, the goods turnover will decrease by 1.19% in Belarus and by 10.73% in the regions of the North-West Federal District.

Table 7. The initial data of the gravity model's parameters

| Years | Goods turnover between the regions of the NWFD and the Republic of Belarus, bln. dollars (*Xij*) | GDP of the Republic of Belarus, bln. dollars (*Yi*) | GRP of the NWFD regions, bln. dollars (*Yj*) | Population size in the Republic of Belarus, mln. persons (*Ni*) | Population size in the regions of the NWFD, mln. persons (*Nj*) |
|---|---|---|---|---|---|
| 2005 | 1571 | 30.192 | 64.278 | 40.583 | 13.628 |
| 2006 | 1947 | 36.932 | 77.965 | 51.465 | 13.550 |
| 2007 | 2531 | 45.216 | 104.535 | 61.562 | 13.501 |
| 2008 | 3777 | 60.384 | 138.295 | 73.283 | 13.462 |
| 2009 | 2387 | 49.029 | 104.789 | 74.550 | 13.437 |

Figure 4. The structure of merchandise exports from the regions of the North-West Federal District to the Republic of Belarus in 2008, %

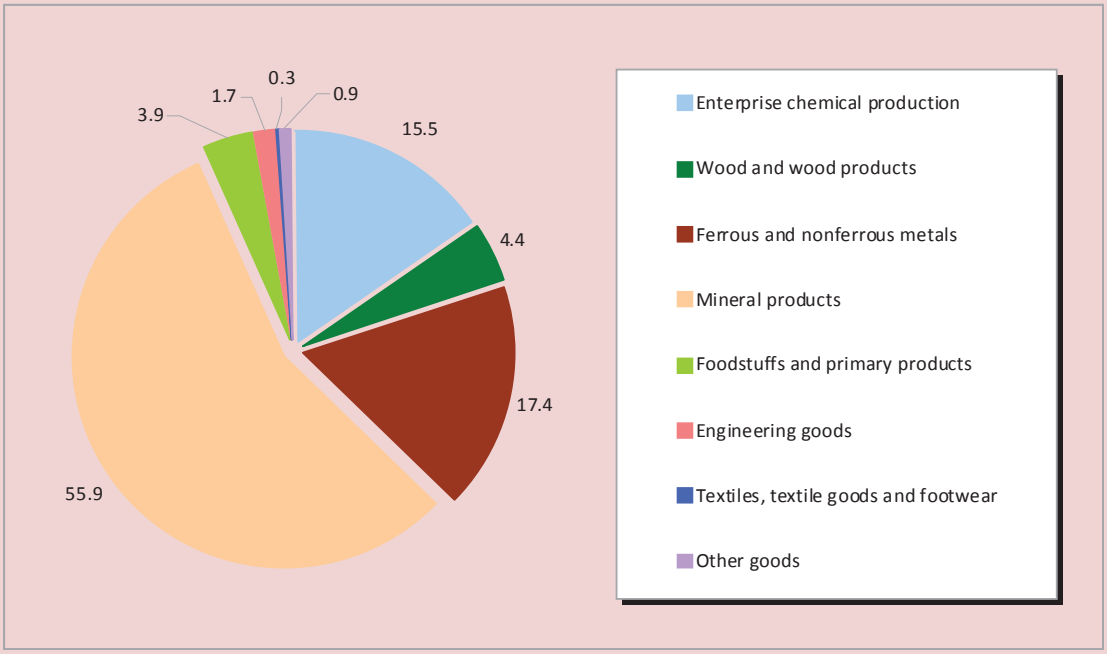
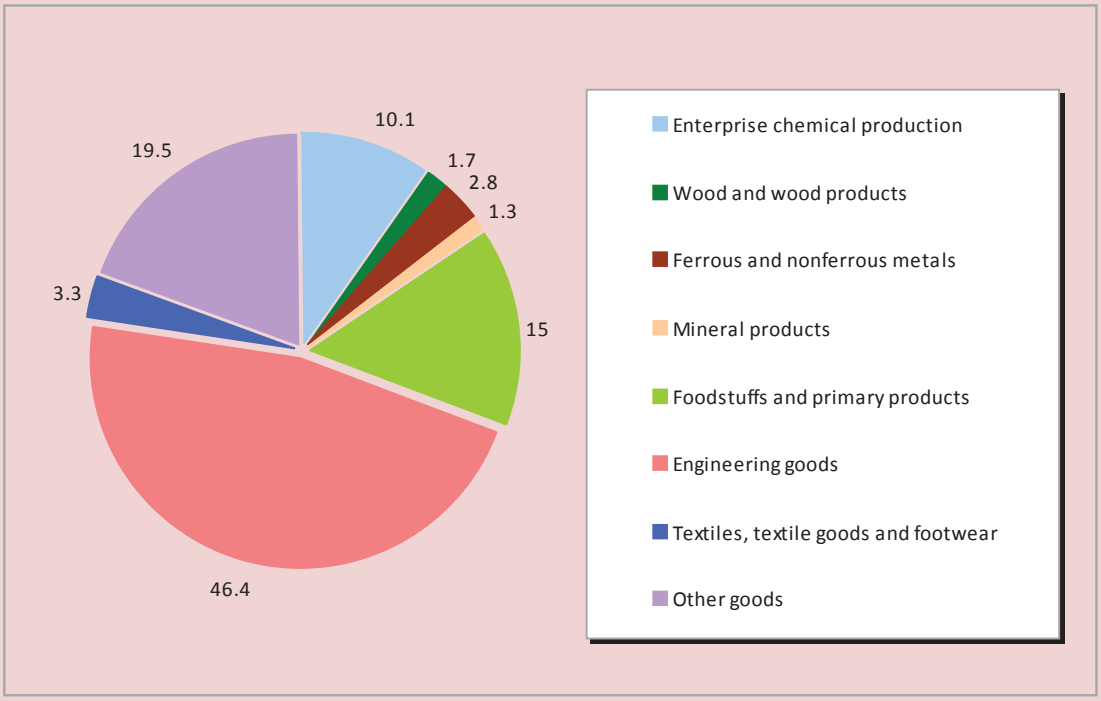



Figure 5. The structure of merchandise imports from the Republic of Belarus to the regions of the North-West Federal District in 2008, %



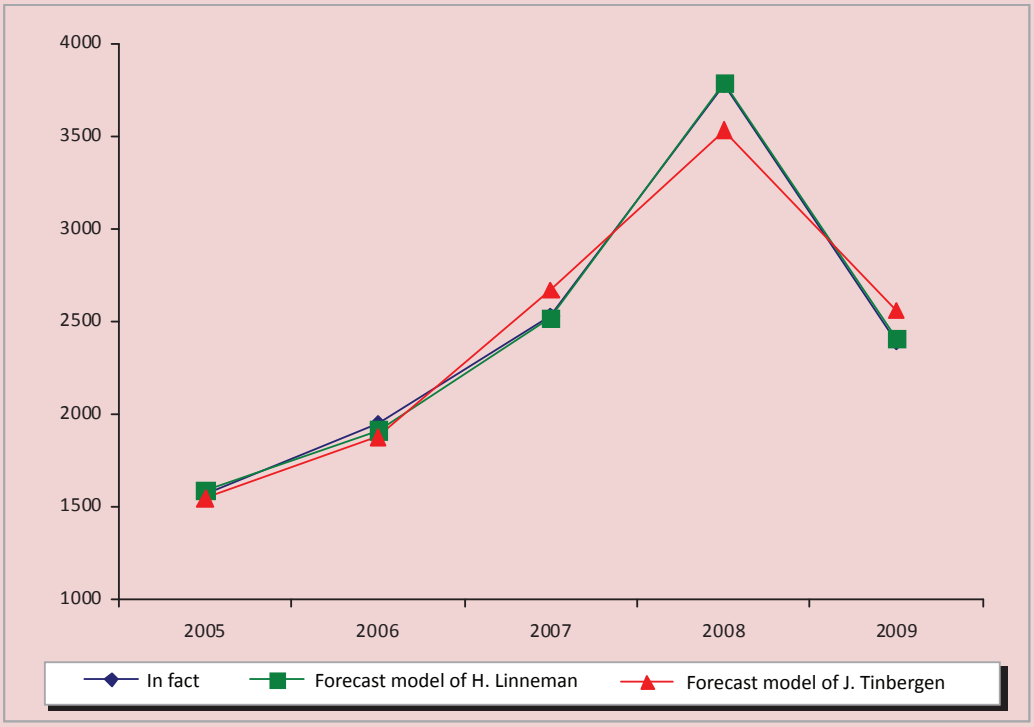
The gravity model appraisal in predicting the foreign trade turnover between the regions of the North-West Federal District and the Republic of Belarus for the period from 2005 till 2009 indicates that the forecast is close to the actual level *(fig. 6)*. The discrepancy between predicted and real values is explained by the influence of some factors unaccounted in the model on the foreign trade turnover indicators.

According to the theory of gravity models constructing and their descriptions, the GDP of an exporting country is reflecting production capabilities, while the GDP of an importing country is reflecting its market capacity. In general, these two variables are related directly proportional to the volume of trade.

In addition to the models discussed above, other more complicated models can be used for the forecasting of foreign trade relations. A bizonal inter-industrial model, which is based on the input-output balances of the countries participating in foreign trade, can be used as an example.

The task of this model is to ensure the maximization of some economic indicators under the given set of constraints [11]. The most important of them include the equations of production balance and the production distribution of the sectors of the national economy and each zone's industry into industrial and unproductive consumption, accumulation and compensation for deteriorated fixed assets. In addition, export and import are reflected at each level. Not only the volume of production is variable, but some elements of the final product, including the cross-countries and foreign economic activities, are variable. The model also includes the equations for the determination of total export and import in cost estimates. Some limitations of foreign trade and cross-countries balance are introduced on the base of these equations. Depending on the specific task, the direct limitations of production volume, cross-countries deliveries, export and import can be given in the model.

Figure 6. The dynamics of the foreign trade turnover between the regions of the North-West Federal District and the Republic of Belarus



The function of maximized domestic final product can be used as a criterion function. It is a sum of consumption funds, the accumulation and compensation for deteriorated fixed assets.

Depending on the task, the total domestic product of both zones and the total domestic products of each of them are maximized. It is preferably to maximize the total value of the final products of the both zones, because there is an imitation of a negotiated solution in this case that ensures the maximization of cumulative effect or the minimization of total damage for them if the relations between them are changed.

Thus, the economic-mathematical tools modeling the integration processes of the Republic of Belarus and Russia are very diverse. The main difficulties in modeling are statistical data on the parameters of the models, which, unfortunately, are often incorrect or utterly lacking.

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UDC 314.17(470+476)


# Socio-demographic aspects of labour potential development*

*The article describes the main trends of socio-demographic indicators of labour resources in the Russian Federation and the Republic of Belarus. The article provides a cross-country comparison of the state and dynamics of labour potential; it shows the results of local research, the main issues, the regional characteristics and the ways of problem-solving. Particular consideration is given to the influence of health on the development of the population's labor potential. The article shows the population's assessment of health and wellness importance in the labour activity.*

*Labour potential, demographic development, health, able-bodied population.*

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* This research has been carried out with financial support from the Russian Humanitarian Science Foundation and the Belarusian Republican Foundation for Fundamental Research, the project "Public Health in the North-West Federal District of the Russian Foundation and in the Republic of Belarus as a strategic component of labor potential" No. 11-22-01002a/Bel (RHSF) and No. G11R -027 (BRFFR).

The socio-economic values of society, human role and social service in the dynamics of social development have changed under the current reproduction of population. In this case the human development is a critical component of public wealth, the resulting effect of the economic development. World Health Organization experts have proved that the improved quality and increased life expectancy lead to the accelerated economic development of the state and the growth of its gross national product[1]. Developmental trends of the modern economy have new requirements for the quality of human capital. The state of human capital and one of its most important components such as labor potential creates risks for the transition to the innovative development in the post-Soviet countries. It is possible to point out the natural population loss as a major pain spot, which leads to the substantial decline in manpower resources.

The purpose of this article is a cross-country analysis of the state and the dynamics of socio-demographic characteristics of manpower resources, as well as the revealing of common problems and regional peculiarities of their development.

Over the past twenty years the population size has decreased by 7% in Belarus (from 9481 to 10198 thousand people) and by 4% in Russia (from 148 514 to 142 914 thousand people; *table 1*).

Total population losses in both countries have amounted to 6.3 million persons over this period; these figures exceed the population size of such countries as Denmark (5.5 million) and Finland (5.4 million). There is a similar trend in the regions of the Russian Federation: the North-West Federal District and the Vologda Oblast have lost 11% of the population each.

In general, migration flow was positive for the socio-economic development of the countries over the last 20 years. However, Russia has lost its attractiveness for immigrants recently: the migration growth amounted to 25 people per 10 thousand people in 2000, and it was 13 people in 2010 (fig. 1). This is partly caused by the increase in public anti-migrant xenophobia and by the fact that the growth of migration activity is slowed down by undeveloped labour and housing markets, a lack of reliable information on job vacancies and employment opportunities, difficult access to citizenship, significant costs of relocation, etc.

Natural population loss in the Vologda Oblast isn't compensated by migratory movement. After a great drop in migratory growth, which was fixed in 2001, these indices remain extremely low. Negative migratory balance in 2006 was changed by migratory increase in 2008 that amounted to 655 persons; but there was another migratory decline in 2010 (a migratory level was 2 persons per 10 thousand people; it was the

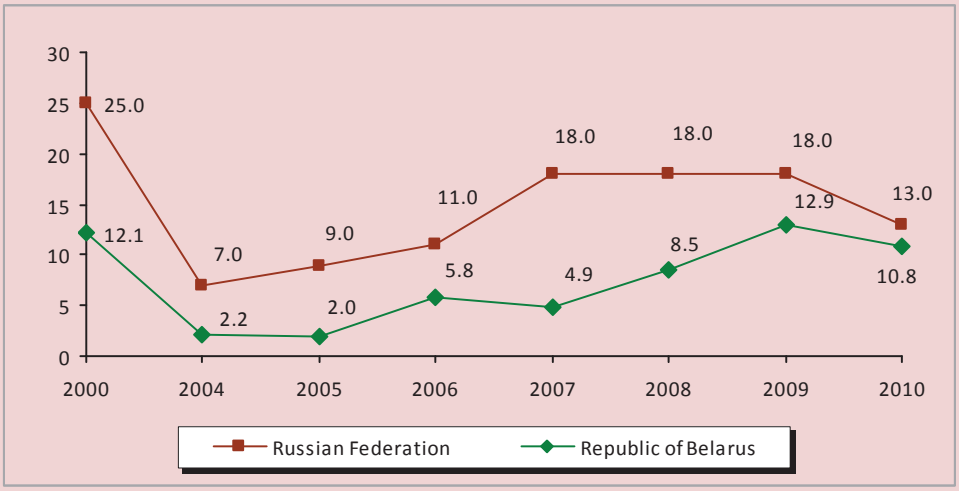
Table 1. Population size (at the end of the year), thsd. persons

| Region | Year | | | | | | Rate of growth / decline, 2010 to 1991, % |
|---|---|---|---|---|---|---|---|
| | 1991 | 1995 | 2000 | 2005 | 2009 | 2010 | |
| Republic of Belarus* | 10198.3 | 10177.3 | 9956.7 | 9630.4 | 9500.0 | 9481,2 | 93 |
| Russian Federation** | 148514.7 | 148291.6 | 146303.6 | 142753.5 | 141914.5 | 142856.5 | 96 |
| *North-West Federal District* | *15275.5* | *14806.5* | *14261.2* | *13679.6* | *13462* | *13584* | *89* |
| *Vologda Oblast* | *1353.5* | *1336.2* | *1294.9* | *1240.4* | *1218* | *1203* | *89* |

* Data on the population size for the intercensal period (2000 – 2009) have been corrected based on the results of the population census in 2009, adjusted population size has been used in calculation of relative indices.
** Data for 2005 – 2009 don't include the results of the 2010 National Population Census; data for 2010 include the preliminary results (www.gks.ru).
Source: Belarus and Russia. 2011: Stat. Coll. Rosstat, Belstat, the Standing Committee of the Union State. Moscow: Rosstat, 2011. P. 32. Demographic Yearbook of Russia. 2010: Stat. Coll. Moscow: Rosstat, 2010. P. 29.

[1] Suhrcke M., McKee M., Rocco L. Health: a vital investment for economic development in eastern Europe and central Asia. World Health Organization, 2007.

Figure 1. Migratory population growth/loss, pers. per 10 thousand people




Source: Regions of Russia. Socio-economic indicators. 2011: Stat. Col. Rosstat. Moscow, 2011. Statistical Yearbook. 2011. Minsk: National Statistical Committee of the Republic of Belarus, 2011. Authors' calculations.

lowest indicator since 2001). For comparison: in 2010 the coefficients of total migratory increase in the North-West Federal District were 14 times higher than in the Vologda Oblast – 2 persons per 10 thousand people. For example, in 2010 the total migratory growth coefficients were by 14 times higher in the North-West Federal District than in the Vologda Oblast – 26 persons per 10 thousand people.

The natural population loss in Belarus amounted to 743.5 thousand people for the period from 1994 till 2010. If there were no positive migration balance, the population would have been reduced by 8756.5 thousand people by 2010 or by 14.5% as compared with the beginning of depopulation in 1994. In fact, the population amounted to 9465.2 thousand persons as of January 1, 2012 (with a positive migration balance in 2011 that accounted for 9.9 thousand people); it was by 143.7 thousand people more. As you can see, the difference is very significant – this value reflects the positive impact of migration on the population in Belarus. Its compensating role was 15.4% for the whole period from 1994 to 2010 and 38.5% in 2011. Currently, migration is the only factor that restrains population loss in Belarus, i.e. it can directly influence its demographic security *(fig. 2)*.

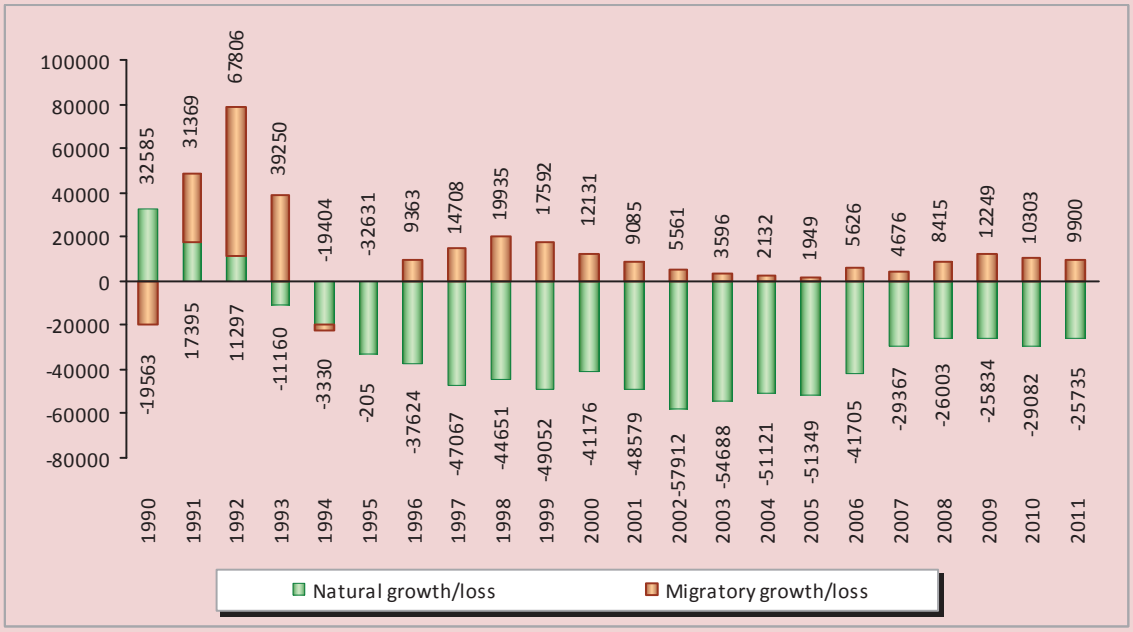
According to the assessments of Belarusian demographers, it is necessary to provide for a "zero option" in order to stop the population decline in Belarus (full coverage of migratory loss through migratory growth). "Zero option" for Belarus is a positive migration balance that amounts to 28 – 30 thousand persons per year[2], or 140 – 150 thousand people for 5 years; it is the total migratory growth for the period from 1994 till 2010. It is difficult to reach these showings based on the current demographic trends[3]. It should be noted that the state authorities of Belarus have realized the role of migration in ensuring demographic security. They have approved the National Programme on Demographic Security of the Republic of Belarus for 2007 – 2015, where it is planned to increase a positive migration balance and to achieve the migration growth of 60 thousand people in five years (10 thousand people in 2011, 11 thousand people in 2012, 12 thousand people in 2013, 13 thousand people in 2014, 14 thousand people in 2015)[4].

[2] Migratory population growth amounted to 25.7 thousand people in 2011.

[3] Total number amounted to 40.9 thousand persons for 2006 – 2010, 23.9 thousand persons for 2001 – 2005 and 73.6 thousand persons for 1996 – 2000.

[4] National Programme on Demographic Security of the Republic of Belarus for 2007 – 2015. http://mintrud.gov.by/min_progs/prog22/

Figure 2. The dynamics of natural population growth/ loss and migratory population growth/ loss in Belarus (1990 – 2011), persons




Source: Statistical Yearbook. 2011. Minsk: National Statistics Committee of Belarus, 2011.

Demographic processes largely determine the current state of labour resources and the prospects for their development. Keeping this scenario of demographic situation will adversely affect the basic indices of economic progress in both countries, and primarily it will influence the growth rates of gross domestic product and the availability of labour resources.

One of the quantitative indicators of the problem field of labour potential is the number of able-bodied population and people under able-bodied age. Nowadays these figures indicate the unfavorable trends for the sustainable development of territories. The number of able-bodied people, who are the main labour potential in Russia, is appreciably declining today. This trend will continue in future. According to the forecast of the Federal State Statistics Service, the number of able-bodied population will have decreased by 12% by 2030 *(tab. 2)*.

According to the calculation of the Institute of Socio-Economic Development of Territories of RAS, the number of able-bodied population will have declined by18% in the Vologda Oblast by 2020[5].

The share of young people in the total labour resources is projected to remain unchanged in Russia; it will amounted to 16%; it was the same in the base year of the forecast (2011).At the same time, the share of population at the age of 60 years old and more will have increased by 27% by 2030.

There are the similar trends in the dynamics of these categories of population in Belarus. There was the able-bodied population growth (from 5809.3 thousand people in 2000 up to 6053.3 thousand people in 2008) and the increase of its share in the total population

[5] Shabunova A.A., Bogatyrev A.O. Vologda Oblast: the demographic development prospects of the territory. Vologda: ISEDT RAS, 2010.

Table 2. The dynamics of population size by age groups for the period from 2000 till 2010 and the forecast for 2020 and 2030 (average variant, at the beginning of the year)

| Country | Year | Under able-bodied age | | Able-bodied age | | Over able-bodied age | |
|---|---|---|---|---|---|---|---|
| | | thousand people | the share in total population, % | thousand people | the share in total population, % | thousand people | the share in total population, % |
| Russia | 2000 | 29579.8 | 20.1 | 87172.3 | 59.3 | 30138.1 | 20.6 |
| | 2005 | 24095.3 | 16.8 | 90218.3 | 62.9 | 29160.7 | 20.3 |
| | 2010 | 22854.4 | 16.1 | 88359.7 | 62.3 | 30700.4 | 21.6 |
| | 2020 | 25935.1 | 18.3 | 79033.2 | 55.7 | 36939.7 | 26.0 |
| | 2030 | 22845.4 | 16.4 | 76770.5 | 55.1 | 39755.9 | 28.5 |
| Belarus | 2000 | 2065.5 | 20.6 | 5809.3 | 58.0 | 2144.7 | 21.4 |
| | 2005 | 1682.2 | 17.2 | 6037.2 | 61.6 | 2080.0 | 21.2 |
| | 2010 | 1513.6 | 15.9 | 5847.3 | 61.6 | 2139.1 | 22.5 |
| | 2020 | 1583.0 | 16.8 | 5313.0 | 56.5 | 2511.0 | 26.7 |
| | 2030 | 1469.0 | 16.2 | 4900.0 | 54.1 | 2694.0 | 29.7 |

Sources: gks.ru; Belarus and Russia – 2011; Demographic Yearbook of Russia. 2010: Stat. Col. Rosstat. – Moscow, 2010; Yurkshtovich E. Pension prospects. Belaruskaya Dumka. 2008. No. 8. P. 96-101; Shakhot'ko L.P. The model of demographic development of the Republic of Belarus. Minsk: Belaruskaya Dumka, 2009. P. 168.

Table 3. The main utilization indices of the population's labour potential, %

| Region | Employment rate | | | Economic activity rate | | | Unemployment rate | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2000 | 2005 | 2010 | 2000 | 2005 | 2010 | 2000 | 2005 | 2010 |
| Belarus | 98.0 | 98.0 | 99.0 | 78.0 | 75.6 | 80.8 | 2.1* | 1.5* | 0.7* |
| Russia | 58.5 | 63.4 | 64.0 | 65.5 | 65.8 | 67.7 | 10.6 | 7.2 | 7.5 |
| North-West Federal District | 60.0 | 63.4 | 68.8 | 66.4 | 68.6 | 70.6 | 9.6 | 5.5 | 6.2 |
| Vologda Oblast | 62.3 | 64.6 | 64.3 | 67.9 | 68.1 | 69.6 | 8.3 | 5.2 | 7.9 |

* Official unemployment rate.
Sources: Labour and employment in the Republic of Belarus: Stat. Col. Minsk, 2011; Regions of Russia. Socio-economic indicators. 2011: Stat. Col. Rosstat. Moscow, 2011; http://petrostat.gks.ru/federal/szfo_trud/ (access date: 27.03.2012 г.); authors' calculations.

(from 58.0% in 2000 up to 62.4% in 2008) against the backdrop of the total depopulation. It should be noted that the share of able-bodied population was increased at the expense of the population under able-bodied age[6]. Demographic projections show that the tendency to reduce the number of able-bodied population in Belarus will continue for a long time in future. Moreover, the share of able-bodied population will begin to decrease in Belarus in the coming years. As in Russia, the able-bodied population in Belarus will decrease by 7.5% in 2030, but the share of the population under able-bodied age won't change, it will have amounted to 16% by 2030, as in the base year of the forecast. At the same time the share of population aged 60 and older will have increased by 7.2% by 2030.

The dynamic characteristics of the labour market show whether the use of labour potential of the economically active population leads to the full and productive employment. The focus on the productive employment facilitates the progress of labour potential and its implementation that is necessary to increase the competitiveness of both countries in the global economic space. Full employment is a strategic goal for them in the demographic crisis.

Both Russia and Belarus are among the countries with high employment rates. In 2010 64% of the economically active people were employed in Russia and 99% in Belarus *(tab. 3)*.

[6] Shakhot'ko L.P. The demographic development model of the Republic of Belarus. Minsk: Belaruskaya Dumka, 2009. P. 170.

The unemployment rate, measured by the methodology of the International Labour Organization, was 7.5% in the Russian Federation in 2010. The same rate increased to 10.1% in the 16 EU countries in 2010. Such rate was a record for Eurozone since the time of its establishment. Moreover, the highest unemployment rate among the largest post-Soviet countries was reached by the Baltic republics: it was 18.2% in Lithuania, 18.6% in Estonia, 19.4% in Latvia[7].

It's impossible to compare the total unemployment rate[8] in the neighboring countries that is calculated by the methodology of the International Labour Organization, because the official unemployment rate in Belarus is estimated only based on the number of people, who have applied to the employment services and who are registered there[9]. Official unemployment rate is higher in Russia than in Belarus (it was 2.1% in Russia in 2010 and 0.7% in the Republic of Belarus).

There were the trends in the dynamics of employment and unemployment rates in the Vologda Oblast in the period from 1992 to 2010 similar to the dynamics of these parameters in the North-West Federal District and in the Russian Federation. At the same time, the employment rate was higher and the unemployment rate was lower in the Vologda Oblast than in the European Union.

The urgency of the purpose to have the full and productive employment is also associated with the fact that in addition to the reduction in manpower resources both countries have almost exhausted the reserves on the improvement of the population's economic activity that is evidenced by the comparison with the performances of some European countries in terms of population aged from 25 to 49 years *(fig. 3, table 4)*.

The *figure 3* show that the activity level of the people of the most productive working age (25 – 50 years old) is very high in Russia; there are some reserves only in the group of young people under 25 years old. The relatively high activity in the group of people aged 60 and older can be explained by the fact that life expectancy is lower than in the developed countries. According to the average age index of the working population in the Republic of Belarus (39.4 years in 2000, 40.4 years in 2010[10]), its economic activity has the similar trends.

Productive employment is characterized by highly productive labour. According to the assessment of the International Labour Organization, the level of productivity in Russia is three-four times lower than in the developed countries *(fig. 4),* it is 15 – 20% lower than in Belarus[11].

According to Conference Board (Total Economy Database – 2011), the labour productivity per person per hour in the U.S. is 61 dollars. It is varied in the EU countries: Greece – 35 dollars, Portugal – 26 dollars, France – 56 dollars. The labour productivity is 19 dollars in Russia; it amounts to 7.5 dollars in China and 4.1 dollars in India[12].

[7] New qualitative characteristics of the population in the Republic of Belarus (the results of 2009 census and the implementation of the National Programme on Demographic Security of the Republic of Belarus for 2007 – 2010). Available at: belstat.gov.by (access date: 19.03.2012).

[8] According to the International Labour Organization, the unemployed people include the persons aged from 15 to 72, who had no job in the period under review, or they look for a job, or they were able to start working within a certain period of time. Pupils, students, pensioners, disabled people were taken into account when they were ready to start working or looked for a job.

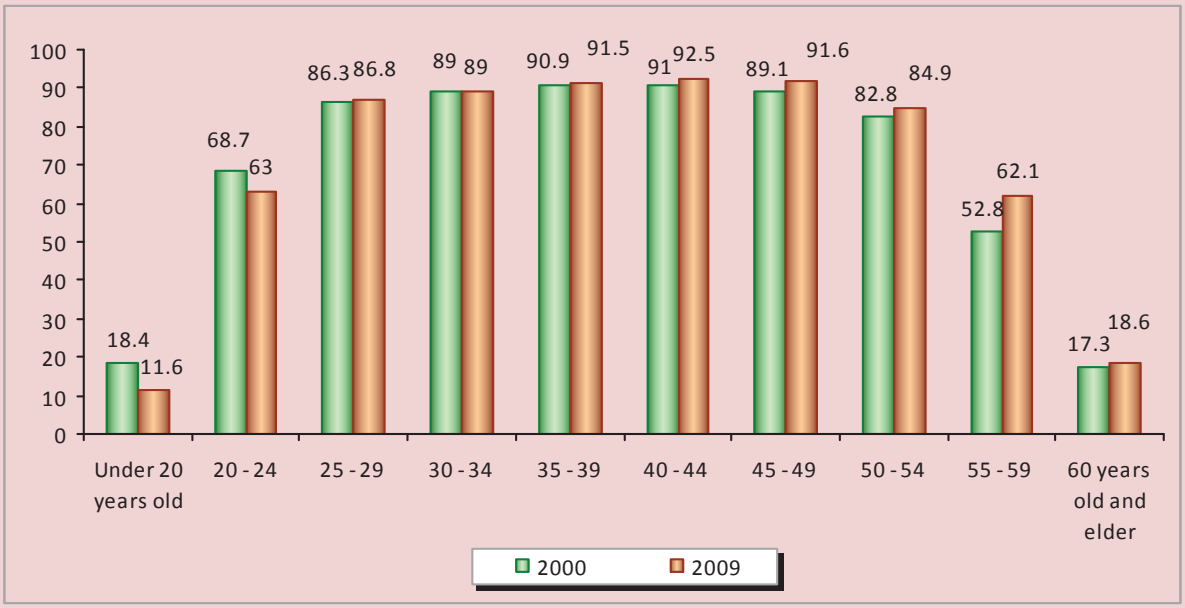
[9] The unemployed persons, who are registered with the state employment services, include able-bodied citizens out of occupation and earnings, who live in Russia and who are registered with the state employment services, looking for a job and ready to start working.

[10] Statistical Yearbook: 2011. National Statistics Committee of Belarus, 2011. P. 119.

[11] Rodionov I.A. Low labor productivity – an obstacle for the growth of the Russian economy. 2008. Available at: www.cig-bc.ru/library/74190/93453.

[12] Trofimova E. The disadvantages of labour productivity as a fundamental factor in the global economic crisis. Available at: http://www.vedomosti.ru/finance/analytics/24490/nedostatki_proizvoditelnosti_truda_fundamentalnyj_faktor#ixzz1qauxXzRQhttp://www.vedomosti.ru/finance/analytics/24490/nedostatki_proizvoditelnosti_truda_fundamentalnyj (Access Date: 30.03.2012 г.)

Figure 3. Age-related dynamics of the economically active population in Russia (the share in the population of a relevant age group, %)




Source: Economic activity of the population in Russia (based on the results of sampling surveys). 2010: Stat. Col. Rosstat. Moscow, 2010. P. 21.

Table 4. Age-related employment rate*, %

| Country | 15 – 64 years old | | Including | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 15 – 24 years old | | 25 – 49 years old | | 50 – 64 years old | |
| | 2000 | 2009 | 2000 | 2009 | 2000 | 2009 | 2000 | 2009 |
| Russia | 63.3 | 67.0 | 34.6 | 34.7 | 80.7 | 83.2 | 49.9 | 61.6 |
| Belarus | 77.9 | 80.4 | n/a | n/a | n/a | n/a | n/a | n/a |
| EU countries | | | | | | | | |
| Spain | 56.1 | 59.8 | 32.2 | 28.0 | 69.9 | 71.4 | 45.1 | 52.3 |
| Italy | 53.4 | 57.5 | 26.1 | 21.7 | 69.4 | 72.2 | 38.4 | 47.8 |
| Latvia | 57.4 | 60.9 | 30.3 | 27.7 | 74.0 | 75.0 | 46.6 | 60.9 |
| Lithuania | 59.6 | 60.1 | 26.7 | 21.5 | 76.1 | 77.1 | 51.7 | 59.7 |
| Poland | 55.1 | 59.3 | 24.1 | 26.8 | 72.8 | 79.7 | 43.3 | 46.0 |

* The ratio of employment rate to the total population of a relevant age group.
Source: Russia and EU countries – the members of the European Union. 2011. Stat. Col. Rosstat. Moscow, 2011. P. 64.

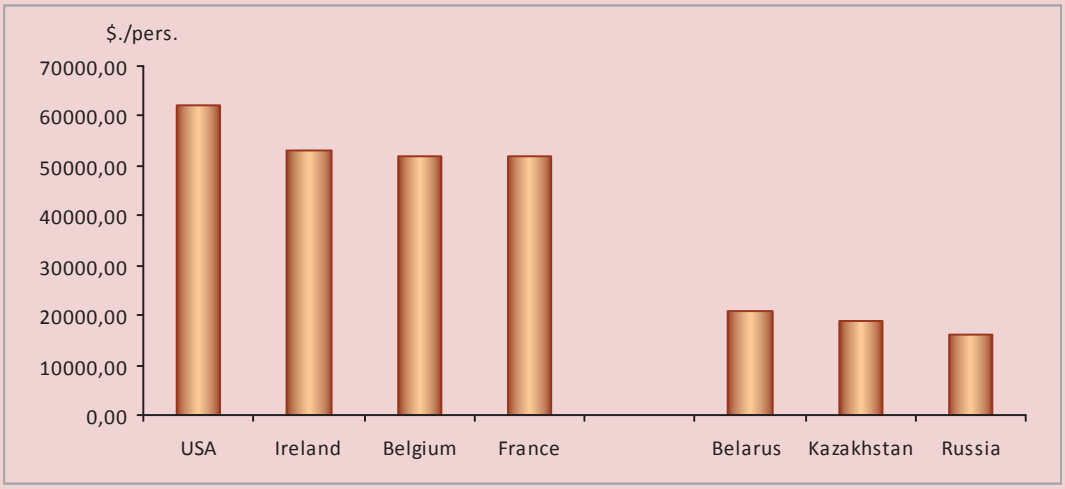
Extremely high mortality of able-bodied population has a bad influence on the quantitative indicators of the labour potential in Russia: the share of able-bodied adults is one third of all deaths per year. This rate is three times higher than in the developed countries and two times higher than in the developing ones[13]. External causes (accidents, poisoning, injuries, *table 5*) are among the most important causes of death.

The share of hazardous and dangerous work conditions has increased by more than 5% since 1990 till today; it amounts to about 23% in recent years and reaches a third or a half of production in some industries.

One of the most important factors determining the quality of the labour potential is health. It stimulates the rise in a person's status. If people are healthy, the rates of their striving for life goals are high.

[13] Aganbegyan A.G. About Health Care Reform. Available at: http://2020strategy.ru/g11/doc

Figure 4. The world and CIS leaders of labor productivity (according to the data of the International Labour Organization; labour productivity indices of most countries are represented for 2005 and the leading countries' indices are for 2006)




Source: Rodionov I.A. Low labor productivity – an obstacle for the growth of the Russian economy. 2008. Available at: www.cig-bc.ru/library/74190/93453

Table 5. On-the-job injury rate, per 1000 employees

| Indicators | 1991 | 1995 | 2000 | 2005 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|
| The number of victims of industrial accidents with one day or more disability and fatal accidents (per 1000 employees) | | | | | | | | |
| Belarus | 4.7 | 3.3 | 2.1 | 1.2 | 0.9 | 0.8 | 0.7 | 0.7 |
| Russia | 6.5 | 5.5 | 5.1 | 3.1 | 2.7 | 2.5 | 2.1 | 2.2 |
| Including fatal accidents | | | | | | | | |
| Belarus | 0.087 | 0.089 | 0.064 | 0.061 | 0.054 | 0.051 | 0.049 | 0.051 |
| Russia | 0.128 | 0.138 | 0.149 | 0.124 | 0.124 | 0.109 | 0.090 | 0.094 |
| Sources: Belarus and Russia. 2011: Stat. Col. Statistics Service, National Statistical Committee, the Standing Committee of the Union State. Moscow: Rosstat, 2011. P. 39. | | | | | | | | |

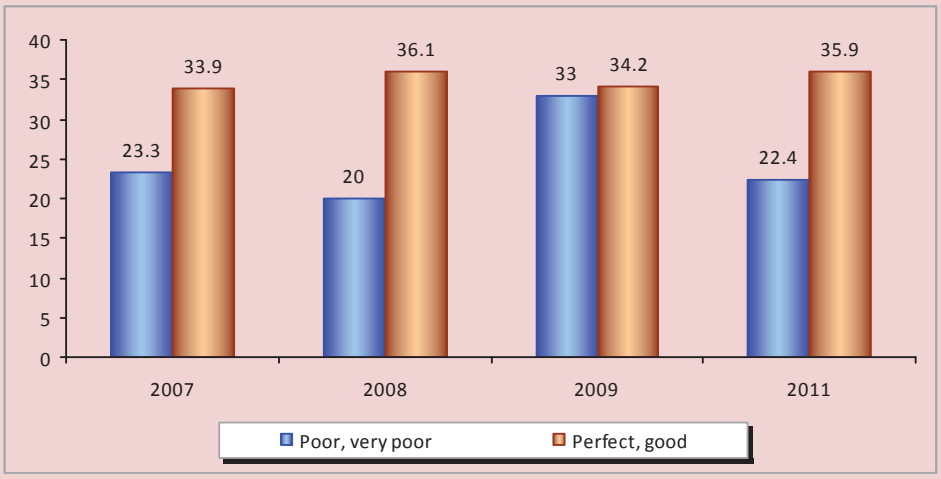
The findings of the investigation of the labour potential quality in the Vologda Oblast indicate that the people, who estimate their health as perfect, are going to improve their knowledge and become highly qualified specialists. It should also be noted that the integral quality assessment of the labour potential by the people, whose health is perfect, is significantly higher; it increases their chances to achieve success, to climb the career ladder, etc. The assessment of the health by the persons with a higher education is very interesting. Often there is a variant "Perfect and good health" in their estimations *(fig. 5)*. As a rule, the health of the people, who are involved in intellectual labour, is better.

The research of Texas University at Austin[14] showed that creative spirit allows people to keep their health longer. The lack of routine, labour enjoyment, the opportunity to learn a lot and to solve difficult tasks contribute to a positive mood, as a result of which people feel themselves healthier. The study's findings prove that such activity allows a person to be as healthy as a person who is 6 – 7 years younger.

According to the experts of the World Health Organization, the way of human life and our personal choices for healthy or unhealthy alternatives form 50% of our health.

[14] Studies have shown that creative work increases life span. Izvestiya. 2007. Dec.19. Available at: http://www.izvestia.ru/news/414949

Figure 5. Self-assessment of health by the people with a higher and incomplete higher education, in % to the number of respondents




Source: Monitoring of the population's labour potential quality in the Vologda Oblast, 2011. ISEDT RAS.

It is also noted that the state isn't responsible for all the factors of human health. The experience of the countries, where the health rates are high, shows that the responsibility for health should be distributed evenly among all the subjects of social relations: the state, employers, families, individuals, etc.

People's lifestyle has become less predictable and controlled by society due to the liberalized norms of public life over twenty years after the Soviet Union collapse. They have acquired the opportunity to manage their own lives when they choose education, occupation, activities, places of residence, marital status, the balance between working hours and rest, relaxation methods, etc.

These trends can be seen as positive only if there is an increase in individuals' responsibility for their health, which manifests itself in specific actions aimed at their health protection, improvement of living conditions, rationalization of working, everyday life, recreation and leisure.

It is possible to improve significantly public health through the coordinated activity of the state, social institutions (family, education, medicine) and individuals. Only this condition will ensure the transition of society into the state, which is more favorable to the socio-demographic development. Otherwise, investment in human capital will be lost.

A comparative study[15] of the population's activity aimed at the self-preservation was conducted in the Republic of Belarus and in the Vologda Oblast, one of the regions of North-West Federal District of the Russian Federation, in 2011.

We focused on the activity of the individuals, their efforts aimed at the improvement of their health and living conditions. We consider self-preserved activity (the activity aimed at health protection) as a kind of social activity, i.e. in terms of its method, awareness, goal-setting, anticipation of result, competence, energy and effectiveness.

[15] The national poll in Belarus was conducted by the Institute of Sociology of NASB in November 2011. Its representative sample was 2100 people. It included control quotas by gender, age, education, region of residence. The poll in the Vologda Oblast of a representative sample (1,500 people) was conducted by ISEDT RAS in November 2011.

It is an essential component of a healthy lifestyle of a modern man and one of the main indicators of people's relationship to their health in the situation of increasing health risks. The analysis of the obtained information showed that a significant share of the population had undertaken specific measures to preserve their health *(tab. 6)*.

Thus, 79.5% of the population in Belarus, and 76.6% of the population in the Vologda Oblast understand the actual risks and use some measures to preserve and promote their health: 57% of Belarusians and 42.7% of the people in the Vologda Oblast don't smoke; 30.4% of the population in Belarus and 32.3% of the people in the Vologda Oblast go to baths or saunas; 28.9 and 18.7% of people try to balance their labour load and rest. At the same time, only a third of the population observes a strategic, balanced (consistent) health care as the most important value in life.

It should be noted that physical training activity isn't enough in both countries (13.5% in Belarus and 12.3% in the Vologda Oblast); although the WHO experts think that the rise in coronary heart diseases, hypertension and some cancer diseases is caused by physical inactivity. Some part of this inactivity is compensated by walking in the places of recreation, but above all it concerns the people with low health status. The researching results show that the culture of self-preserved behavior is only beginning to emerge in Belarus and Russia. Mainly, it is a characteristic of the people with higher education and students; it proves the central role of education in the formation of human health.

The analysis data allows us to talk about the threat of restricted reproduction of labour resources in both countries. However, a complex long-term goal includes the improvement of demographic situation and the increase in the number of labour force. The improvement of the conditions for the available labour potential implementation is more realistic and cost-efficient in the medium term.

First of all, overcoming the demographic crisis is associated with the development of emergency response to depopulation: the measures to improve health, reduce mortality and optimize migration processes.

It is important to improve all kinds of social relations in order to achieve the strategic goal:

1. The primary objectives of social policy for the next five years should include: poverty reduction; full productive and freely chosen employment as the main source to increase the role of labour income and their real growth; the improvement of life quality.

Table 6. Self-preserved activity of the population (the distribution of responses to the question "What do you do to preserve and promote your health?"), in % to the number of respondents

| Responses | Republic of Belarus | Vologda Oblast |
|---|---|---|
| I go in for sport and train my body | 13.5 | 12.3 |
| I use water filters, buy bottled water, use spring and well water | 21.7 | 29.3 |
| I control my weight | 26.2 | 19.8 |
| I don't smoke | 57.0 | 42.7 |
| I seek medical attention at the first sighs of disease and regularly pass a medical examination | 25.4 | 17.9 |
| If it is possible, I promote my health in the sanatorium, resort, etc. | 13.7 | 10.3 |
| I visit a bath, a sauna | 30.4 | 32.3 |
| I try to walk more in the places of recreation | 34.4 | 26.2 |
| I try to control my mental state | 26.3 | 13.0 |
| I try to balance my labour load and rest | 28.9 | 18.7 |
| I try to spend my free time with health benefits | 19.9 | 14.9 |
| I do nothing special | 20.5 | 23.4 |
| Other | 0.7 | 0.3 |
| Source: Database of the Institute of Sociology of NAS of Belarus and ISEDT RAS. | | |

2. The following measures are necessary in the field of demographic development: public health improvement; mortality reduction and increase of life expectancy; strengthening marriage and family relations and improving the living conditions of families; birth rate stabilization in the medium term and long-term birth rate growth up to the level close to a simple mode of reproduction; migration processes perfection.

3. National health should be the main national priority in both countries. In order to do this, the main efforts of the state, society and individuals should be aimed at the health promotion and mortality reduction. These measures are demographically and socially important and economically advantageous. Public health is a core that will allow us to carry out effective socio-economic reforms and improve the demographic situation in the country.

4. Major efforts should be focused on the implementation of the measures aimed at the increase in healthy (active) life expectancy, especially life span of the male population of the country; reduction of untimely and preventable mortality. These tasks should be solved by improving preventive, therapeutic and diagnostic care to the population, early detection and treatment of diseases, injury prevention. It is necessary to attend a healthy lifestyle promotion.

The realities of the time require the reconsideration of many problems and the tasks in the state regulation of labour resource quality, as well as the development of new methodological approaches to their prediction and to the arrangement of the strategy of national priorities.

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UDC 314.17(470+476)


# Able-bodied population mortality in Russia and Belarus as a threat to the demographic development of the territories*

*The article deals with the problem of high mortality of able-bodied population as a major cause of depopulation and the structural transformation of the population in Russia and Belarus. The authors consider the tendencies and characteristics of the demographic development of the Union State in comparison with the EU countries. The main reasons for the able-bodied population super-mortality have been revealed, and the time intervals, which are necessary to achieve the European average mortality level under the rates of its decline, have been predicted. There is a review of public policy in this area.*

*Depopulation, mortality, able-bodied population, life span, health protection, public policy.*

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* This research has been carried out with financial support from the Russian Humanitarian Science Foundation, the project "Public Health in the North-West Federal District of the Russian Foundation and in the Republic of Belarus as a strategic component of labor potential" № 11-22-01002a/Bel).

Machines and capital were the major assets and factors of economic prosperity in the industrial era. The main resource and driving force in the modern age of information technology and post-industrial society is a man. As a bearer of knowledge, skills, experience, creativity, a man is a resource for the continuous development and improvement of the competitiveness of enterprises, regions and countries.

However, a man can become a "scarce resource" in the nearest future due to the heterogeneous demographic processes in the territorial scale. This problem concerns the European countries to the greatest extent.

Depopulation is one of the most pressing issues affecting the national security interests of Russia and Belarus. Comparative analysis of the demographic challenges of mortality among the population of Belarus and Russia is especially interesting due to the fact that both countries have their common political, socio-economic and demographic history reflected in the trends of mortality and life expectancy. There are significant changes in the political, socio-economic and cultural spheres in Russia and Belarus after the Soviet Union collapse and obtaining their independence, which influence the demographic component of their development. Common history, the general trends of their demographic development and the common economic space determine the joint solution of some problems associated with high premature mortality of the population in Russia and Belarus.

One of the major shocks for both countries was the economic liberalization and the subsequent sharp decline in living standards, accompanied by the reduction of the governmental support for families and the destruction of social services. The rupture of economic ties since the USSR collapse, setback in production and inflation inevitable in the transition to a market economy, the errors of the previous restructuring stage have led to the deep economic crisis.

Nowadays, when Russia and Belarus have established the Union State, these problems must be solved concordantly.

According to the latest census, the resident population size in Russia amounted to 142.9 million people as of November 14, 2010 [7]. These figures are lower by 2.3 million people (1.6%) than the figures of the census in 2002, including 1.1 million declines in urban areas and 1.2 million reduction in rural areas. There are the similar trends in the Republic of Belarus. The population size in Belarus decreased by 545.3 thousand (5.4%) in the intercensal period (1999 – 2010) and it amounted to 9499.9 thousand people in 2010[1].

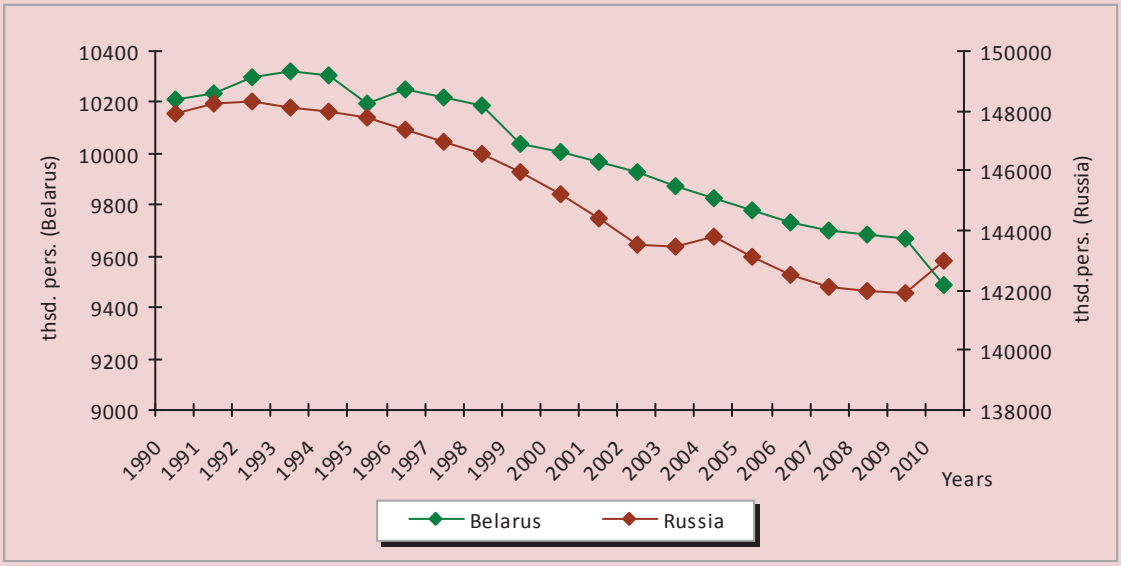
The period of sustainable population decline both in Russia and Belarus has concurred with the period of transformation processes *(fig. 1)*. Russia has lost nearly 5 million people (3%) and Belarus has lost 721 thousand people over two decades (7%).

Depopulation is under the double "pressure" both in Russia and in Belarus: a unique low birth rate and a dramatically high mortality rate. At the same time, there is a stable natural population growth at close birth rates in most developed Western countries *(tab. 1)*.

Exceeding of a mortality rate over a birth rate is one of the reasons for the gradual transformation of the population structure when there is a decline in the share of able-bodied population and an increase in the share of elderly persons in the total population. According to the criteria of the UN, the population is characterized as "old" if the share of people aged 65 and older exceeds 7% [10]. The share of population over 65 years has increased by 3% both in Russia and Belarus for the period from 1990 to 2009; it has amounted to 13% and 14%, respectively *(tab. 2)*.

According to the UN forecasts, the share of the population over 60 years old in the Russian Federation will have been amounted to 37% by 2050 while the same rate will be 21 % on average in the world. At the same time, the share of the child population will have been significantly reduced. The same trends are typical for Belarus.

Figure 1. Dynamics of average annual population in Russia and Belarus in the period from 1990 till 2010




Source: European Health for All Database (January, 2012). Available at: http://data.euro.who.int/hfadb/shell_ru.html

Table 1. Demographic development of countries (2009)

| Country | Population size | | | Birth rate (per 1000 people) | Mortality rate (per 1000 people) |
|---|---|---|---|---|---|
| | 1990 | 2009 | 2009 to 1990, in % | | |
| **Russia** | **148.3** | **141.9** | **95.7** | **12** | **14** |
| **Belarus** | **10.2** | **9.7** | **95.1** | **12** | **14** |
| Finland | 5.0 | 5.3 | 106.0 | 11 | 9 |
| Germany | 79.4 | 81.9 | 103.1 | 8 | 10 |
| France | 56.7 | 62.6 | 110.4 | 13 | 9 |
| Great Britain | 57.2 | 61.8 | 108.0 | 13 | 9 |

Source: European Health for All Database, WHO. Available at: http://www.euro.who.int/hfadb; World Development Indicators 2011. The World Bank, 2011. Available at: http://data.worldbank.org/data-catalog/world-development-indicators.

Table 2. Age structure of population in 1990 and 2009

| | The share of population in 1990 | | The share of population in 2009 | |
|---|---|---|---|---|
| | under 14 years old | over 65 years old | under 14 years old | over 65 years old |
| **Russia** | **22.9** | **10.0** | **14.9** | **13.1** |
| **Belarus** | **23.1** | **10.7** | **14.7** | **14.0** |
| Finland | 19.3 | 13.4 | 16.7 | 16.9 |
| Germany | 16.1 | 15.0 | 13.5 | 20.5 |
| France | 19.4 | 14.5 | 18.9 | 16.3 |
| EU | 19.3 | 13.8 | 15.6 | 17.3 |

Source: European Health for All Database (January, 2012). Available at: http://data.euro.who.int/hfadb/shell_ru.html

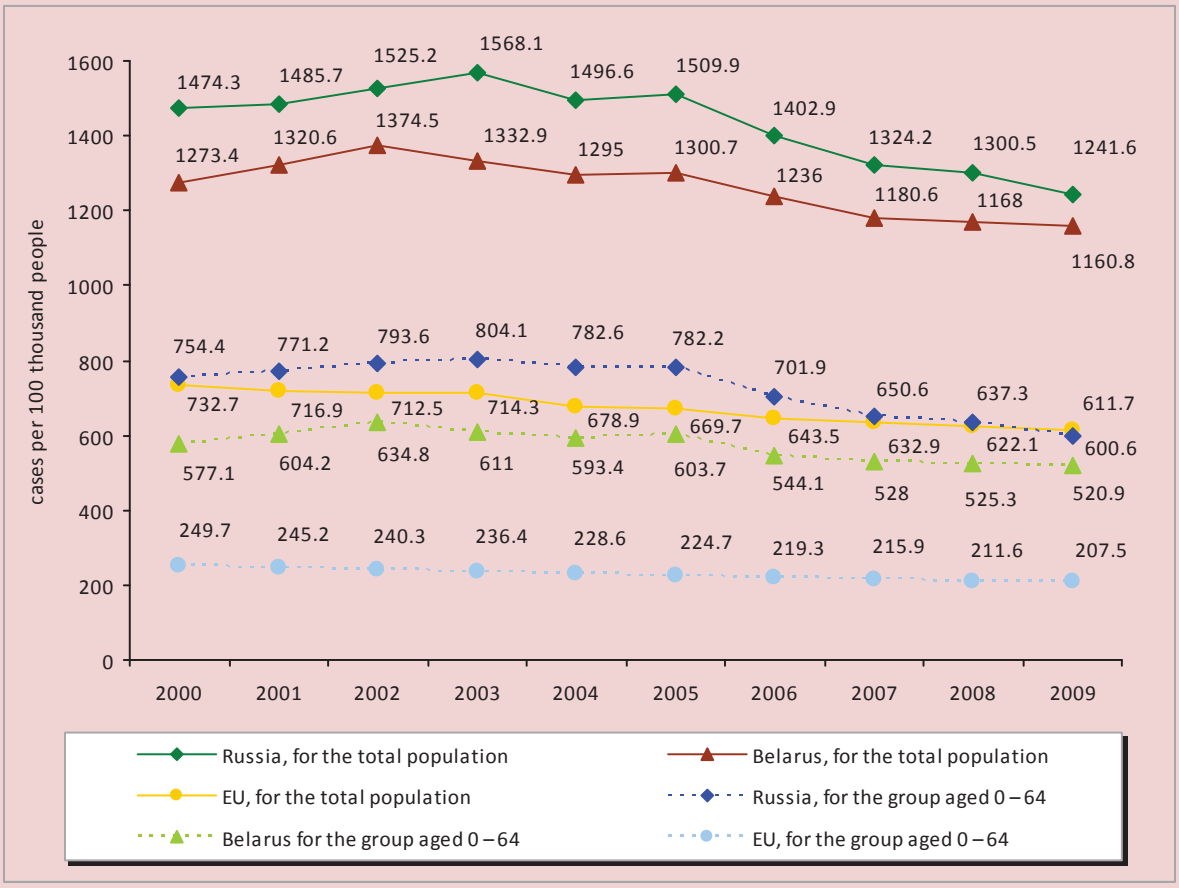
Insufficient substitutability of retirees with young people is a reason for the decline in the number of able-bodied population. There will be a rise of the problems related to a lack of labour resources and an increase in the economic burden on the able-bodied population from the older age groups both in Russia and Belarus in the coming years. Manpower shortage, which is not so noticeable during the economic crises, will require the compensation by increasing the productivity of the employed able-bodied population in future.

The contradiction between the rise in the demand for labour and the decline in its supply will be exacerbated by the growth of middle-aged employees, as well as by the decrease of labour potential quality (due to the deterioration of health). There will be the need for higher health care costs, social services and pension provision due to the process of population aging in the medium term.

The main factor that has a negative impact on the demographic situation is the super-mortality of able-bodied population. According to L.L. Rybakovsky's assessement, a super-mortality rate in Russia has amounted to about 3 – 3.5 million people over the period from 1991 to 2000 [9].

The dynamics of the standardized mortality rates, which negate the structure factor, shows the existence of supermortality in Russia and in Belarus *(fig. 2)*.

Figure 2. The dynamics of the standardized mortality rate for the total population and for the group aged 0 – 64 in Russia, Belarus and the EU countries, the number of cases per 100 thousand people




Source: European Health for All Database (January, 2012). Available at: http://data.euro.who.int/hfadb/shell_ru.html

The dynamics of population mortality over the last decade (the period from 2000 to 2009) shows its small decline both in Russia and Belarus (by 19% and 10%, respectively). Steady downward trend in the mortality rates in these countries have been observed since 2005. The average rate of decline in mortality has amounted to 5% in Russia and 3% in Belarus over the last four years. Nevertheless, the mortality rate in the Union State is two times higher as compared with the European Union.

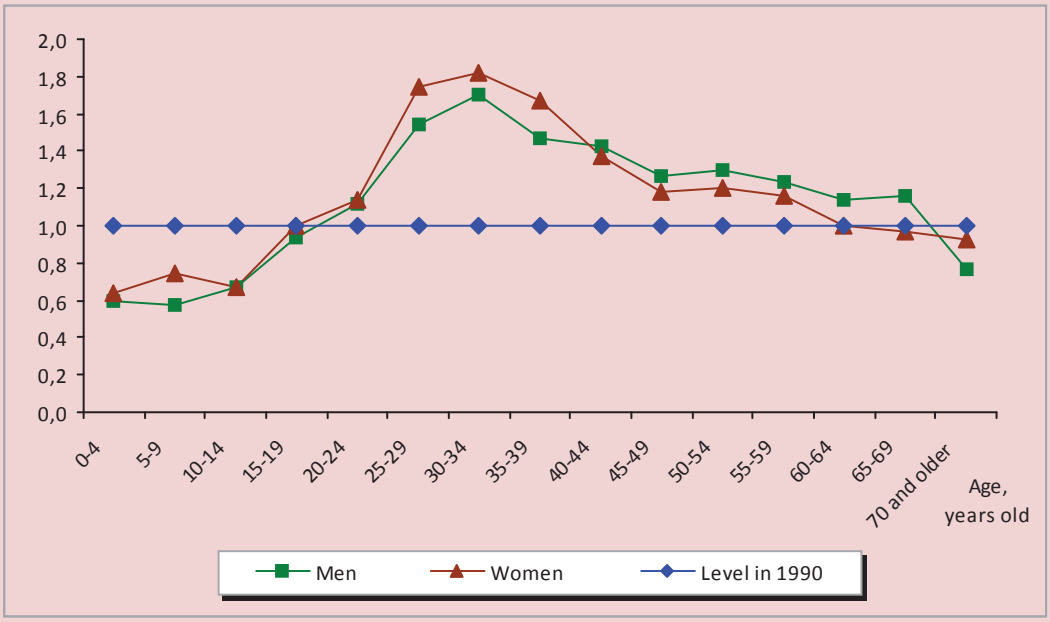
The gap of the mortality rates for the group aged 0 – 64 between Russia, Belarus and European countries is more than the gap of the standardized mortality rates for the total population. According to the data of 2009, able-bodied people died three times more often in Russia as compared with the European countries. Downward rates of mortality in this age group amounted to 6% in Russia and 4% in Belarus during the period from 2005 to 2009.

According to the World Health Organization, in 2009 the able-bodied population mortality rate per one thousand people amounted to 58 persons in Switzerland, 59 persons in Italy, 61 persons in Sweden, 67 persons in Norway, 68 persons in Spain, 76 persons in in Germany, Austria and Greece, 85 persons in France, 101 persons in the Czech Republic, 221 persons in Belarus, 269 persons in Russia and 274 persons in the Ukraine [16].

The able-bodied population supermortality in Russia is confirmed by the analysis of the growth rates of mortality age coefficients over two decades *(fig. 3)*.

There was the highest increase of the able-bodied population mortality in 2008 as compared with 1990. The maximum increase in mortality of both men (1.5 – 1.7-fold) and women (1.7 – 1.8-fold) was in the group aged 25 – 39. The child and juvenile mortality rates declined significantly.

Figure 3. Growth rates of mortality age coefficients of the population in Russia in 2008 as compared with 1990 (1990 = 1)




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

The extremely high mortality rate is a reason for low life expectancy (LE) both in Russia and Belarus, where this rate, despite a slight increase, is lower, than in the Western European countries.

Life expectancy at birth is 79 – 81 years (men – 76-78 years, women – 82-85 years) in the developed countries. Life expectancy at birth is 61 – 65 years (men – 55-60 years, women – 66-75 years) in the developing countries. In 2009 life expectancy was 69 years in Russia and 71 years in Belarus. These figures are 10-11 years lower than in the EU countries *(tab. 3)*. The male life expectancy remains extremely low. In 2009 the gender gap in the population life expectancy was 12 years in Russia, 11 years in Belarus, whereas it was 6 years in the EU.

Russia lagged behind the life expectancy rate of Western Europe in, adjusted with a glance to impairments, for 13 years and it is behind the life expectancy rate of Belarus for 11 years (as of 2007 healthy life span years was 60 years in Russia, 62 years in Belarus and 73 years in EU).

Because of premature mortality the population is losing about 11 years of potential life in Russia and 9 years in Belarus, whereas the population of the EU is losing only 5 years (according to data of 2009) *(tab. 4)*.

At the same time the decline in the male life span is twice as high as the female life span both in Russia and Belarus. It should be noted that there is a gradual reduction of premature mortality losses in the European countries, while there is no unambiguous downward trend in Russia and Belarus.

The mortality structure shows the knowledge about the main threats to premature mortality. Millions of people died over the centuries because of infectious disease epidemics. The progress in medical science allowed people to cope with them. In the XXI century, the predominant causes of death are chronic diseases, especially cardiovascular diseases, cancer, chronic lung diseases, diabetes, which are typical for most elderly persons and which have endogenous and quasi-endogenous determination [2].

Table 3. Life expectancy at birth in Russia, Belarus and the EU countries, years

| Territory | 1990 | 1995 | 2000 | 2005 | 2008 | 2009 |
|---|---|---|---|---|---|---|
| **Russia** | **69** | **64** | **65** | **65** | **68** | **69** |
| men | 64 | 58 | 59 | 59 | 62 | 63 |
| women | 74 | 72 | 72 | 72 | 74 | 75 |
| **Belarus** | **71** | **69** | **69** | **69** | **71** | **71** |
| men | 66 | 63 | 63 | 63 | 65 | 65 |
| women | 76 | 74 | 75 | 75 | 77 | 76 |
| **EU** | **75** | **76** | **78** | **79** | **79** | **80** |
| men | 72 | 73 | 74 | 76 | 76 | 77 |
| women | 79 | 80 | 81 | 82 | 82 | 83 |

Source: European Health for All Database (January, 2012). Available at: http://data.euro.who.int/hfadb/shell_ru.html

Table 4. Reduction in life expectancy down to 65 years old due to untimely mortality, years

| Territory | 1990 | 1995 | 2000 | 2005 | 2008 | 2009 |
|---|---|---|---|---|---|---|
| **Russia** | **10.4** | **13.9** | **13.2** | **13.3** | **11.4** | **10.9** |
| men | 13.3 | 17.7 | 16.9 | 17.0 | 14.8 | 14.1 |
| women | 6.5 | 8.4 | 7.8 | 8.0 | 6.9 | 6.7 |
| **Belarus** | **9.0** | **10.8** | **10.2** | **10.3** | **9.2** | **9.2** |
| men | 11.7 | 13.9 | 13.3 | 13.4 | 12.0 | 12.0 |
| women | 5.7 | 6.5 | 6.1 | 5.9 | 5.2 | 5.3 |
| **EU** | **6.3** | **5.9** | **5.3** | **4.8** | **4.6** | **4.5** |
| men | 7.7 | 7.3 | 6.5 | 5.9 | 5.7 | 5.6 |
| women | 4.4 | 4.1 | 3.7 | 3.4 | 3.2 | 3.2 |

Source: European Health for All Database (January, 2012). Available at: http://data.euro.who.int/hfadb/shell_ru.html

As of 2009 the mortality caused by such leading factors as cardiovascular diseases, cancer and external reasons was two or three times lower in the developed European countries than in Russia. Despite the decline in the share of infectious diseases in total mortality, their rate is higher in Russia than the average rate in the European Union and Belarus *(table 5)*.

*The share* of cardiovascular diseases in the total mortality reasons is over 50% in Russia and Belarus and 37% in the European Union. The high mortality caused by blood circulation diseases is one of the main components of the Russian mortality crisis, which influences negatively over the trend of natural population growth. There is the most unfavorable situation in the population cohort of able-bodied men. The average age of men in Russia, died because of cardiovascular diseases, has decreased by more than 2 years over the last 15 years. Poor health of able-bodied population threatens the stability of the social and economic development of the whole country and its regions [12].

Malignant neoplasms are the second leading cause of mortality in Russia and Belarus. Their share is 14 – 15% in these countries and 28% in the European Union.

The rate of mortality caused by the external reasons (injury and poisoning) is too high. It intensifies demographic problems in terms of depopulation and population aging, although the external causes can be controlled by people at most.

Nevertheless, today they occupy the third place in the total structure of population mortality not only in Belarus and Russia, but also in Europe. In 2009 this factor amounted to 12% in the structure of mortality in Russia and Belarus and only 6% in the European Union.

At the same time, it should be noted that, as a rule, the external causes provoke able-bodied population mortality. The main causes of elder persons' mortality (people aged over 65) are blood circulation diseases *(fig. 4)*.

For example, in Russia and Belarus 95 – 96% of the able-bodied people deaths are caused by injuries and poisonings and 31 – 32% of deaths are caused by blood circulation diseases.

Men remain the main group of people who have a high risk to die because of poisoning and injuries. Although the rate of their mortality, caused by those factors, has decreased in both countries over the last decade, it is four or five times higher than the level of the EU countries *(fig. 5)*.

The low level of self-preservation activity, unhealthy lifestyles and poor working conditions have a significant influence over the development of supermortality in Russia and Belarus.

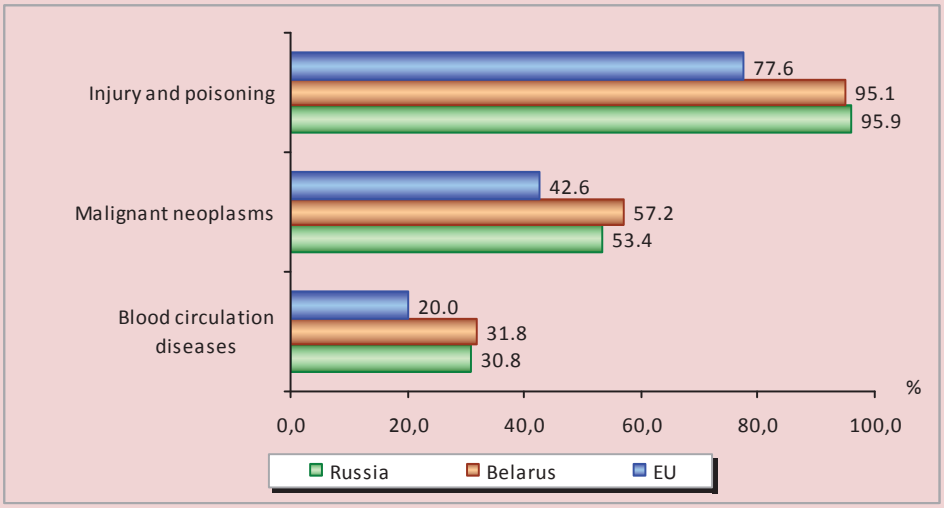
Thus, there is a serious problem of supermortality among the able-bodied population in Russia and Belarus. It is largely responsible for the continuous decline in the population size, unfavorable transformation of age structure and potential socio-economic difficulties.

Table 5. Standardized mortality rate for the groups of mortality causes in some countries, in 2009 (per 100 thousand people)

| Country | Blood circulation diseases | Malignant neoplasms | Injury and poisoning | Infectious and parasitic diseases |
|---|---|---|---|---|
| **Russia** | **683.0** | **182.1** | **147.2** | **22.5** |
| **Belarus** | **601.1** | **162.8** | **133.6** | **11.5** |
| Finland | 218.1 | 134.8 | 63.8 | 4.9 |
| Germany | 217.2 | 159.9 | 27.9 | 10.4 |
| EU | 227.6 | 170.5 | 37.1 | 8.8 |

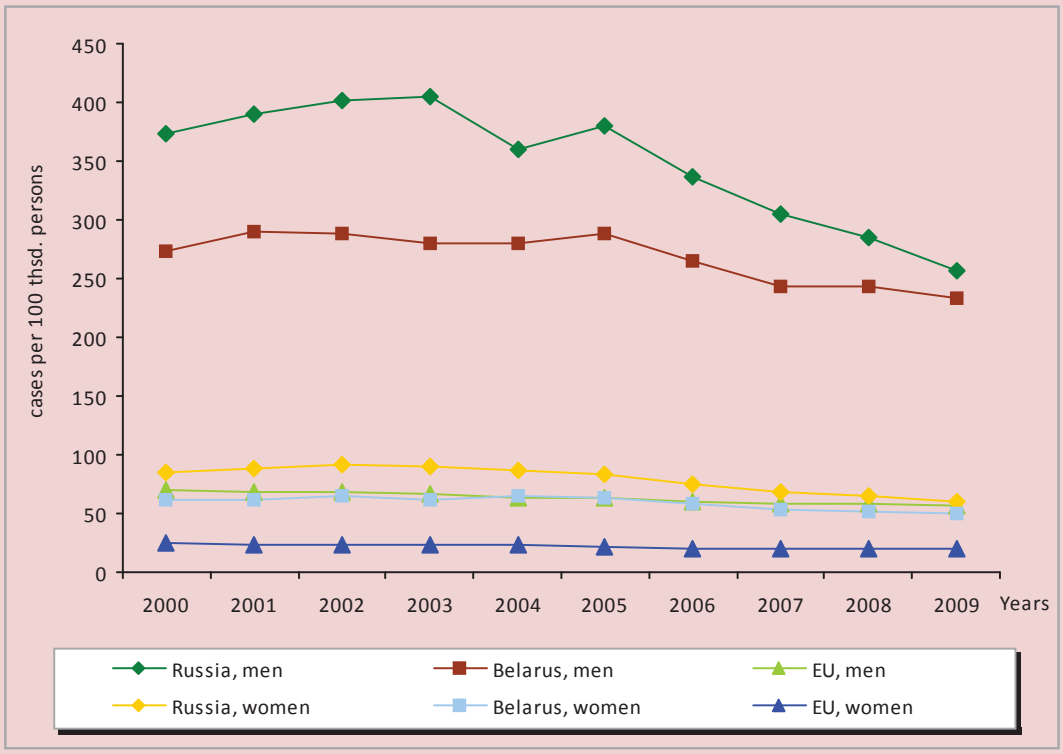
Source: European Health for All Database (January, 2012). Available at: http://data.euro.who.int/hfadb/shell_ru.html

Figure 4. The death share among the people aged from 0 to 64 by three groups of causes, 2009, in% (calculated according to standardized mortality coefficients)




Source: European Health for All Database (January, 2012). Available at: http://data.euro.who.int/hfadb/shell_ru.html

Figure 5. The dynamics of the standardized mortality rate caused by poisonings and injuries, 2000 - 2009, cases per 100 thousand people




Source: European Health for All Database (January, 2012). Available at: http://data.euro.who.int/hfadb/shell_ru.html

Our calculations show that if the drawdown rate of population mortality, which formed over the period from 2005 to 2011, remains, the mortality rate in Russia will have reached the European average level by 2023, while Belarus will have reached it only by 2030. The mortality rate for the group aged under 64 will be closer to the average European rate in 2026 in Russia and in 2031 in Belarus. Under such conditions, when the load on the able-bodied population increase, it will be necessary to focus the efforts, aimed at the rapid solution of this problem, because it affects the national security interests of these states.

The high mortality of able-bodied population is one of the main challenges of modern health care system in Russia and Belarus. At the same time, the most important and underused reserves are associated with the reduced morbidity and mortality of active able-bodied people. However, there is a lack of attention to those components of the health care system that are the essential part of the most pressing problem. In fact, the Russian health care system, based on the strong priority of treatment rather than prevention, prioritizes the interests of the people, who are under or over able-bodied age [11].

The Conception of Demographic Policy in the Russian Federation for the period until 2025 deals with the problem of able-bodied population supermortality. It stresses the male supermortality [4]. The reduction of population mortality, particularly a high mortality rate among able-bodied male population because of external causes, is designated as one of the priorities of the state population policy in the Conception of the Socio-Economic Development of the Russian Federation until 2020 [5]. The Federal Law "On the basis of health protection in the Russian Federation", which reflects the basic principles of health, rights and duties of citizens in the field of health care and other issues, has come into force since November 22, 2011 [14].

The Government of the Republic of Belarus also stresses the problems of public health. The National Programme of Demographic Security of the Republic of Belarus for 2011 – 2015 has been developed, and it is being realized now [6]. Some measures are being implemented within the scope of this programme in order to promote public health and increase life expectancy. In addition, there is a range of targets programs aimed at the public health promotion. However, the current documents don't produce any targets or mechanisms to achieve them. The lack of specific guidelines and methods to assess the effectiveness of program activities reduces their value. Under these circumstances it is not enough to understand the situation, it is necessary to improve it purposefully and regularly.

Today experts see two possibilities: the significant increase in health care financing or the development of health protection system with a minimum necessary increase in funding.

Russia lags far behind the Western European countries in terms of health care financing. The share of total health care expenditure in the GDP of Russia is 1.7-fold lower than in the EU (5.2% versus 9% in 2008), and the share of governmental health care expenditure is 2-fold lower (3.4% vs. 6.9% in 2008). In absolute terms, health care expenditure per person is 3.9-fold lower in Russia than the average health expenditure in the EU countries (567 and 2203 dollars respectively according to purchasing power parity, 2008). Though, there are significant achievements in the improvement of health care financing in the Russian Federation in recent years. However, most likely it won't be possible to increase public health funding up to the level comparable with the current levels of the European countries by 2020 due to the lower rates of economic growth as compared with the period from 2000 to 2008. Therefore, the mortality gap between Russia and the European countries will not be overcome.

According to the second scenario, it is necessary to prioritize the promotion of healthy lifestyle, environmental issues, disease prevention and the improvement of efficiency and quality of medical institutions. Today the dealing with the measures of healthy lifestyle promotion isn't adequate to their role in the reduction of morbidity and mortality in comparison with medical aid. The current arrangements are too conservative and inadequate in terms of content and funding. Nowadays, some policy documents have been approved in Russia, health centers are being built, excise rates on alcohol and tobacco have been increased a little bit, but these measures aren't enough. Every effort should be focused on the development of preventive areas, so it will be possible to increase health care funding, develop the potential of the active part of society and reduce the loss of able-bodied population.

The country's leadership understands the importance of social responsibility and prioritizes the human potential preservation. Vladimir V. Putin pointed out in his article "Building justice: A social policy for Russia" that: "Should we fail to carry out a large-scale and long-term project for demographic development, the buildup of human resources and territorial development, we risk becoming an "empty space" in global terms, and then our fate will be determined by someone else, not us".

If we keep things unchanged and fail to come up with any new measures, Russia's population will shrink to 107 million by 2050. Conversely, if we manage to formulate and implement an effective and comprehensive population conservation strategy, Russia's population will grow to 154 million. Therefore, the historical price of the choice between action and inaction is almost 50 million human lives within the next 40 years. Putin stressed that life expectancy has increased by three years in Russia over the last five years and the pace of progress cannot be reduced [8].

Significant funds are invested in health care recently (within the national project "Health" and the programme "Health Care Modernization"). At the same time, our personal responsibility for our health should be increased. Today 80% of people in Russia do not exercise while 65% drink or smoke regularly and 60% have medical check-ups only if they are ill. Under these circumstances, when the health indicators remain low and most citizens don't realize the value of health, it is necessary to promote their need for self-preservation behavior and health care.

Thus, there are national programmes in both countries developed to promote public health and reduce mortality. However, it should be noted that there is no common programme in the Union State aimed to preserve and increase the population in Russia and Belarus.

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UDC 634.1(470.2)


# The state and developmental trends of fruit and berry market in the North-Western regions of Russia

*The article emphasizes the importance of increased consumption of fruit and berry products to the standards, which are recommended by medicine in order to improve public health. It analyzes the modern developmental trends of fruit and berry market in the North-West Federal District and considers the main directions of this market development that cover the state support and regulation of this market, its pricing and competition progress.*

*Fruit and berry market, consumption level, supply and demand factors, organizational and economic mechanisms.*

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Fruit and berry subcomplex is an important factor in providing health care and longevity for the population and in the solution of demographic problems. However, the level of fruit and berry consumption is below medical standards in our country. This fact influences the nourishment of a human organism with vitamins and other regulators of metabolic processes. According to the Scientific Research Institute of Nutrition of the Russian Academy of Medical Sciences, 80 – 90% of the Russians incur a deficiency of vitamin C, 40 – 60% of people have vitamins A, $B_1$, $B_2$, $B_6$ level reduced.

Rational nutrition should be improved by the increase in the share of fresh fruit and berries as natural bioactive substances.

Therefore, fruit and berry complex was developed actively in Soviet times. In the period from 1930 till 1960 specialized enterprises with major investments, especially in machinery, were being run up, fruit and berry nursery gardens were being expanded, zonal institutions for the selection and technology of fruit plants were being established. As a result, the area of orchards and berry plantations was being expanded continuously [4]. The multiple measures to promote household and collective gardening in the 1970 – 1980s contributed to those processes.

However, the development of cultivated gardening in the northern regions was hindered by severe climatic conditions. But it was progressed by the development of winter-hardy varieties.

However, there were a few gardening farms in the northern regions. Only 0.2% of the total volume of local fruit and berries are produced by the agricultural organizations located in the North-West Federal District. The main part of fruit and berry production in the northern regions is concentrated in the private plots of the population *(table 1)*.

Recently there is a reduction of the areas of fruit and berry plantations in most regions of the North-West Federal District, as well as in the whole country *(table 2)*.

There is a 3-fold reduction of such areas in the Arkhangelsk and Pskov Oblasts. They have been almost halved in the Leningrad Oblast, while this region has remained the largest in the District gardening areas – 9.4 thousand hectares. In 2010 there were large areas of fruit and berry planting in the Kaliningrad Oblast (4.6 thousand hectares), the Pskov Oblast (3.7 thousand hectares) and the Vologda Oblast (3.0 thousand hectares), i.e. in the regions located in the western and southern parts of the District.

The data of All-Russia agricultural census 2006 show the species composition of the northern gardens. Fruit plantations cover two-thirds of them and one third of these areas are berry fields. The Leningrad, Arkhangelsk and Vologda Oblasts have the largest areas of cultivated berry fields in the North-West Federal District. More than a half of berry fields are located here. The prevailing crops include currants, strawberries, raspberries and gooseberries *(table 3)*.

The amount of berrying and fruiting has been stabilized in most regions of the North-West Federal District due to the efforts of gardeners in the land cultivation, the expanded use of fertilizers and the development of new varieties. Moreover, the gross fruit and berry yield in the district increased by 6% in 2010 as compared with 2000 *(table 4)*.

Table 1. Fruit and berry production pattern in the regions of the North-West Federal District (the share in the total production volume of all types of farms, %) [11]

| Region | Agricultural organizations | | Households of the population | | Peasant (farm) households | |
|---|---|---|---|---|---|---|
| | 2005 | 2010 | 2005 | 2010 | 2005 | 2010 |
| Republic of Karelia | 1.2 | 0.3 | 96.7 | 99.4 | 2.1 | 0.3 |
| Republic of Komi | 0.0 | 0.0 | 100 | 100 | - | 0.0 |
| Arkhangelsk Oblast | - | 0.0 | 100 | 100 | - | - |
| **Vologda Oblast** | **1.4** | **1.5** | **98.6** | **98.5** | - | - |
| Kaliningrad Oblast | 0.1 | 0.0 | 99.9 | 100 | - | 0.0 |
| Leningrad Oblast | 0.4 | 0.1 | 99.6 | 99.9 | 0.0 | 0.0 |
| Murmansk Oblast | 0.0 | 0.5 | 100 | 99.5 | 0.0 | - |
| Novgorod Oblast | - | - | 100 | 100 | - | - |
| Pskov Oblast | 3.1 | 1.0 | 96.3 | 99.0 | 0.7 | - |
| In the NWFD, on average | 0.8 | 0.2 | 99.1 | 99.8 | 0.1 | 0.0 |
| For reference: Russian Federation | 20.7 | 15.0 | 78.4 | 82.8 | 0.9 | 2.2 |

Table 2. The area of fruit and berry plantations on the farms of all categories in the regions of the North-West Federal District, thsd. hectares [11]

| Region | Year | | | | | 2010 to 2000, % |
|---|---|---|---|---|---|---|
| | 2000 | 2003 | 2005 | 2008 | 2010 | |
| Republic of Karelia | 0.5 | 0.6 | 0.7 | 0.7 | 0.7 | 140.0 |
| Republic of Komi | 0.9 | 0.9 | 0.8 | 0.7 | 0.7 | 77.8 |
| Arkhangelsk Oblast | 2.6 | 2.4 | 2.2 | 1.8 | 1.7 | 65.4 |
| **Vologda Oblast** | **3.6** | **3.3** | **3.1** | **3.0** | **3.0** | **83.3** |
| Kaliningrad Oblast | 4.2 | 3.9 | 4.5 | 4.4 | 4.6 | 109.5 |
| Leningrad Oblast | 16.8 | 13,9 | 11.0 | 9.5 | 9.4 | 56.0 |
| Murmansk Oblast | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 100.0 |
| Novgorod Oblast | 2.7 | 2.3 | 2.1 | 2.0 | 2.0 | 74.1 |
| Pskov Oblast | 5.3 | 4.6 | 4.2 | 3.8 | 3.7 | 69.8 |
| In the NWFD, on average | 36.8 | 32.3 | 28.8 | 26.2 | 26.1 | 70.9 |
| For reference: Russian Federation | 767.4 | 669.7 | 598.0 | 533.1 | 517.7 | 67.5 |

Table 3. The areas of fruit and berry plantations on the farms of all categories in the regions of the North-West Federal District (according to the results of All-Russia agricultural census 2006), hectares [3]

| Region | Berry fields, total | Wild strawberries | Raspberries, blackberries | Currants | Gooseberries | Black chokeberries | Sea-buckthorn | Other |
|---|---|---|---|---|---|---|---|---|
| Leningrad Oblast | 3202.4 | 1345.9 | 654.3 | 581.1 | 238.7 | 264.7 | 74.1 | 43.5 |
| Arkhangelsk Oblast | 1781.9 | 243.6 | 242.9 | 784.9 | 222.5 | 90.2 | 36.2 | 161.5 |
| **Vologda Oblast** | **1286.0** | **296.1** | **204.0** | **402.2** | **147.3** | **140.2** | **55.0** | **41.3** |
| Republic of Komi | 745.0 | 227.5 | 101.7 | 213.3 | 84.1 | 48.6 | 6.4 | 63.5 |
| Kaliningrad Oblast | 658.0 | 271.1 | 152.7 | 136.1 | 60.3 | 27.0 | 8.8 | 2.0 |
| Pskov Oblast | 625.3 | 217.9 | 96.7 | 180.9 | 65.8 | 46.5 | 13.4 | 4.2 |
| Novgorod Oblast | 524.5 | 207.3 | 78.2 | 125.7 | 50.7 | 46.3 | 12.3 | 4.0 |
| Republic of Karelia | 456.5 | 179.7 | 58.0 | 106.3 | 46.5 | 46.6 | 6.6 | 12.8 |
| Murmansk Oblast | 454.0 | 47.1 | 13.7 | 383.1 | 5.5 | 1.0 | 0.1 | 3.5 |
| Total in the NWFD | 10110.2 | 3197.0 | 1704.8 | 2972.0 | 943.8 | 729.2 | 221.3 | 342.1 |

Thus, there is no stability everywhere. For example, fruit and berry yield, as well as the gardening areas, decreased by 17% in the Vologda Oblast for the period from 2000 to 2010.

However, the main source of fruit and berry delivery to the NWFD consumer market includes their supply by mercantile businesses. The withdrawal of the state monopoly from foreign trade has allowed to increase the volume of imported fruit and berries in the recent years[1]. According to the Federal State Statistic Service, 90 – 95% of fruit and berries consumption is covered by the imported products in most regions of the North-West Federal District (the share of imported fruit and berries amounts to 62% only in the Kaliningrad Oblast).

[1] Import of apples in Russia increased from 218 thsd. tons in 2000 up to 1206 thsd. tons in 2010, grapes – from 72 up to 409, citrus – from 473 up to 1491, bananas – from 506 thsd. tons up to 1069 thsd. tons, relatively [9].

Table 4. Gross fruit and berry yield on the farms of all categories in the regions of the North-West Federal District, thsd. tons [11]

| Region | Year | | | | | 2010 to 2000, % |
|---|---|---|---|---|---|---|
| | 2000 | 2003 | 2005 | 2008 | 2010 | |
| Republic of Karelia | 0.7 | 0.6 | 1.2 | 2.9 | 2.7 | 385,7 |
| Republic of Komi | 1.7 | 4.6 | 5.3 | 6.1 | 2.7 | 158,8 |
| Arkhangelsk Oblast | 4.8 | 8.8 | 7.4 | 7.4 | 5.7 | 118,8 |
| Vologda Oblast | 9.2 | 10.6 | 12.1 | 6.2 | 7.6 | 82.6 |
| Kaliningrad Oblast | 7.3 | 3.0 | 12.7 | 55.0 | 56.5 | 774.0 |
| Leningrad Oblast | 82.5 | 37.7 | 71.9 | 47.4 | 53.4 | 64.7 |
| Murmansk Oblast | 1.8 | 1.1 | 1.0 | 0.5 | 0.6 | 33.3 |
| Novgorod Oblast | 9.9 | 13.7 | 17.0 | 17.5 | 15.0 | 151.5 |
| Pskov Oblast | 15.3 | 11.0 | 21.1 | 14.8 | 7.4 | 48.4 |
| Total in the NWFD | 143.1 | 91.1 | 149.8 | 157.7 | 151.6 | 105.9 |
| For reference: Russian Federation | 2690.0 | 2444.6 | 2403.8 | 2400.6 | 2148.9 | 79,9 |

Table 5. Annual fruit and berry consumption in the regions of The North-West Federal District, kg per capita [8]

| Region | 2006 | 2007 | 2008 | 2009 | 2010 | 2010 to 2006, % | Per capita consumption in 2010, % | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | to minimum rate (80 kg/pers.) | to optimal rate (120 kg/pers.) |
| Kaliningrad Oblast | 54 | 58 | 65 | 64 | 70 | 129.6 | 87.5 | 58.3 |
| Vologda Oblast | 57 | 59 | 65 | 61 | 66 | 115.8 | 82.5 | 55.0 |
| Murmansk Oblast | 51 | 55 | 60 | 60 | 65 | 127.5 | 81.3 | 54.2 |
| St. Petersburg | 48 | 53 | 59 | 59 | 61 | 127.1 | 76.3 | 50.8 |
| Arkhangelsk Oblast | 50 | 54 | 59 | 59 | 61 | 122.0 | 76.3 | 50.8 |
| Novgorod Oblast | 44 | 43 | 53 | 54 | 57 | 129.5 | 71.3 | 47.5 |
| Leningrad Oblast | 45 | 50 | 53 | 52 | 57 | 126.7 | 71.3 | 47.5 |
| Republic of Komi | 37 | 39 | 47 | 49 | 50 | 135.1 | 62.5 | 41.7 |
| Republic of Karelia | 39 | 42 | 42 | 44 | 47 | 120.5 | 58.8 | 39.2 |
| Pskov Oblast | 41 | 44 | 46 | 45 | 45 | 109.8 | 56.3 | 37.5 |
| In the NWFD, on average | 47 | 51 | 57 | 56 | 59 | 125.5 | 73.8 | 49.2 |
| In the RF, on average | 48 | 51 | 54 | 56 | 58 | 120.8 | 72.5 | 48.3 |

According to our calculations, the population consumed more than 1.2 million tons of imported fruits and berries in 2010 in the North-West Federal District [8].

Per capita fruit and berries consumption has increased in the regions of the North-West Federal District due to the growth of imported products. It increased by more than 25% for the period from 2006 to 2010 *(table 5)*. Per capita fruit and berries consumption amounted to 59 kg in the North-West Federal District in 2010. It was even slightly higher than the national average fruit and berry consumption. However, this level is still only 74% of the minimum rate; it is only 48% in the share of optimum consumption.

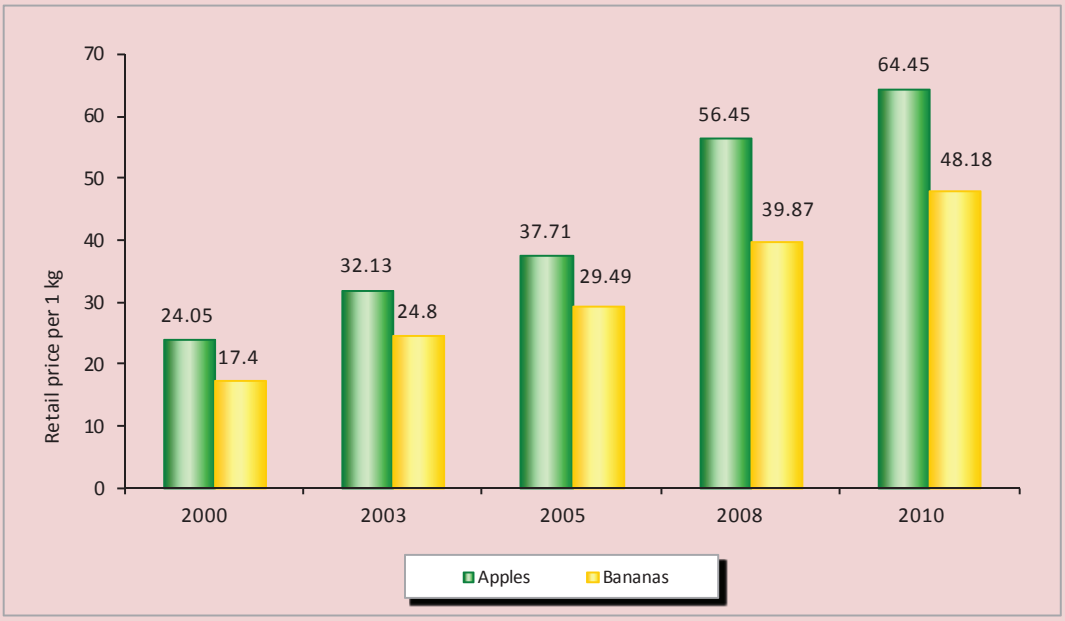
The price level is the most important factor that influences the current level of consumption. According to the Federal State Statis-tics Service, there was 1.7-fold rise in prices for stone fruits, 1.6-fold rise in prices for seed fruits and 2.8 rise in prices for berries *(table 6)*.

There is a continuous rise in purchasing prices for imported products. The rise in retail prices for fruit surpasses the rise in prices for foodstuffs in whole. For example, the retail price for apples was 24 rubles per kilogram in the Vologda Oblast in 2000, and it increased by 2.5 times and amounted to 64 rubles on average in 2010. The selling price for bananas increased from 17.4 to 48.2 rubles per kilogram or by 2.8 times for this period *(fig. 1)*.

Table 6. Price index numbers of fruit and berry production in the Russian Federation, in % to the previous year [9]

| Types of products | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2010 to 2005, % |
|---|---|---|---|---|---|---|---|
| Stone fruits | 118.8 | 111.4 | 101.4 | 125.2 | 116.7 | 104.0 | 171.6 |
| Seed fruits | 127.7 | 126.3 | 110.2 | 115.5 | 104.5 | 95.0 | 159.6 |
| Berries | 113.1 | 127.9 | 124.4 | 121.4 | 130.2 | 111.7 | 280.9 |
| Grapes | 98.1 | 122.3 | 136.6 | 103.5 | 96.7 | 99.8 | 166.9 |

Figure 1. Average consumer prices for some products in the Vologda Oblast at the end of the year, rubles per one kilogram [12]




The prices cause significant differences in fruit and berry consumption by the population groups with different incomes. So, according to the results of budget surveys conducted in the Vologda Oblast in 2010, the fruit and berry consumption amounted to 25 kg per a member of the family in the first decile group (people, who have the lowest incomes) and it was 88 kg (3.5-fold higher) in the tenth group (people, who have the highest incomes).

The cost of annual fruit and berry consumption amounted to 1359 rubles in the group with the lowest incomes and 5252 rubles (3.9-fold higher) in the group with the highest incomes *(table 7)*.

It should be noted that there is the following per capita fruit and berry consumption in the families with children aged under 16: 62 kg in single-child families, 51 kg in two-child families and only 43 kg in three-child families. There is a similar trend in other regions of the North-West Federal District.

Thus, the development of fruit and berry market in the regions of the North-West Federal District and its reaching the volumes, which provide the optimum level of fruit and berries consumption, are limited with respect to both demand and supply.

The demand is limited by low incomes of most people and rapid-growing retail prices for fruit and berries. The supply in this market is becoming more dependent on the rising costs of market fruit and berry resources (especially, imported).

Table 7. The amount and cost of fruit and berries, consumed by the households of different standards of well-being in the Vologda Oblast, 2010.

| Households | Average consumption in the families surveyed | Including in ten percentage groups of the population | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| The amount of fruit and berry consumption, kg | | | | | | | | | | | |
| Total households: | 67 | 25 | 34 | 48 | 60 | 71 | 78 | 87 | 83 | 86 | 88 |
| Urban | 70 | 28 | 33 | 49 | 58 | 74 | 87 | 97 | 86 | 89 | 92 |
| Rural | 61 | 21 | 38 | 47 | 63 | 63 | 58 | 67 | 76 | 80 | 80 |
| The cost of consumed fruit and berries, rub. per a member of the family | | | | | | | | | | | |
| Total households: | 4084 | 1359 | 1914 | 2820 | 3547 | 4072 | 4867 | 5780 | 5251 | 5191 | 5252 |
| Urban | 4116 | 1483 | 1721 | 2598 | 3238 | 4115 | 5232 | 6253 | 5268 | 5183 | 5380 |
| Rural | 4004 | 1072 | 2342 | 3299 | 4235 | 3979 | 3951 | 4725 | 5213 | 5208 | 5021 |

Source: Food consumption in socio-economic population groups in the Vologda Oblast (based on a sample survey of household budgets). Vologda: Vologdastat, 2011.

The supply is also limited by a low level of local fruit and berry production. It should be stressed that the growth of local resources are hindered by rising costs of fertilizers for the owners of garden plots, increased passenger and transport fares.

Almost everywhere there is no organized direct purchasing of garden products in the cooperatives and associations.

In order to use effectively the intensive development reserves of local fruit and berry production in the northern regions, it's necessary to have an active government support, which consists in the following steps:

– ensuring regular monitoring and analysis of the situation in the gardening and country farms;

– developing regional target programs and projects for the development and support of gardening in the region;

– improving the system of banking and other types of individual lending of personal rural households;

– developing a system of benefits and discounts in specialized stores selling seeds, plants and gardening equipment;

– arranging public activities and events (fairs, competitions, festivals, exhibitions, scientific conferences, round tables, etc.) aimed at the popularization of gardening and country households;

– promoting the integration between gardening and country households into the systems of social consumer societies;

– organizing the clear purchase of fruit and berries surplus with the population.

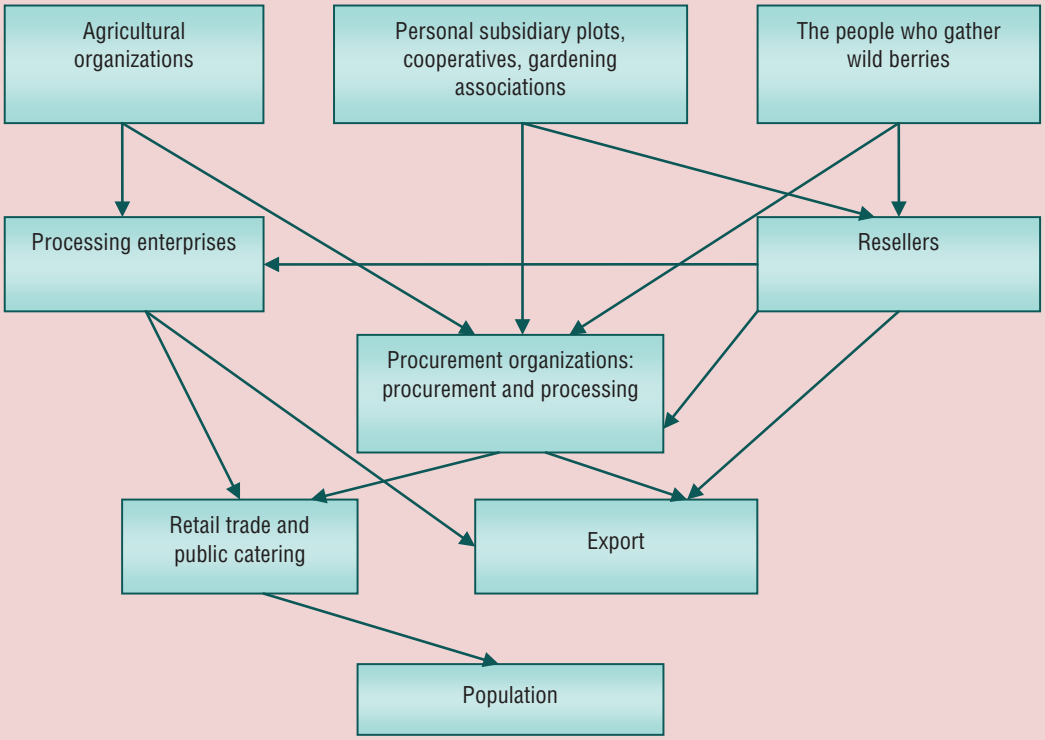
The most important way to increase the population's provision with fruit and berries in the regions of the North-West Federal District is the collection and processing of wild berries, a biological reserve of which is much more than the yield of cultivated berries.

According to forest management data, the biological reserve of wild berries in the Vologda Oblast amounts to 56 thousand tons, including 37 thousand tons of cranberries, 11.2 thousand tons of cowberries and 7.8 thousand tons of blueberries[2].

A consumer's co-operation was the main organization for these products laying-in during a long period of time. It had a branched chain of collecting centers in all regions.

[2] Source: Forest Plan of the Vologda Oblast. Available at: http://www.forestvologda.ru/page/wood_plan

Figure 2. Organizational and economic chain of cultivated and wild berries movement




In 1991 the Vologda consumers' association bought 3.8 thousand tons of cranberries and cowberries from the population. A significant part of this production was realized in the domestic and foreign markets. However, the system of consumer's co-operation was destroyed. In 2010 the cooperatives bought only 11 tons of berries. Moreover, today there are a lot of private companies and buyers in the wild berry market, who work with exporters and metropolitan retailers. Vologda Berry LLC has been operating in our region since 2003. Processing capacity of this enterprise is created in the Ust-Kubinsky District. The main method of berry processing here is a shock freezing in low temperature cells (up to -45 °), followed by a long-term storage at - 25 °. This enterprise laid in two tons of berries in the Vologda Oblast in 2007 – 2008. Judging from the published materials, its effectiveness is increased step by step [6]. Vologda Plan for Forest Food Products LLC is also developed progressively.

The experience in the use of wild berry reserves is also accumulated in other regions of the North-West Federal District. Marketing activities aimed at expanding the share of berry products in the domestic and foreign markets is an important aspect in this case.

*Figure 2* shows a diagram of the organizational and economic chain of cultivated and wild berries movement. This chain, in our opinion, will improve the efficiency of local berry reserves.

As for the growth rates and the sales of fruit and berries imported by the region, the following dynamics can be predicted here. Russia's accession to the WTO will reduce customs duties on imported products, which will create an objective opportunity to reduce prices

in the regional consumer markets and increase the population's demand for these products. But this opportunity will depend greatly on the degree of trade competitiveness in Russia, the improvement of antimonopoly law and the actual implementation of measures to combat corruption in the economy.

Let's hope that the policy proclaimed by the current authorities will be effective. Then the development of fruit and berry market will reach the results providing the fruit and berry consumption level, ensuring the promotion of public health in Russia and improving the living quality of our people.

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UDC 331.101.26


# Methodological aspects for the assessment of the state and use of human capital

*The article is devoted to the efficient use of human capital. It describes the methodical approaches of Russian and foreign scholars to the category of "human capital". The article gives an author's interpretation of human capital and reveals its main components. Besides, t provides the criteria and indicators for assessing the state and use of human capital of the agricultural organizations. The authors describe a tested mechanism to enhance employees' motivation for highly productive labor based on the study of staff motivational complex.*

*Human capital, intelligence, motivational complex, agriculture, intensification, labour quality, heavy-producing labour.*

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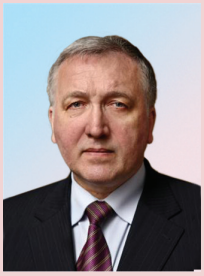

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New trends observed in recent years in the world economy in general, indicate the emergence within the limits of the fifth technological wave of the elements of the sixth, which is manifested in the increasing accumulation of new knowledge and information technology, the active use of innovations in current socio-economic process. Development of innovations, application of complex technological processes and creation of new products require highly qualified personnel and conditions that will allow an intelligent person to discover and apply his/her creative abilities and competence.

Thus, an employee as a subject of the innovative actions being integrated into the economic system becomes a crucial link in the knowledge economy, having a direct impact on the course of its development through the power of his/her intellect. An individual, capable of generating innovations, and obtaining methods of their successful implementation, is becoming a strategic resource in the development of an organization, a firm, an enterprise.

Scientific research points out that in the course of the last centuries there has been a tendency towards the increase of human capital share in the structure of aggregate capital in world economy.

If in the beginning of the XIX century, the share of human capital equaled about 20 – 30%, and the share of physical capital equaled 70% and 80% respectively, by the beginning of the XXI century the situation witnessed drastic changes. Now human capital prevails in the structure of the aggregate capital. It is the main determining factor of development [3].

The Human capital theory describes human capital as a set of production capabilities. So, Lester Thurow wrote that "the human capital represents people's ability to produce goods and services" [11]. In such a case the production capabilities are divided into "natural", i.e. intrinsic, reflecting the individual peculiarities of the personality, not reducible to knowledge and skills, and "economic", formed in the course of living as a result of investments into human capital.

Of course, natural capabilities have a significant impact on the individual's educability, while economic capabilities determine the growth and reproduction of already existing human capital and help an individual acquire new different kinds of knowledge. As a result, the same resources, aimed at the production of human capital, can form the human capital of a different size and structure in different individuals.

Nevertheless, one fails to make a clear distinction between "natural" and "economic" capabilities, which significantly hampers the evaluation of human capital as the stock of production capabilities.

We consider that the notion of "human capital" should not be regarded only as a set of knowledge, abilities and health or be identified with human investment. According to Theodore Schultz, the Nobel Prize winner of 1979, human capital is "valuable qualities acquired by an individual that can be intensified by the appropriate investments" [12]. Gary Becker, another Nobel laureate of 1992 defines human capital as "a fund of knowledge, skills, motivations that every individual possesses. Education, professional experience accumulation, healthcare, geographic mobility, information search can be invested in it" [1].

Ye. Grishnova, one of the Russian scientists, defines human capital from the viewpoint of integrated approach as "economic category, describing a set of production capabilities personality traits and motivations formed and developed as a result of investment. This set is used in economic activity, contributes to the growth of labor productivity, and thereby influences income increase of an individual as well as of a country [4].

Summing up the methodological approaches of a number of foreign and Russian authors (G.Becker, T. Schultz, S.Fischer, E.A. Grishnova, V.M. Galperin, etc.), one can divide all the definitions of human capital into two groups, considering it, firstly, as a set of available human reserves, abilities and qualities that are applied in the production of values, and, secondly, as an investment component, emphasizing the fact of investing in an individual. In this perspective it seems appropriate from the position of a system approach to define human capital as a set of intellectual, professional, psychological, physiological and socio-cultural characteristics *(fig. 1)* that contribute to the labor productivity increase and profit making and ensure the growth of employees' incomes.

The methodological provisions stated above allow to:

1) formulate a conception of a multi-component structure of human capital and the need for personification of abilities and qualities;

2) express solidarity with the opinion of some researchers (G. Becker, M. Blaug, V.M. Galperin, E.A. Grishnova, A.I. Dobrynin, M.M. Kritskiy, P.M.. Perushkevich, L.G. Simkina, I.V. Soboleva, L.Thurow, I.G. Ushachev, T. Schultz, etc.) who state that such economic categories, as labour and labour force defined in the human capital theory by Russian and foreign scientists (A.A.Bogdanov, E. Denison, J. Kendrick, K.Marx A. Marshall, J. Mintzer, W.Petty, A.Smith, S.G. Strumilin, S. Fischer, etc. are narrow for the expression of a man's role in the innovation economy [2, 7, 10].

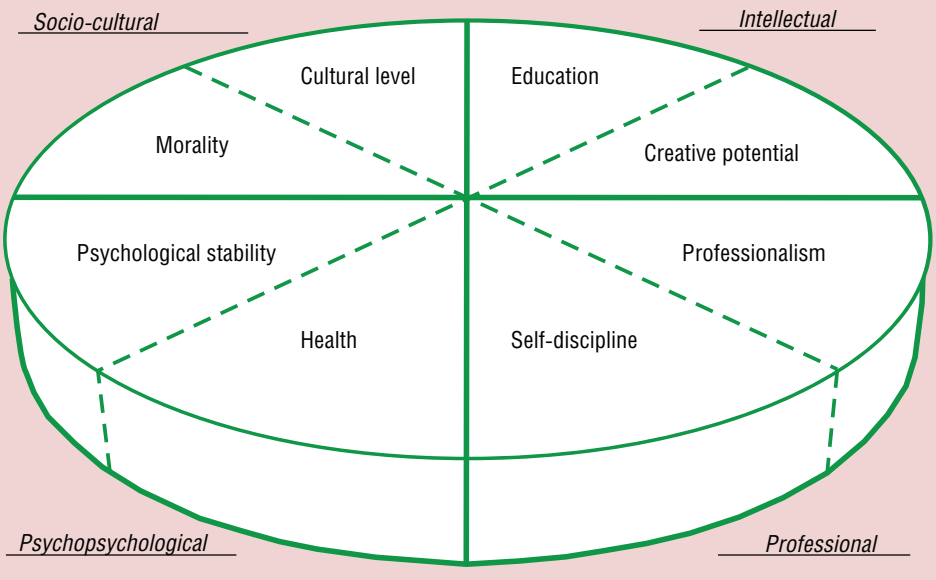
V.A. Medvedev points out that "labour force is gradually losing its traditional characteristics of a good" when the disadvantaged sellers of labor force, keeping intact the form of wage labor relations, transform them "in the direction of contractual cooperation aimed at the use of production resources, the human capital in particular" [9].

Thus, two notions are apparent: firstly, the limitation in estimations of human capital as the stock of production capabilities and, secondly, the need for profound examination of the factors of the human capital competitiveness.

Nevertheless, up to the present day the peculiarities of developing such important components of human capital as skills and intelligence that form indicators of professionalism and, accordingly, factors determining the growth of knowledge funds and innovation level are still not thoroughly explored. Most analysts regard human capital as a resource of innovative development only in the aspect of management personnel and scientific-research specialists training in the field of innovation activities. However, this unreasonably narrowed approach does not correspond to the notion of human capital as a form of the expression of human potential.

Since 1990 the UN publishes an annual report concerning the Human Development Index (HDI), which reflects the goal of public progress. The index is calculated on the basis of minimum set of core indicators that are regularly calculated using a comparable methodology for different countries.

Figure 1. The main components of the human capital



The core indicators include:

- the average life expectancy at birth, characterizing the health of population (according to the Constitution of the World Health Organization health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity);
- the literacy rate at the age of 15 and older, as well as the indicator of education scope in all types of educational institutions;
- GDP per capita.

Probably, it does not take a large number of arguments to show the obvious limited character and lack of the above mentioned indicators for developing the full-scale characteristics of human capital.

Practical methodologies of human capital analysis and evaluation (E. Flemholtz, V.I. Malyuk) do not take into account the influence of psycho-physiological and socio-cultural components of human capital, which also complicates the substantiation of effective mechanisms of personnel motivation and stimulation.

As the study of literary sources proves, the issues concerning the estimation of a state of human capital, efficiency of its response, determination of the ratio of expenses for creating human capital and for producing goods, are not properly highlighted in spite of the fact that human resources quality in the economic system is the main factor that ensures the effectiveness and the growth of a national economy, including agriculture. The statistical indicators reflect mainly the use of labor resources and do not reveal the contradictions between, for instance, an employee's high level of qualification (skill) and low interest (desire) to realize this ability to the fullest. Here the most important problem of methodology of human capital management in an innovation-oriented economic system is the creation of tools for assessing the quality of human capital and efficiency of its use in an economy.

In this connection a set of criteria and indicators for the assessment of the state and use of human capital in agricultural organizations is given below *(tab. 1)*

The set of indicators stated above can be used by management for monitoring the status and trends of human capital usage in agricultural production. Consequently, there is a possibility of identifying the dynamics of human capital characteristics and revealing the positive and negative trends in its development. This will allow to ground and make timely administrative decisions concerning the effective use of human capital.

Many researchers have grounds to believe that the solution of the problems concerning the development and increase of efficiency of use of human capital is connected with the improvement of professional training and the quality of education. Having undergone radical changes, the socio-economic situation in Russia allows to identify a number of specific factors that determine the necessity of improvement and increasing the efficiency of the model of specialists' preparation, first of all to the transition from the continuous system of a large number of training courses to the two-level system: bachelor's degree – master's degree. It is necessary to point out the barriers, hindering the development of a modern system of continuous professional education in Russia.

"Barriers" – are not the phenomena, contradictions and risks, which may become obstacles on the way of formation of the continuous professional education system as a basis of formation of the innovative and at the same time educational (education as the basis of innovative development of the economy) economy within the framework of Russia's innovative socio-economic development for the next 20 years [13].

These include the following types of barriers: educational, social, economic, territorial, administrative, organizational, legal, and spiritual-cultural. Let us describe some of them.

*Social barriers*

Expansion of the zone of human capital degradation. This concept means a complex social phenomenon, which consists of a number of interrelated processes, including:

- depopulation and first of all decrease in the number of able-bodied population;
- deterioration of the health of population, self-destructive behavior (alcoholism, smoking, drug addiction);
- increase in the number of disabled people;
- decline of the labor morals and ethics;
- loss of "moral depreciation" of qualification and education;
- lack of opportunities or desire to get a modern education, improve one's qualification or get practical retraining.

These processes have been developed in significant social groups and territories.

The results of numerous studies confirm that such resources as cultural and social capital of a student's family are extremely important from the point of view of accessibility of high-

Table 1. Criteria and indicators for the assessment of the state and use of human capital in agricultural organizations

| | Criteria | | | |
|---|---|---|---|---|
| | Intellectual | Professional | Psychophysiological | Socio-cultural |
| Indicators for the assessment of the state of human capital | 1. Average duration of training, years<br>2.Share of employees with higher education in the total number of employees,%<br>3. Number of employees with knowledge of foreign languages, pers.<br>4. Number of rationalization proposals per year, pcs.<br>5. Average I.Q., points<br>6. Number of employees with business communication skills, pers.<br>7. Number of applications in information consultancies, pcs. | 1. Total duration of professional training, years<br>2. Experience of work in agriculture, years<br>3. Coefficient of saturation with specialists,%<br>4. Frequency of improvement of professional skills, times a year<br>5. Number of employees that have completed courses of improvement of professional skills for the last 5 years, pers.<br>6. Costs of improvement of the qualification of the employees, RUB/person per year<br>7. The share of workers with specialized secondary education in the total number of employees,% | 1. Costs of health provision and improvement of the working conditions of employees, RUB/person per year<br>2. Share of expenditure on health maintenance and improvement of working conditions in the total expenditure,%<br>3. Coefficient of accidents at work<br>4. Coefficient of accidents severity at work<br>5. Total loss of working time due to incapacity for work, days<br>6. Average age of the employees of the organization, years<br>7. Number of employees with chronic diseases, pers. | 1. The average income of workers, RUB<br>2. Specific weight of dismissal for violation of labor discipline,%<br>3. Expenses for the cultural development of an employee, RUB./pers. (total and including an employee's own expenses)<br>4. Specific weight of young people in the total number of employees,%<br>5. Specific weight of persons of retirement age in the total number of employees,%<br>6. Provision with cultural institutions per 100 employees, pcs.<br>7. Extent of job satisfaction,% |
| Indicators of the use of human capital | 1. Number of inventions, patents, innovations per employee, on the whole and pcs/pers.<br>2. Own-product real wage, RUB/RUB<br>3. Number of targeted programs (projects) in which an organization participates, pcs.<br>4. Amount of innovative technologies used in an organization, pcs. | 1. Losses from defects per one employee RUB/pers.<br>2. Losses from defects in total amount of losses,%<br>3. Coefficient of return of the money spent on the improvement of the qualification of employees<br>4. Labor intensity of production, man-h./unit of production<br>5. Goods produced per 1 man -h., items of products | 1. Coefficient of utilization of working time<br>2. Product losses due to diseases and injuries per one employee RUB/pers.<br>3. Product losses due to diseases and injuries in the general losses of production,%<br>4. Coefficient of return of the money spent on the provision of health<br>5. Coefficient of working capacity | 1. Employee turnover rate<br>2. Losses due to conflicts per one employee RUB/pers.<br>3. Losses due to conflicts in the general losses,%<br>4. Losses from breaches of discipline per one employee RUB/pers.<br>5. Losses from breaches of discipline in the general losses, RUB/pers. |
| | Labor productivity<br>Received profit per 1 man-hour, RUB. | | | |

quality education. First of all, education of parents, their employment sphere and position, size and composition of a student's family (two-parent or single-parent families, the number of brothers and sisters) should be defined among the socio-cultural factors of the accessibility of quality education.

Urban alienation of rural youth from the native rural society. The gap between the quality of education in rural and urban education systems, the phenomenon of "non-return" of rural youth, having graduated from the big city universities, leads to the degradation of the rural population quality and reduction of population in Russia's rural regions, especially Central areas, the Northern Non-Black Earth Region, Siberian regions and Northern territories. Now there is an imperative of establishing a system of continuous education in the rural society of Russia on the basis of creating a network of rural universities taking into account the noosphere and biosphere status of a region and the peculiarities of agricultural nature management in these regions.

In the first place we speak about careless and sometimes openly indifferent attitude to man of labor. Problems of professional education, personnel policy, employment and unemployment have been thrown out on the periphery of the economic and public consciousness in general. The negative consequences of such underestimation of human capital are evident everywhere. This is expressed, for example, in the reluctance of the administrations of many enterprises to pay serious attention to the training of qualified personnel because they hope to solve the problem by bringing back the "old" staff or attracting workers from CIS countries.

Meanwhile the dependence of labor opportunities expansion for employees on their state of health and safe working conditions, on the development of creative activity and initiative, on the level of organization and discipline, on the expansion of employees' participation in production management and other forms of manifestation and development of abilities of personnel has not been definitely expressed in analytic calculations.

A concept of human capital effective use and management, which is based on the increasing role of an employee's personality, knowledge of his/her motivational aims, management ability to form and direct them towards the achievement of a company's goals is essentially required.

This study which deals with the problem of efficiency increase of human capital usage in agricultural organizations reveals the peculiarities of agricultural workers' motivation conditioned by a particular social structure, by norms of behavior characteristic only of rural population and by closeness of nature as applied to the conditions of the Ryazan Oblast. Taking into account the peculiarities stated above, we have divided labor motivations of a worker into inner and external *(fig. 2)*.

The content of motivational aspirations of the workers was expressed and compared taking into account the objectives of management aimed at the creation of rational administrative impact on the personnel. For this purpose the workers of certain enterprises were divided into groups on grounds of the significance of motives, defined on the basis of questionnaire survey. Received combinations of elements of the motivational complex have been matched with groups of workers as follows:

1. High level of motivational complex:

$M_1 > M_3 > M_4 > M_2$; $M_1 > M_4 > M_3 > M_2$; $M_1 > M_3 > M_2 > M_4$

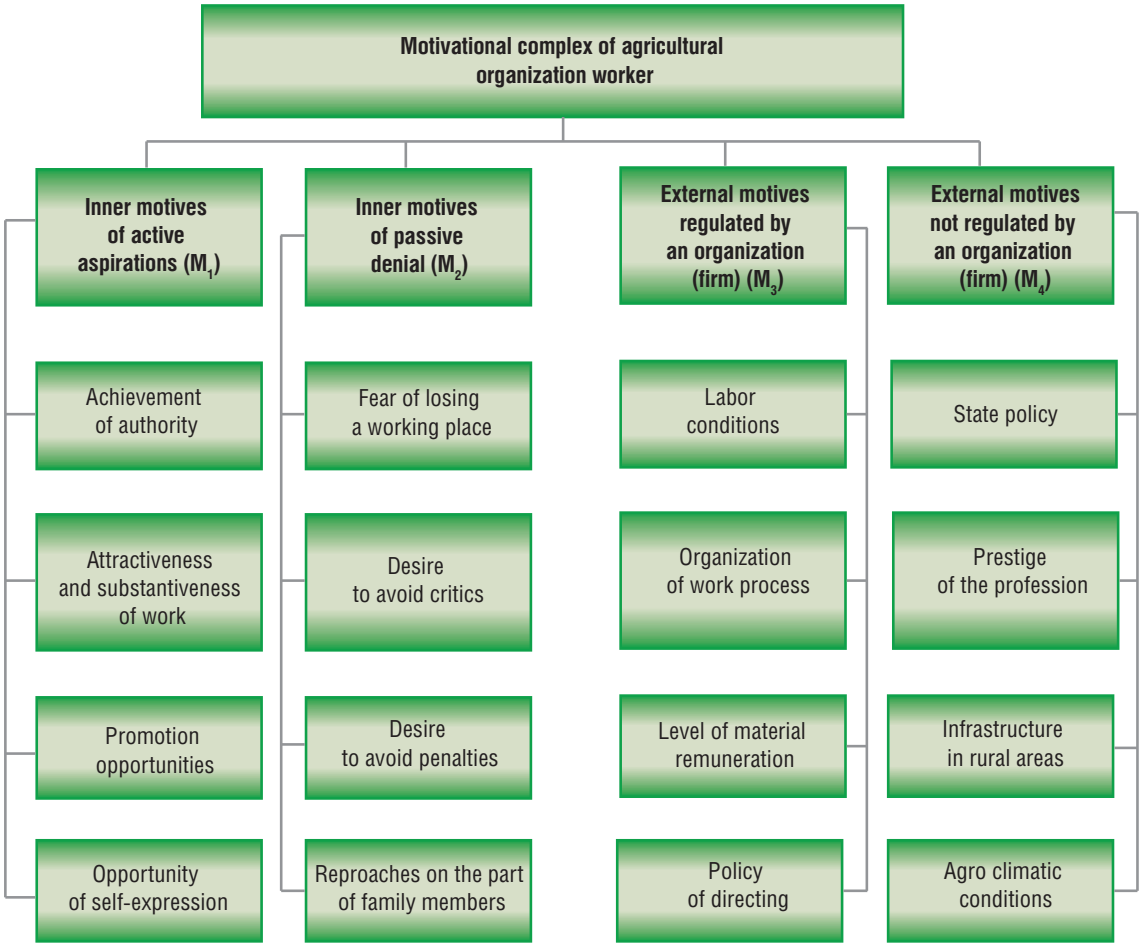
2. Medium level of motivational complex:

$M_3 > M_1 > M_2 > M_4$; $M_3 > M_1 > M_4 > M_2$; $M_3 > M_2 > M_1 > M_4$

3. Low level of motivational complex:

$M_2 > M_3 > M_1 > M_4$; $M_2 > M_3 > M_4 > M_1$; $M_2 > M_4 > M_3 > M_1$

Figure 2. Motivational complex of agricultural organization worker




The first group of workers with high motivational aspirations, is characterized by the predominance of moral factors (social recognition of the activity, possibility of self-expression, etc.). Such employees should be assigned the work, which requires high labor quality, mainly determining the final results.

For the second group of workers of top priority are financial motivation factors, that's why they should be assigned the work, that has a clear connection between the results of the work and the payment for it and it is necessary to ensure high labor performance.

Workers of the third group are characterized by weak response to the factors of financial motivation. It will be reasonable to provide them with the work, which does not have a direct impact on the final results of the organization's activity (the auxiliary and servicing of production).

In the Ryazan Oblast the workers of agricultural organizations consider the level of financial stimulation to be the main motive of job satisfaction. It is confirmed by the questionnaire survey data, according to which more than 70% of the respondents consider the amount of payments to be the main work motivation.

The majority of maintenance workers on cattle farms, milking machine operators and tractor drivers have a medium level of motivational complex. Given their economic interest, it can be noted that the application of bonus systems closely connected with the results of the work and the quality of products is the best way to increase the efficiency of human capital usage.

Thus, workers of agricultural organizations who have a medium level of motivational complex, are mainly responsible to the impact of financial stimulation motive.

The generalization of the questionnaire survey results allows to orient the system of material remuneration towards a differentiation of workers' labor estimation according to their contribution to the overall success of the organization with regard to quality of the executed works.

Besides, the indicator of an individual employee's contribution should be considered not only as an index, which reflects the quantitative assessment of an individual worker's labor participation rate in the overall results of work of a structural division (Index of Labor Distribution (ILD), but also as a component of motivational complex. In this respect, the study introduces and approbates the "coefficient of the use of the human capital" (CUHC), reflecting the worker's role in the ultimate (or interim) results of the structural division's activities as well as the quality of the executed works.

In order to determine the value of the coefficient of the use of the human capital it is necessary to perform estimation for all employees of a subdivision on a 10-point scale according to the following main criteria obtained as a result of experts' polling.

$P_1$ – assessment for the timeliness of the work, points,

$P_2$ – assessment for the quality of performed work, points,

$P_3$ – assessment for the labor discipline, points,

$P_4$ – assessment for the complexity of the performed work, points.

The total value of the assessment in points according to the proposed criteria is calculated in compliance with ILD and the weight coefficients of importance, received as a result of the survey of experts ($P_1$ and $P_2$ got the figure of weight coefficients of importance of 0,3, and $P_3$ and $P_4$ – 0,2) *(tab. 2)*.

$$P_{total} = ILD \times (0,3P_1 + 0,3P_2 + 0,2P_3 + 0,2P_4)$$

$$P_1, P_2, P_3, P_4 \times [1;10]$$

$$K_{CUHC_i} = \frac{P_{totali}}{\sum_{i=1}^{n} P_{totali}},$$

where *i* is the index number of an employee of the structural division;

*n* is the number of employees in the division.

When calculating the incentive payment to a worker several components should be taken into account:

- individual CUHC;
- the results of the work of the brigade (concerning planned figures of milk yield, crop productivity, quality of executed works);
- overall profitability of the organization.

Table 2. Data for calculation of the coefficient of the use of the human capital in agricultural organizations

| Worker | ILD | Assessment, points | | | | $P_{total}$ | CUHC |
|---|---|---|---|---|---|---|---|
| | | $P_1$ | $P_2$ | $P_3$ | $P_4$ | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | $ILD_1$ | $P_{11}$ | $P_{21}$ | $P_{31}$ | $P_{41}$ | $P_{total1}$ | $CUHC_1$ |
| 2 | $ILD_2$ | $P_{12}$ | $P_{22}$ | $P_{32}$ | $P_{42}$ | $P_{total2}$ | $CUHC_2$ |
| 3 | $ILD_3$ | $P_{13}$ | $P_{23}$ | $P_{33}$ | $P_{43}$ | $P_{total3}$ | $CUHC_3$ |
| 4 | $ILD_4$ | $P_{14}$ | $P_{24}$ | $P_{34}$ | $P_{44}$ | $P_{total4}$ | $CUHC_4$ |
| 5 | $ILD_5$ | $P_{15}$ | $P_{25}$ | $P_{35}$ | $P_{45}$ | $P_{total5}$ | $CUHC_5$ |
| 6 | $ILD_6$ | $P_{16}$ | $P_{26}$ | $P_{36}$ | $P_{46}$ | $P_{total6}$ | $CUHC_6$ |
| 7 | $ILD_7$ | $P_{17}$ | $P_{27}$ | $P_{37}$ | $P_{47}$ | $P_{total7}$ | $CUHC_7$ |
| $\sum$ | 1,00 | - | - | - | - | $\sum P_{total}$ | 1.00 |

Judging by the results of the activity of an agricultural organization for the year it is proposed to create a special motivation fund on the basis of the consumption fund, the assets of which will be distributed according to the coefficient of the use of the human capital as follows: 25% goes to the reserve funds to cover the possible overexpenditure of the salary fund; 25% of the remaining sum goes to bonuses for executives and specialists, 75% to bonuses to workers.

Incentive payments can be made according to the results of the completion of production cycles (sowing, harvesting, etc.) in proportion to CUHC. In the case of the employee's absence from work for the period of 3 – 5 days per month the amount of the incentive payment is reduced by 25%, for the period of 10 days and more – by 100%. At the end of the year the reserve fund can be fully distributed among the employees of an organization.

Along with a set of instruments of the material motivation of labor it is advisable to use a socially oriented system of influence, which is created on the basis of subsidizing of a part of expenditures on the construction of houses for employees, the partial repayment of the housing debt or auto loan, etc.

It is also possible to sell the products of agricultural organizations of their own production to the employees at a reduced price (for example, meat or milk at a price slightly below the market one, taking into account the financial-economic potential of the organization, which increases the responsibility of the personnel for the quality of work). In this case, an employee will spend less time on household management, and therefore, have more rest and cultural development. It is important not to replace financial wages by wages in kind, and only provide the opportunity to employees to purchase the volume of products, not exceeding 50% of the amount of their nominal wages. If employees are given a greater amount of products, they will have to sell the surplus.

Approbation and introduction of the project developments aimed at the stimulation of employees' motives for high performance in the agricultural organizations of the Ryazan Oblast, belonging to different groups by the level of business attractiveness, showed, firstly, a positive effect from their implementation in the examined establishments, and, secondly, the best return from the introduction of the developments in groups with an average and low business attractiveness of agricultural production *(tab. 3)*.

Table 3. Change of production output in agricultural organizations of the Ryazan Oblast according to the results of implementation of the mechanism of activation of the motivation of employees for high performance

| Indicators | Goods produced in the calculation for 1 pers.-hour. | | |
|---|---|---|---|
| | Grain. centners | Milk. centners | Cattle liveweight gain. kg |
| Collective farm enterprise "Zarya" | | | |
| Before introduction (2009 r.) | 1.54 | 0.27 | 1.60 |
| After introduction (2011 r.) | 1.41 | 0.29 | 1.74 |
| Index of change | 0.92 | 1.05 | 1.08 |
| Collective farm enterprise "Lakash" | | | |
| Before introduction (2009 r.) | 2.00 | 0.29 | 1.99 |
| After introduction (2011 r.) | 1.89 | 0.31 | 2.13 |
| Index of change | 0.94 | 1.08 | 1.07 |
| Collective farm enterprise "Svetliy Put" | | | |
| Before introduction (2009 r.) | 2.78 | 0.32 | 3.10 |
| After introduction (2011 r.) | 2.38 | 0.33 | 3.27 |
| Index of change | 0.86 | 1.03 | 1.06 |

In the examined agricultural organizations there was an increase in the milk production indicators and increase of live weight of cattle as calculated per 1 man-hour. Comparison of the dynamics of changes in production output in the organizations, where the introduction of developments aimed at the improvement of the mechanism of activation of employees' motivation to highly productive labor was implemented, and in the organizations, similar to them according to the chosen parameters (collective farm enterprise "Rodina", collective farm enterprise "Krasniy Mayak", collective farm enterprise "Uspenskiy"), shows that, firstly, dynamics of production output has a better tendency: the rate of change in the output concerning the grain products is greater by 6 – 17 percentage points, milk – by 1 – 5 p.p., on a gain of live weight of cattle by 3 – 14 p.p.

Thus, the approbated motivational complex is positioned as an effective tool of increasing the impact of human capital facilitating production intensification, growth of production output in calculation per 1 man-hour and in general, the competitiveness of agriculture.

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UDC 36.2.034:631.15(470.12)


# The effectiveness of livestock farming mechanization

*The article deals with the economic analysis of the current state of milk production in Russia in comparison with the developed countries. The possibility of efficient milk production due to the advanced production technology and the methods of cow maintenance and milking are considered in the case of "Livestock Breeding Farm under the name of 50 Years of the USSR", which is located in the Gryazovets District of the Vologda Oblast.*

*Dairy cattle breeding in Russia, advanced technology, the efficiency of milk production.*

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The importance of the growth in livestock production is predetermined by the national interests, especially by the necessity to ensure food independence (security) of the country and to increase the consumption of high-quality foodstuff.

Unfortunately, the volume of dairy production has been reduced in Russia due to the errors in market reforms. Per capita milk production was 230 kg in 2010 vs. 376 kg in 1990. So, the consumption of milk and dairy products has been reduced accordingly. The share of import in the beef consumption is more than 70%, and it is 80-90% in some regions and industrial centers [1].

It should be noted that the Government of Russia emphasized repeatedly the need for dairy farming recovery and its effectiveness increase. However, there are no significant changes in this field because of a wide range of objective and subjective factors. In particular, the analysis revealed the fact that the growth in gross agricultural output by 1% over the last decade had been accompanied by 1.3% increase in energy consumption and 2.7% increase in electricity consumption [3]. The working conditions of maintenance staff are poor, especially in the low-mechanized farms that use outdated technologies. This situation leads to lower productivity and employee turnover.

Backward technologies are the main reasons for 60 – 65% realization of the genetic animal potential.

Fodder inputs per one centner of milk in the agricultural enterprises of the country are much higher than in the developed countries, they amount to 1.5 centners of fodder units. Labour inputs per one centner of milk with regard to individual farms of the population reach 8.5 man-hours [4].

As it can be seen from *table 1,* untethered housing is the main type of cow housing abroad; it allows the farmers to increase significantly the standards for the assignment of animals to maintenance staff and to reduce labour-output ratio. The list of factors that lead to low efficiency of dairy cattle breeding in Russia can be continued.

The analysis of the current dairy production in our country shows that that the recovery of this industry and its further development can be effectively achieved only at the qualitatively new technological and technical levels. Innovations allow producers to realize fully the genetic potential of animals, use rationally fodder, energy, financial and human resources and fixed assets, as well as to produce high-quality and environmentally safe products.

The things mentioned above are referred to the state of dairy cattle breeding in the Vologda Oblast. There is a lack of adequate fodder ration in most of dairy farms, outdated technologies are used there (over 95% of technologies include tethered housing).

Farm equipment hasn't been updated for a long time, and it is depreciated physically. According to experts, new technologies produce more than 80% of market milk, although only 20% of dairy farms use them [5].

The experience in the implementation of new technologies by "Livestock Breeding Farm under the name of 50 Years of the USSR" in the Gryazovets District is worth to be widespread.

In 2011the total number of cattle amounted to 4300 head here, including 1600 cows. Sales proceeds of goods and services accounted for 233.8 million rubles; profit was 45.3 million rubles. Gross milk production reached 11.5 thousand tons; milk yield per each cow was 7299 kg [6]. The genetic potential of cattle productivity was saturated in breeding work due to the implementation of the newest methods of breeding and the creation of a stable fodder base.

Table 1. Some indicators of milk production in the countries

| Indicators | Russia | Europe | USA |
|---|---|---|---|
| 1. Milk yield per 1 cow, kg per year | 3501* | 7250* | 9219* |
| 2. Housing methods for dairy herd, in % to the total number of cows:<br>- tethered housing | 85 | 15 – 16 | 3 – 4 |
| - untethered housing | 5 | 68 – 70 | 93 – 94 |
| - stabling | 10 | 15 – 16 | 2 – 3 |
| 3. The mechanization of cow milking, in % to the total number of cows:<br>- into a bucket | 44 | 10 – 12 | 1 – 2 |
| - into a milk line | 21 | 60 – 65 | 14 – 15 |
| - in milking parlour | Less than 1 | 25 – 30 | 84 – 85 |
| - by robot | Less than 0.1 | 1 – 2 | 0,5 – 1 |
| - by hand | Over 30 | – | – |
| 4. Resource inputs per one centner of milk<br>- labour inputs, man-hour | 8.5 | 0.6 – 0.8 | 0.4 – 0.6 |
| - fodder inputs, centners of fodder units | 1.3 – 1.4 | 0.7 – 0.9 | 0.6 – 0.8 |
| * Data as of 2007 | | | |

Complete feed of cows is carried on by the feed distributor Optimix. The structure of the machine and tractor fleet is improved by reducing unproductive and unprofitable tractors and increasing the number of efficient imported John Deere and Ares equipment and Claas combines. Most of the grain drying complex is transferred to be gas fueled. A full range of machines manufactured by Krone have been purchased for hay. The farm has been providing itself with high-quality vegetable feed and grain fodder for several years. Fundamentally new milking and refrigeration equipment made by company De Laval is installed on the dairy farms; three untethered housing farmyards with a milking parlor Europarallel (2x12) were run in.

The first stage of cowshed for 320 head with the use of milking robots was put into operation in December, 2008. All the technological processes such as feeding, watering, manure collection, climate control and animal care are fully mechanized and automated. The total equipment cost amounted to 28 million rubles. It included the cost of four robotic milkers (up to 100 thousand euro each), a fridge, which volumetric capacity is 7.5 tonnes, a delta-scraper, channel covering for the delta-scraper, four roof axial fans for climate control, the mats for the cow stalls, feeding stations, two brushes for cows cleaning and brushing, window curtains.

The herd of 280 dairy cattle is served by four operators, who work over 24 hours in shifts. The operators are responsible for the observation over cows' behavior inside, they ensure that the cows enter the robotic milker and keep track of computer information on the state of animals, the number of milking, milk yield per day from each cow and equipment status (not just milking). A sufficient basis was accumulated during the last period for comparing milk production costs of this technology with other technologies. First of all, there was a cut in the number of maintenance staff and, consequently, labour inputs per unit of output were reduced. In 2011, 0.43 man-hours were spent to produce one centner of milk while 0.64 man-hours were spent in untethered housing with a milking parlor Europarallel and 1.86 man-hours in tethered housing with a milk line.

Absolute and relative costs to produce one centner of milk products are different in various types of cattle housing *(tab. 2)*.

The largest share in the production cost structure in the robotic and other types of farmyards is fodder cost (up to 42%). Energy, fuel and water costs range from 14 to 16% in different types of housing. Depreciation cost varies over a wide range – from 4.6 of milking cost in parlor Europarallel up to 17.7% of robotic milking cost. This difference can be explained by large financial investment in the farmyard's construction and the purchase of equipment. These costs will be reduced as their exploitation advances. For example, if the share of robot amortization amounted to 20.1% in 2009, it decreased down to 17.7% in 2011.

The share of wages in the cost structure of animal produce is 6.2% on the robotic farms and 22.3% on the milk-line farms. This circumstance is caused by 1.5-fold decrease in the number of dairymaids and the full cattlemen displacement. At the same time, outside maintenance costs have been increased. The shares of these costs in the total expenditure amount to 9.4% on the robotic farms and 4.1% on the milk-line farms. Such facts as self-maintenance of milk lines and lower cost of spare parts influence the total cost.

Despite the high initial cost of mechanization and automation of technological processes in dairy farming, the farm continues to buy new equipment and increase the number of cattle serviced by robots. The second line of the dairy complex with 4 robots for 380 head including 280 dairy cattle was run up at the beginning of 2012.

The policy of robot milking is taken into service by the Livestock Breeding Farm "Homeland", located in the Vologda District. According to experts, robotic milking can decrease mastitis in dairy cattle due to the

Table 2. The volume and structure of costs to produce one centner of milk in Livestock Breeding Farm under the name of 50 Years of the USSR in 2011 on the bases of various technologies

| Costs | Total costs | | Tethered housing with a milk line | | Untethered housing with a milking parlor Europarallel | | Untethered housing with robotic milkers | |
|---|---|---|---|---|---|---|---|---|
| | rub. | % of total | rub. | % of total | rub. | % of total | rub. | % of total |
| Wages | 178.1 | 15.4 | 279.1 | 22.3 | 92.1 | 9.4 | 74.9 | 6.2 |
| Fodder | 501.3 | 43.3 | 521.8 | 41.6 | 465.5 | 47.7 | 509.8 | 41.9 |
| Fuels and lubricants, electricity, water | 175.5 | 15.2 | 201.9 | 16.1 | 136.2 | 14.0 | 175.7 | 14.4 |
| Depreciation of equipment, buildings and the main herd | 108.9 | 9.4 | 58.0 | 4.6 | 117.6 | 12.0 | 215.9 | 17.7 |
| Total business and manufacturing expenses | 79.9 | 6.9 | 87.0 | 6.9 | 66.7 | 6.8 | 84.5 | 6.9 |
| Maintenance and repairs | 64.00 | 5.5 | 51.8 | 4.1 | 51.1 | 5.2 | 114.1 | 9.4 |
| Other costs | 49.9 | 4.3 | 55.1 | 4.4 | 46.6 | 4.8 | 42.7 | 3.5 |
| Total expenditure | 1157.6 | 100 | 1254.6 | 100 | 976.5 | 100 | 1217.6 | 100 |

control over the completeness of milking and the state of each quarter of an udder. At the same time there are obvious and positive social advantages of a new technology, including the decrease in the use of hard dairymaid labour and increasing prestige of workers, who are involved in high-technology operations on the farms.

Advanced regional farms have proved that it is possible to reach the level of the developed European countries and the USA in effective dairy cattle breeding. On this basis Russia can and should provide a reasonable standards of the consumption of dairy products purchased by the population at affordable prices.

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UDC 338.245


# Public-private partnership in the scientific and technological sphere of defense industry: Russian and foreign experience

*The article is devoted to the problems and prospects of cooperation between state and business as key areas in the strategy of technological modernization and maintaining the competitiveness of the economy. It analyzes the international experience of public-private partnership in the scientific and technological content of the military economy. The analysis held in the course of research has proved that the PPP in the defensive industrial complex of the Russian Federation is the best and often the only possible perspective of the further innovative development of the industry.*

*Public-private partnership, defensive industrial complex, innovative activity, duel-purpose technologies, State defensive order, Government program of arms.*

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One of the national priorities in the country's development for the next few years is the increase of the national industrial production competitiveness on the basis of the technological modernization of enterprises. The successful solution of this problem will contribute to the output of national industrial products competitive on the inner as well as international markets.

Several problems can be pointed out that mainly handicap the achievement of industrial production competitiveness, specifically: the technological backwardness of some of the defense-industry complex branches, the slow introduction of new advanced technologies and highly automated precision equipment, the lack of appropriate personnel training. All this impedes the efficient and full-fledged mass production of the new generation of armaments, military and special equipment (AMSE).

Low production and technological segmentation along with the obsolete equipment (the share of modern production lines do not exceed 6 – 8% of total production volume) leads to the stagnation of major industry technologies and defense enterprises competitive capacity reduction [13].

Today the timing of creation and implementation of the new equipment and industrial base lags far behind actual needs. In addition, there is a problem of coordination between a large number of federal target programs (FTP) ensuring the effective development of defense industry enterprises.

It is necessary to point out an extremely low level of modern informational technologies utilization for supporting high-tech production at all stages of its life cycle (IPI-technologies) at the defense industry enterprises that try to cut down expenses on licensed software procurement, which is totally unacceptable as it may cause malfunction at the crucial moment.

The study and practice of IPI-technologies implementation abroad shows that their full application allows to solve the problem of cardinal improvement of quality and competitiveness of science-intensive technologies output at the expense of the reduction: for 20-30% the development and production costs; for 15-20% production defects and troubleshooting removal costs, for 20-25% operation costs, for 60-70% timing of the latest vehicle models market launch.

Given the importance and urgency of IPI-technologies development at the industrial enterprises, the IPI-technologies elaboration and industrial testing aimed at their large-scale replication at the industrial enterprises are stipulated by the Federal target program "National Technological Base".

It is worth mentioning that at present it is planned to invest a considerable amount of budget funding in the defense-industrial complex aimed at technical upgrading of the organizations participating in the State Armament Program (SAP) and the State Defense Order (SDO).

Under the Federal target program "Development of the military-industrial complex for 2007-2011 and for the period up to 2015" more than 500 billion rubles are to be allocated for technical modernization of defense organizations, including more than 300 billion rubles from the budget. Annually the domestic industrial organizations spend about 1 billion dollars on the technical upgrading from their own funds with the tendency towards the significant annual growth of these expenditures (projected to 2015, annual spending will reach $ 10 billion) [6, p. 20].

Besides, the Federal Target Program "Development of the Russian Federation military-industrial complex for the period up to 2020" is to be implemented soon and it should become the main instrument for solving problems of modernization of Russia's defense-industrial complex. For 10 years about 3 trillion rubles are to be invested in the Russian defense sphere including 440 billion rubles during the next three years [13].

However, the lack of funding for ongoing activities in the field of technological modernization remains a major problem.

International practice shows that the competitiveness of enterprises is ensured by updating the main production facilities every 5 years. At present the enterprises procure expensive technological equipment without strict economic evaluation of various options for technical modernization. Experience proves that disregard for modern methods of economic assessment of alternative options for technical upgrading can reduce the production efficiency after the acquisition of modern technological equipment, which is unacceptable in the market economy.

At present, the defense enterprises usually solve the modernization issues on their own, individually, depending on the possibilities of trying to receive budget funding, fulfilling orders according to the State Defense Order and analyzing the existing demand in its market segment of civil products. At the same time dozens and hundreds of organizations should by themselves draft the applications for the implementation of innovation and investment projects aimed at high-tech goods development

and production in the interests of a definite organization and submit these applications to the federal executive bodies. Considerable difficulties with the preparation of applications, uncertainty of the criteria for their selection, the lack of comprehensive evaluation concerning the choice of the technological modernization project do not give any guarantees that the enterprises' production capacities increase would be most possibly connected with production modernization activities and lead to obtaining a significant economic effect from these activities.

Besides, this modernization scheme does not exclude duplication during scientific research and capital investments of the organizations belonging to the same branch. For example, in 2004, according to the nomenclature of the Russian Federation Ministry of Defense 300 research and development (R&D) works requiring interdepartmental coordination were carried out with the total cost of 3.3 billion rubles. And according to the nomenclature of the rest of the governmental customers – 270 works with the total cost of 2.6 billion rubles. According to expert estimates, the number of duplicate works equaled 20%, and in the field of combat equipment, electronic tools for different purposes - about 30% [2]. Ultimately, this causes inefficient use of budget funds, and despite the sufficiently large amount of funding for technological and technical modernization of production at the expense of federal budget, own and borrowed funds the goals concerning one definite enterprise within one branch are not achieved not to mention an economy as a whole.

The results of scientific and technological activities form the basis of innovation potential for increasing the competitiveness of commercial products and serve as a kind of raw material for innovations - the economic effect of the sales of commercial products, the competitiveness of which is ensured by the introduction of something new.

At the modern stage of development of AMSE in our country these innovations are born in the process of creating the scientific and technological groundwork for advanced weaponry, mainly within the framework of the Program of basic military technologies development which is part of the State armament program.

Scientific-technical results, created in the interests of the defense industrial complex, in most cases have a potential for dual (both military and civil purposes) usage. The foreign experience proves that their transfer to the civilian sector of the economy can significantly improve the efficiency of the Federal budget expenditure, aimed at the creation of advanced defense technologies. Efficiency is increased by the additional revenue from taxes on civil products sales, as well as by the increase of the defense production profitability while producing the goods technologically similar to civil ones.

In the strategic aspect, it should be noted that the crucial directions of defense industrial complex scientific-technological base development usually coincide with the crucial directions of scientific-technical progress in general, therefore, the technological advances gained for the benefit of defense production, are also important for the civil products competitiveness increase and development of socially significant sectors of the economy.

Experts from the Ministry of Defense and the Ministry of Economic Development of Russia estimated that new knowledge and technologies obtained in the framework of the State Armaments Program (SAP) and having the prospects of dual use and, accordingly, the promotion on the internal, as well as on the external markets, make up about 55% according to the Program of basic military technologies, and in other areas of the SAP – about 30%. At the same time, this potential remains practically unrealized [4, p. 356].

In general, the defense industrial complex, along with the tasks of the target, i.e. defense purposes, carries out R&D and production activity in the interests of the various non-defense economic sectors and types of activity. At the same time it should be noted that non-core production and the activity aimed at the use of defense industry achievements in non-defense areas are not organized on the governmental level and only the restrictions on the dissemination of results obtained in the interests of defense and security and/or created by attracting the Federal budget funds are regulated by law. The solution of the key problem of transition to innovative development which is to be found in the extensive involvement of the objects of intellectual property in economic turnover is yet not enough worked out methodically and is not properly regulated by law.

Along with general breaks of the innovation process, connected with the lack of legally established procedure regulating the transfer of fundamental science promising achievements to the practical sphere, the following systematic selection of scientific research suitable for the engineering creation of new technical solutions, which ensure the obtaining of competitive advantages of innovation products, the defense industrial complex has other specific obstacles [8].

Firstly, the guidelines of defense industry organizations development often could not be determined by the innovation activity priorities, as their direct activity is aimed at the creation of military-purpose goods (MPG) and this market is not open and it is chiefly regulated by the state. Indeed, the purpose of innovation activity is to gain commercial effect from the competitive advantages on the free market due to the innovations that give the products the new features attractive for consumers. Competitiveness as a factor of innovation activity stimulation has not become a crucial one in the conditions of the program-target planning of the State defense order tasks that are oriented towards the definite potential executors that include only those having the appropriate licenses granting the right to carry out defense-related activities.

Secondly, neither does the placement of defense orders on a competitive basis have any significant impact on the striving of the enterprises towards the innovation-based development model, as the competitive selection is held mainly according to the criteria of MPG supplies benefits and the efficiency of the projects aimed at the perspective military-technical problems solution is not taken into consideration.

Thirdly, the institutional transformation of the defense industrial complex by the formation of vertically integrated systems and governmental corporations contributes to the concentration of resources, provides more opportunities for the creation of competitive advantages on the international market and at the same time strengthens the cooperative relations on the basis of corporate interests which simultaneously leads to a limitation in the choice of partners, conservation of technological ties and technological base.

Fourthly, the use of non-innovative mechanisms of creating advantages for the enterprises that are based, in particular, on the monopolistic position of corporations, in the short run, will reduce the potential effect from the innovation-based activity, the result of which is connected with numerous risks and additional expenses and can bear fruit only in the relatively distant future.

Fifthly, the Federal budget defense expenditures could be properly planned only for the period of 1 up to 3 years due to the financial, economic and military-technical uncertainty in the permanent crisis conditions of the last two decades. In these circumstances the defense industrial complex enterprises had no real opportunity for strategic planning of their development when innovation-based activity could be considered as a significant factor of economic policy.

Thus, economic, organizational and managerial conditions of the enterprises producing defense products objectively do not create the necessary incentives for the development of innovative activity in the defense industrial complex. On the contrary, the defense enterprises' commercial success in the non-core products market can cause a change in the priorities of their target activities and lead to the breaking of the relations with the defense sector that fails to ensure comparable economic results.

Consequently, it is clear that organizing the innovation-based activity in the defense industrial complex requires governmental incentive and regulation of balance of participants' defense and commercial interests.

Legally binding state regulations and procedures dealing with the distribution of rights and responsibilities between the subjects of innovation activities as well as ensuring the conformity between the technological development priorities, stipulated by defense tasks and commercial priorities dictated by market conditions are the important factors of formation and functioning of the defense industrial complex innovation system.

Efficiency of the use of budgetary funds allocated for technological development and provision of military industrial complex technological security can be greatly increased by the organization of systematic transfer of advanced scientific and technological military or special purpose achievements to the civilian sector of the economy. As foreign experience proves, additional effect can be seen due to the increase in the competitiveness of civil production by mastering advanced technologies created in the interests of technologically similar defense goods production and also due to defense and civil products net cost decrease along with the expansion of the production using dual-purpose technologies.

Attraction of extra-budgetary funds for the interests of the defense industrial complex development can be organized on the basis of correspondence of scientific-technological development guidelines, crucially important, on the one hand, for increasing the interested investor's commercial product competitiveness, and on the other hand, for ensuring the necessary technical level of defense products.

The public-private partnership (PPP) having the goal to create stable relations between science and market and provide for the commercialization of research and development results is the main form of public (defense) and private (commercial) interests combination when organizing the innovation-based activity in the defense industrial complex.

In our opinion, *public-private partnership in the scientific and technological content of military economy* can be defined as a system of long-term relations between the state (its constituting entities representing the state) and subjects of the private sector of the economy aimed at implementing scientific-technological projects in military-industrial complex on the basis of resources consolidation and income or material benefits, costs and risks distribution.

The PPP establishment implies that the state, which invites private investors to participate in socially significant projects implementation, is the initiator of the cooperation. It is the long-term governmental goals and tasks, problems and obstacles arising from the state's social commitments and increasing military and economic demands that should form the basis for the partnership initiatives of the state.

The PPP alliance efficiency is ensured not so much by the direct pooling of resources as by full use of the each participant's unique capabilities and a joint reduction of risks. When forming an alliance with the business, the state, as a rule, not only gains an advantage concerning budget expenses but also gets a more flexible and efficient project management system. As for the business, it receives a number of guarantees and preferences [7, p. 145].

The PPP models and structure vary but at the same time there are certain features allowing to differentiate the partnership into an independent economic category. It is a formalized cooperation of state and private structures, created for the achievement of specific goals and based on the appropriate agreements of the parties.

The main goals of the state in the scientific and technological sphere of the defense industrial complex include:

- increase of state property management effectiveness in the field of science and innovations;
- organization of systematic selection of the fundamental science research results in the sphere of priority development directions and critical technologies of the Russian Federation and their conversion into applied results, suitable for engineering implementation in the advanced technical solutions in technological processes and constructive objects;
- the increase of the usage efficiency of the Federal budget funds, allocated to state customers – Federal executive bodies for the purpose of MIC technological base development, as well as through the expansion of their dual-purpose application in the civil sector of the economy;
- raising of additional extra-budgetary funds aimed at the MIC technological development in the spheres crucial for creation of the new generation of AMSE as well as non-defense products, competitive on the domestic and foreign markets;
- expansion of dual technologies usage by unifying the military and civilian products technological base for increasing the profitability of defense products output, which is limited by state customers' financial capacities,
- encouraging small and average businesses to the innovation-based activity,

Accordingly, the benefits of each participant interested in the partnership are as follows:

– for the public sector - improvement of quality and reduction of the state order's cost, improvement of its basic directions selection system, finding the new ways of scientific-research sector results implementation; increase of the effectiveness of the state support of research and development carried out by the business through the reduction of risks it may have while investing into the innovation-based activity; the best practical application of obtained public sector research and development results by increasing their profitability potential; filling the gaps in the infrastructure of knowledge transfer, its development [5, p.260];

– for the private sector – the availability of information about the results of intellectual activity, created in the (MIC) defense industry under the state contracts and suitable for commercialization; the possibility of the acquisition of rights to use the results obtained at the expense of the Federal budget and having high commercial potential; the availability of services providing contractual relationship registration between the main participants of innovation process (state customers, developers, investors) by the "one stop" principle; the possibility of partial compensation of risks connected with the adaptation of defense oriented products to competitive market conditions; the availability of credits, granted on favourable terms, including those granted against the pledge of future products; the availability of consulting, marketing and other services [1, p. 70].

The world practice witnesses many ways of joint participation of state and business in innovative activities.

The USA have gained remarkable experience concerning the PPP formation. In this country the scientific and technological development perspectives are constantly in the focus of attention of the state's ruling circles, which finds its expression in the development and regular updating of goals, tasks, guidelines and

scope of the scientific and technological activities, in promoting the use of scientific and technological potential for strengthening national security, developing economy, strengthening of positions in the world market, as well as in the carrying out scientific and technological activities to meet the internal demands of the country while promoting the implementation of foreign economic interests.

The USA are the ardent followers of the "technological war" concept striving to gain technological superiority over any potential enemy, get hold of the other states' latest scientific achievements in the defense sphere and become a leader in every scientific and technological field [4, p.159].

The policy of priority innovation financing carried out by the USA expresses itself in the form of a broad partnership between the Federal government, corporate and academic sectors in the spheres of science and technology development and technological infrastructure formation. This policy is aimed at the promotion of perspective but high-risk technologies, elimination of the dissociation between military and civil industrial bases in order to expand access to a broad range of technologies ensuring national security.

This policy, stimulating the "dual-use technologies" development and implementation, being a part of the US technological security state program, contributes to the convergence of civil and military industry, eliminating the institutional and technological barriers between them. The United States consider that it is necessary not only to finance R & D in the military sphere, but also to encourage the demand for its results on the part of the corporate sector. It is necessary to get big financial-industrial groups working on global civil markets interested in their own investing into the technologies originally developed by the defense industry for military purposes, but having the potential of commercial use.

The majority of the US R&D carried out at the expense of the Federal budget, is under the authority of the Defense Department. Their share in the total Federal R&D financing approaches the figure of about 60%. Given the inflation rates, the Federal budget expenditures on defense research and development for the recent years also show the outrunning growth in comparison with the research and development in civil sector [3, p. 9].

The Defense Advanced Research Projects Agency (DARPA) is the main institution in the system of the US Department of Defense, responsible for the financing of scientific-research and experimental-design works carried out by the technologically oriented companies for the needs of the defense industry. Strategically, the goal of this establishment is "to maintain the US technological superiority in defense sphere, prevent the emerging of unexpected technological threats to national security by providing financial support of the revolutionary and highly profitable R&D, which reduces the gap between fundamental discoveries and their military application".

DARPA fulfills its mission through a worldwide search for the most "promising" scientific ideas and the subsequent sponsorship of research projects that form a kind of a "bridge" between the basic research and their usage for military purposes. DARPA is the only establishment of the Defense Department, not bound by specific operational goals: its purpose is to provide the US Department of Defense with technological solutions.

The Agency is unique due to the fact that it implements only the projects, ensuring the revolutionary accomplishments in the defense sphere, but, as a rule, highly risky ones.

The majority of technological innovations that shaped the appearance of the modern US armed forces were developed and implemented with the direct support of DARPA. These include: low observable technology "Stealth", radar system with a phased antenna array;

uncooled night vision devices and the IR all-round surveillance system; unmanned land-based, air-based and submarine-based military equipment, over-the-horizon radar target detection technology, etc.

Although the Agency focuses primarily on the military sphere, a significant part of its projects deals with the development of dual purpose technologies. Internet, GPS navigation system, semiconductors and integral circuits - all these areas, widely used at present in the civil sector, are based on the research, carried out with the direct participation of the DARPA.

While dealing with dual purpose technologies the Agency pays special attention to commercialization of R&D results. When private corporations are not yet investing in technologies valuable for the Defense Department, DARPA takes the leading role in the technological base development.

At this moment the Agency directs its investments for the needs of national security and does not intend to create the groundwork for the industrial base of the private sector. As soon as the development of technology is shifted from the Defense Department to the private sector, DARPA should define the transition strategy from the position of a technological leader to the "niche player".

The technology of integral circuits can serve as an example of such a transition. In early 1970-s the US Defense Department was the main consumer of integrated circuits. The demand on the part of the armed forces reached 17% of the market of semiconductors.

By the mid-1990s, the private demand for semiconductors has increased significantly, as a result, the Defense Department controlled about 1% of this market, its influence on the development of these technologies decreased sharply, and DARPA has changed its leading role for the role of a niche player. At present, the Electronic Technology Office at DARPA is dissolved [11, p. 32].

Since 1986 DARPA is specially engaged in the stimulation of "innovations", developed by small research groups. A lot of research programs are narrow in their scope and are carried out by one or two scientists assisted by several laboratorians or technicians. Nevertheless, the US Defense Department does not neglect such groups, signs contracts with them and provides them with equipment and data. Especially often it is practiced at those research stages, when a wide search is required and carrying out the works on a competitive basis is most efficient.

The main criteria taken into account when holding competitive tenders include: the goal of the research; the novelty of the design; analysis of approaches existing in this field; the presence of revolutionary innovations in a project; evidence of the possibility of achieving the project's goal; the formulation of the intermediate and final results; defining the consumers of the project outcome; the cost and terms of implementation of the project.

Universities, government laboratories, federal R&D centers and non-profit organizations play the most important role in conducting research and development. At the same time, DARPA annually allocates a substantial part of its funds for industrial enterprises.

It is necessary to mention the American practice of creating Centers of Excellence. Centers of excellence are established at the universities, they have extensive scientific research programs and essentially serve as the centers for creating new science-intensive firms. As a rule, they function under a mandatory share participation of private companies, state budgets, etc. Such centers are established all over the country. The Defense Department and representatives of industry also take part in their activity. This contributes to the transfer of knowledge, flexibility, and mobility in R&D sphere. The companies gain knowledge concerning the latest achievements in the scientific and technological sphere, which allows them to remain at the cutting edge.

Of paramount importance is the sharing of experience and strengthening of the work coordination. These centers help to reduce duplication of the work. Professional training of scientists and engineers is also being improved [10, p. 20].

Unlike the United States, the United Kingdom in accordance with the Defense Science and Innovation Strategy does not aspire to global leadership in all scientific and technological fields, yet it ranks second in the world concerning the expenditures on the military science. According to the concept of the "Towers of excellence", Britain plans to achieve leading positions only in critical areas, which include guided weapons, optical-voltage sensors, synthetic environment creation, radar systems, underwater sensors and the software for human-machine interface. The rest of the scientific-technological areas are a sphere of international cooperation and commercial purchase within the country [4, p.159].

The UK has an agency similar to DARPA, which is called the Defense Science and Technology Laboratory (DSTL). The laboratory was established in July 2001. According to the governmental initiative the Defense Evaluation and Research Agency (DERA) was transformed into two establishments: the Defense Science and Technology Laboratory (DSTL) and the company QinetiQ. DSTL is the executive agency of the UK Ministry of Defense (MoD), it works out recommendations in the sphere of defense science, technology and security. The company QinetiQ provides technological products and services in the defense sphere for the state and commercial customers.

In the last ten years the British government established two main forms of organizational structures: the Towers of Excellence (TOE) and Defense Technology Centers (DTCs) for the purpose of constructive cooperation between the Ministry of Defense, industrial and academic circles. The Towers of Excellence seek to increase technological superiority of Britain's AMSE and improve the "vertical" base of equipment suppliers in key priority areas at the levels of a system or a main subsystem. DTCs are world-class centers, carrying out R&D, focusing on innovations that will contribute to the improvement of the UK future defense capability through the development and use of technologies [14, p. 289].

Great Britain is the European leader in the use of PPP mechanisms. In 1992 the Private finance initiative (PFI) was founded for the purpose of developing more efficient public services of high quality. Long-term British experience of PFI has shown the effectiveness of this form of cooperation with the private sector in comparison with the direct participation in the projects funding. Higher discipline of PPP projects, the requirements of a customer to draw up the budget for the long-term period of a project life cycle stimulate the higher quality of project preparation, business planning and execution of the specifications by the private sector participants.

The program for the development and launch of military satellites "Skynet-5" for the British and NATO armed forces can serve as an example of the PFI concept implementation. The UK Ministry of Defense, the Postal Services Commission and private investors signed a preliminary £ 963 million agreement on the development of the satellite. The total value of the satellite's whole life cycle equals £ 2.5 billion. It is noteworthy that a consortium consisting of the 30 banks is the private investor of the project [9, p. 100].

At present, three Skynet-5 satellites have been placed into orbit and the fourth will be launched in 2013 that will ensure capacity increase of the MoD satellite communications network. The corresponding agreement was signed between the UK MoD and the main contractor for this project in 2010. Besides, it was decided to extend the Skynet-5 operating life for two more years – till 2022. The military has estimated that the economic benefit of

£ 3.6 billion or $ 5.4 billion can be obtained if about £ 400 million or $ 600 million would be invested into Skynet-5 and its operating life would be extended.

Another European PPP model is represented by the creation of a multi-purpose transport/refueling aircrafts "Future Strategic Tanker Aircraft" (FSTA) by the company AirTanker for the British Air Force. The FSTA project is aimed at the development of the UK refueling aircrafts fleet, including the creation of the newest operating base and the attendant infrastructure. The delivery of 14 new tanker aircrafts for the Royal Air Force is expected within the framework of the project covering the period of 27 years (2008-2035).

The total value of the equipping the British Air Force with tanker aircrafts and the provision of related services is estimated at £ 13 billion (£ 16.7 billion). If Britain takes part in military actions and its demand for these aircrafts increases the total project cost will increase respectively. It should be noted that the UK MoD spent approximately £ 47.5 million (which is 0.4% of the total project cost) for the holding of a tender prior to the conclusion of a contract.

In the course of negotiations ongoing since 2004 AirTanker on its part managed to attract about £ 2.2 billion (£ 3.2 billion) for investing in the development of the fleet, operational base and attendant infrastructure. The cost of the services provided to British Air Force will consist of a fixed part: for the fact of aircraft provision, and variable part - for every hour of aircraft operation [12, p. 66].

From the organizational point of view the aircrafts fleet is planned to be divided into three parts. One of them will be in continuous operation of the military. Another one is supposed to be in operation of the military on weekdays, and on weekends - used in commercial (transportational) purposes. The third part will be used for commercial purposes, and handed in at the disposal of the Air Force in case of emergency.

All 14 aircrafts will remain the property of AirTanker consortium. The British MoD will not buy but lease them, while ensuring the minimum demand on its part for the consortium services. If AirTanker is unable to provide the agreed services, the payments from the Ministry of Defense will be effected only for the actually provided services.

The projects described in the article are a bright example of successful partnership between the public and private sectors in the field of defense. The US and UK experience proves that along with such necessary components of the innovative development as the efficiency of the innovative activity legal base, systematic and intensive investments in R&D, development of entrepreneurship and production base improvement, of crucial importance is the formation of a dense cooperation network between all the subjects of the national innovation system (including the interaction between the military and civilian sectors of the economy) as well as between all the stages of the dynamically developing and significantly challenging innovation process. Public-private partnership is becoming a core of the emerging networks.

Taking into account the nature, scope and implementation timing of the scientific-technological projects, PPP in the RF military industrial complex seems to be the best and often the only possible prospect of the further development of the defense industry. Attraction of business allows to implement a lot of strategically important projects and programs, when the state budget is unable to allocate the funds for their financing. Besides, the innovation process being an integral part of scientific-technical activity, which is based in this case on military and double-purpose technologies is also evolving, which, in its turn, contributes to the establishment and improvement of the defense industry infrastructure and the achievement of parity with the United States concerning the main types of armaments and military equipment.

It seems that the development of the works on advanced armaments, military and special equipment on fundamentally new physical principles requires the creation of fundamentally new organizational schemes for such work. It might be appropriate to suggest the establishment of the Russian Agency for advanced defense research and development as the counterpart of DARPA.

In our opinion, the creation of this establishment will help in a relatively short time to narrow the scientific and technological gap between Russia and the leading foreign countries not only in the field of AMSE, but also in the technological development in general, and in future to resume the leading positions in the world.

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UDC 330.341.1


# Investigation of the connection between the statistical indicators of innovative processes and the socio-economic situation in the region

*Many domestic scientific publications are devoted recently to innovative character of the development of the Russian economy and its regions. Innovative processes in the regions are associated frequently with the basic priorities of their social and economic development. This innovation assessment should have a strong basis. The subject of the article is the study of the major features of the social and economic development in one of the Russian regions against the background of the innovative processes in this region.*

*Innovative development, region, indicators, economic and social situation, investments.*

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In scientific publications the present-day state of affairs connected with innovative character of the Russian economy has various estimations. For example, A.A. Dynkin and N.N. Ivanova in their article contained in the collaborative monography analyze the state of economy and innovations in Russia in comparison with the countries and world leading companies that have high values of investment dynamics in research, development and capitalization of knowledge-intensive companies and sectors [5, p. 63-82].

There is a rather pessimistic conclusion at the end of the article concerning the prospects of innovative development of science-intensive sectors of the Russian economy: "At best they will maintain and further strengthen their "niche advantages" on the basis of international cooperation and meet the country's domestic market demands for high-tech products" [5, p. 82].

This viewpoint can be confirmed by S.Yu. Glaziev's statement: "...Except for the nuclear and aerospace industries, that have acquired a wide range of competitive advantages, Russian industry does not have new technologically advanced production facilities" [1, p. 110].

World experience in estimating modern innovative projects that have perspective scientific, technical and economic advantage is reflected in a number of foreign publications [13, 14, 15, 16].

At the same time in domestic publications of the recent years the issue of creating in the Russian regions some special models of regional innovative systems that "...in the present conditions are the main mechanism of scientific and technical as well as the sustainable development of the regions" has received extensive coverage [4, p.213]. In the light of this viewpoint it is difficult to overestimate the influence of innovative processes' indicators on the state of domestic and also regional economy.

B.Z. Milner, the author of the Preface to the collaborative monograph quoted above is quite certain about it: "The innovative economy can exist only when science is an integral part of industrial production and a direct productive force... the next few years will provide a unique opportunity to formulate the qualitatively new approaches and the mechanisms that could ensure the sustainable development of the economy" [5, p. 5].

Taking into account such opposing views on the role of innovation processes in the development of Russian economy as a whole and its regions in particular, the further discussion of this problem can be considered logical and appropriate.

Russian legislation defines innovative activity as "...activitiy (including scientific, technological, organizational, financial and commercial activities), aimed at the implementation of innovative projects, as well as the creation of innovative infrastructure and the support of its activity" [11].

Given the economic consequences of innovative processes it is necessary to make a distinction between the generation and the use of innovations on specific territories. The manufacturing of an innovative product (item, technology, mode, method, etc.) is not always linked geographically to the objects of its use. High level of research and development (R&D) in the region's organizations can have only an indirect influence on the level of its economic development. The study of such relationships is an important scientific and practical problem.

The reviews and discussions of innovative development problems of the RF regions are reflected in a number of recent publications, in particular in the works [4, 7, 9]. At the same time these publications were preceded by the basic research studies of the RAS scientists, including [3, 6].

The activity of the State Scientific Center – Scientific Research Institute of Atomic Reactors (RIAR), which is the State Atomic Energy Corporation ROSATOM establishment in the city of Dmitrovgrad, the Ulyanovsk Oblast, is an example of very complicated relations between the results of the activity of a research organization and indicators of a region's economy [17].

RIAR has the strongest positions in Russia in the field of experimental validation of new fuel types and structural materials for nuclear power units, and it is the world leader in a number of fields.

S.Yu. Glazyev's statement cited above may confirm the importance of the development of these works [1].

At the same time certain directions of the Institute's activity show examples of innovative technologies implementation in the Ulyanovsk Oblast. In particular, it concerns the establishment of the first in Russia Federal center of nuclear medicine projects design and development (hereinafter – the Center) in Dmitrovgrad in accordance with the Decree of the Government of the Russian Federation of March 17, 2010 No. 145 [10].

Undoubtedly, one can speak about a high level of economic, including regional, efficiency of this innovative project development and functioning. The growth of Dimitrovgrad citizens' revenues due to the construction and operation of the Centre, the increase of tax revenues to all levels of the budgetary system, the incomes of the population and economic entities due to the expansion of social and industrial infrastructure of the Western part of Dimitrovgrad will undoubtedly serve as direct indicators of this efficiency. The methodology of evaluating economic efficiency of the creation of the Center was published earlier in the work [12]. At the same time the issues concerning the influence of development of educational, R&D, experimental-design and other types of innovative activities on the ultimate, adopted by the official statistics, indicators of socio-economic development at the level of a certain region as a whole are of particular importance.

The published research work by the scientists of the Institute of socio-economic development of territories of RAS was crucial for raising the issue [2].

The publication mentioned above provides the methodology of calculating the scientific and technical potential index of the RF regions, which is the simple average of the indices of the sections it includes, i.e. "Science and innovations", "Education", "Information structure and communications". On the basis of this index the authors rated the RF regions according to the developmental level of the scientific and technical capacity in 2003 – 2007 [2, p. 142-144]. Naturally, one would like to compare this rating with a rating of socio-economic situation in a definite region in order to find possible links between these ratings in the dynamics. This comparison extends our views on the value and importance of scientific-technical potential development of the territory in the formation of its main socio-economic indicators.

In itself the choice of the region's main socio-economic indicators is not a trivial task. The list of the main socio-economic indicators of the rating of the RF subjects, which is published annually in the Rossiyskaya Gazeta at the end of each reporting year, can be considered the most trustworthy. For the purposes of this article it is appropriate to consider the period of socio-economic position of a region, and in this case it is the Ulyanovsk Oblast, from 2007 to 2010. This is due, firstly, to the considerable instability of the economic situation in the 2000s, secondly, to the above mentioned period of calculation of the scientific and technical potential rating of the regions in 2003 – 2007, and, finally, the necessity of considering the time lag in the implementation of the scientific-technical achievements in the real sector of the economy. One can estimate the length of the lag to be 3-5 years taking into account, in particular, the design and construction of new production facilities' average duration, the education period at the universities, the observations concerning the spread of innovations in information technologies, etc. Taking this circumstance into consideration, this work deals with the indicators in accordance with the basic parameters of the socio-economic position of the Ulyanovsk Oblast for 2007 – 2010. [8].

Indicators presented in *table 1* are among such basic parameters.

Table 1. Dynamics of the Ulyanovsk Oblast rating among the subjects of the Russian Federation on the basis of the most important socio-economic indicators in 2007 – 2010

| Indicators of the dynamics for evaluation of the position of the region in the Russian Federation | The position of the oblast among the RF subjects in the years | | | |
|---|---|---|---|---|
| | 2007 | 2008 | 2009 | 2010 |
| 1. Industrial production index (in % to the previous year) | 32 | 59 | 65 | 4 |
| 2. Index of physical volume of works, executed in the field of "Construction" (in % to the previous year) | 40 | 25 | 50 | 73 |
| 3. Investments in fixed capital (in% to previous year) | 31 | 23 | 27 | 67 |
| 4. Index of agricultural goods production in farm enterprises of all types (in% to previous year) | 56 | 19 | 55 | 73 |
| 5. Index of consumer prices (December of the reporting year to December of the previous year) | 69 | 42 | 7 | 70 |
| 6. Nominal average monthly wage of one employee (roubles) | 73 | 70 | 69 | 65 |
| 7. Actual average monthly wage (in% to previous year) | 27 | 41 | 35 | 3 |
| 8. Real cash incomes of the population (in% to previous year) | 64 | 62 | 56 | 11 |
| 9. Total number of the unemployed (according to population surveys on the issues of employment, in% to economically active population) | 21 | 45 | 46 | 53 |
| 10. Natural population growth (decline) per 1000 people | 69 | 59 | 59 | 62 |
| Average position | **48** | **45** | **47** | **48** |

The table is organized as follows. Out of 46 indicators, the data for which are presented in the Rossiyskaya Gazeta, only 10 are used in this table. The numbering of places is presented in ascending order: number 1 is the best value of the indicator. Accordingly, the following considerations have been taken into account.

First: the data array presented in the given publications (46 indicators of 83 RF subjects – about 3800 values) for each year potentially serves as a basis for an almost unlimited number of analytical tasks. A limited number of indicators is purposely selected to achieve the goal of the task.

This is done in order to make the results of the analysis more compact and convenient for perception "at a glance". Of course, even with the task determined this way, the view of its solution could be quite various. But even for the 10 indicators, reflected in the table, the work with an array of about 800 values for each year had to be accomplished.

Second: the necessity to bring the results to a compact view has not removed the problem of their representativeness. That is why the 10 indicators include: investment as a source of economic potential increase; industry, agriculture and construction as the main branches, forming the gross regional product of the oblast; people's wages and incomes, that mainly determine the population living standard; unemployment as equally connected with the situation in the production sector of the economy and reflecting the social character of the population; natural population growth (decline) as a certain synthetic indicator, which reflects the solution results of the urgent problem concerning the preservation of the RF population.

Third: given the above stated definition of the task, the consideration of a series of related and duplicating indicators, such as construction of residential buildings and housing prices indices, wage arrears, indices of crop and livestock production, etc. could not affect the results of the analysis.

The final line of the table does not require any special comment. Obviously, remaining within the framework of the indicators under review, the position of the oblast for 2007 – 2010, shows its relatively stable character.

Consideration of the above stated problem dealing with the study of innovative processes influence on the economic development of the region requires a joint presentation of the data about the dynamics of all the most important indicators, reflecting this impact.

At the same time it is important to analyze the indicators provided by official statistics. Herewith, *table 2* summarizes the indicators under review for the period under review.

Table 2. Indicators reflecting the position of the Ulyanovsk Oblast among the RF subjects concerning the impact of innovative processes on the region's socio-economic situation

| Indicator for the evaluation of the region's place in the Russian Federation | Region's place among the subjects of the Russian Federation for the years | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| 1. Industrial production index(in% to the previous year) | 40 | 77 | 23 | 58 | 32 | 59 | 65 | 4 |
| 2. Number of created advanced production technologies, units | 12 | 17 | 44 | 27 | 27 | 52 | 33 | 30 |
| 3. Number of used advanced production technologies, units | 26 | 23 | 33 | 28 | 38 | 36 | 36 | 43 |
| 4. Index of physical volume of investments in the fixed capital (in constant prices of the previous year) | 59 | 9 | 49 | 17 | 31 | 23 | 27 | 67 |
| 5. Rating of the oblast in the Russian Federation according to the level of development of the scientific and technical capacity in 2003 – 2007 (place) | 53 | 33 | 45 | 42 | 26 | Not calculated due to the lack of published data | | |

The table uses the data that was already stated above, as well as the data concerning the position of the Ulyanovsk Oblast on the basis of statistics provided by Federal State Statistics Service of the Russian Federation [18].

The following main conclusions can be formulated on the basis of the data produced in the table.

1. The arithmetic mean value of the Ulyanovsk Oblast rating according to the level of the scientific and technical capacity development in 2003 – 2006 (43rd place) corresponds to the level of the region's socio-economic position in 2007 – 2010. (47th place). This may indicate the significant influence of the region's scientific-technical potential on the level of its economic development. The sharp increase in the scientific and technical capacity rating – from the 42nd place in 2006 to the 26th place in 2007, might be an incentive for even more rapid growth of the region's rating according to the industrial production index – from the 65th place in 2009 to the 4th place in 2010.

2. Within the period of 2007 – 2010, a stable relationship at approximately the same average level (36th – 40th place) can be observed by a number of indicators: industrial production index, the number of created and implemented advanced industrial technologies, the index of physical volume of investments in the fixed capital. This information can prove valuable for predicting the most important economic indicators of the region's development, taking into consideration the fact that innovations concern, first of all, industrial production management.

3. It is obvious that the oblast, despite its high level of industrial production development (in 2007 – 2010 – on average 40th place in Russia), lags behind because of other branches of material production (clearly negative trends in the construction and agriculture indicators). These trends require the most careful attention on the part of regional authorities; otherwise the concentration of efforts on the most innovation-intensive directions in the industry will not be able to influence the overall level of performance indicators of the regions' economy.

4. Along with the previous conclusion, it has to be admitted that overall deterioration of the region's position according to the number of advanced production technologies developed in the period from 2007 to 2010 (from the 25th place to the 36th place), the number of used technologies (from the 28th place to the 38th place), the index of physical volume of investments in fixed capital (from the 32nd place to the 37th place) as compared to the period from 2003 to 2006 in no way correlates with the region's simultaneous rise by 10 positions according to the index of industrial production – from the medium 50th up to the 40th place.

5. Sadly, the study of the innovative processes influence on the basic socio-economic indicators of other regions does not provide qualitatively different views on the nature of this influence. One of the most "innovatively advanced" regions in the Privolzhsky Federal District, no doubt, is the Samara Oblast, which borders on the Ulyanovsk Oblast. According to the state statistics data, in the period 2003 – 2010, the Samara Oblast rating concerning the number of created and implemented advanced technologies, on average, was a lot more preferable in comparison with the Ulyanovsk Oblast rating: the 6th – 7th places against the 30th – 33rd places. The levels of scientific-technical capacity development of the compared regions in 2003 – 2006 were even more diverse: the Samara Oblast took the 11th place, the Ulyanovsk Oblast took the 43rd place [2, p. 142]. At the same time, the regions' positions according to the described method of assessment of the regions' socio-economic development rating, shows the close values of these ratings in 2007 – 2010: the Samara Oblast took the 40th place, the Ulyanovsk Oblast took the 47th place. As for the index of industrial production the situation was reverse in that period: the Samara Oblast took the 48th place, the Ulyanovsk Oblast took the 40th place.

Although the results mentioned above and the accompanying circumstances prove a certain influence of innovative processes in the Ulyanovsk Oblast on its main socio-economic indicators, it will still be premature to draw ultimate conclusions about the extent of this influence.

One cannot but agree with the authors of one of the latest monographs devoted to the study of integral indicators for the evaluation of the Russian regions' socio-economic position. They conclude: "We would like to consider this book as a kind of introductory study of the branch of regional science that is very fruitful and interesting from the practical point of view" [7, p. 203].

Certain separate conclusions, related to the subject of the article, can be summarized as follows.

1. The study of influence of innovative processes on the region's socio-economic performance should be carried out systematically. The period of the initial data submission for the research should be representative and comparable with periods of innovative projects development and implementation.

2. Current market conditions, in which the regional economy is functioning, are the main impetus (and deterrent) of its development.

3. There is no direct connection between the official statistical data of the state of a regional innovative and economic activity during the certain periods of time.

4. The joint efforts of a region's business and authorities aimed at the creation of the genuinely favorable climate for attracting domestic and foreign investments should be considered the most important priority of the regional socio-economic development. This factor acquires fundamental importance, since it is closely connected with the region's basic indicators and has considerable influence on them. In the near future this connection with the indicators of regional innovation activity is uncertain.

5. The maximum use of the scientific-technical capacity of Russian and regional scientific-research, project and design organizations is the key priority guideline of innovation policy in a region. In this respect the leading role should belong to the policy of regional authorities aimed at innovation projects funding (also in the form of granting of guarantees, privileges, etc.) together with the Federal center.

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UDC 332.14+336.53


# Trends of social expenditures in the North of Russia

*The article reveals the features of social expenditures in the North of Russia. It contains the analysis of the main sources of funding such as regional and municipal budgets and off-budget funds. The following trends are revealed: heightened social costs caused by high life-support expenses, increasing of social expenditures, reinforcement of social policy due to the raise in pensions, smoothing of spatial and structural differences.*

*Budget, public health, culture, education, region, the North, social security, social policy, social expenditures, finances.*

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Economic development and rise in the standard and quality of living in Russia are largely determined by the functioning of social sphere. In turn, the social conditions depend directly on the level of funding. Despite the decentralization and the slight increase in financial resources allocated for social needs, their volume is still insufficient to ensure normal living conditions. This problem is particularly acute in the North of our country due to the factors of price rise, negative consequences of market reforming and the financial and economic crisis.

**The sources of social financing**

Social sphere is considered in this article as a set of the following social systems: education, public health (including physical education and sports), culture and social policy.

We don't consider such components of the social sphere as incomes and expenses of the population, municipal or urban engineering and environmental protection.

In turn, social policy includes the expenditures related to the same section of the budget classifications in the budget accounting: pension provision, social security, social support and social services for the population, family and childhood protection, applied researches in this field.

The regional system of social expenditure includes centralized and decentralized sources *(fig. 1)*. Centralized sources involve the funds that are at disposal of the state and local authorities; they function according to the regulations that are obligatory for the whole country and for all the economic subjects, and

they are formed at the expense of tax revenues and insurance fees. Decentralized sources are characterized, firstly, by the formation and expenditure at the microlevel, and, secondly, by voluntary expenditure, without the forced and the same order for everybody.

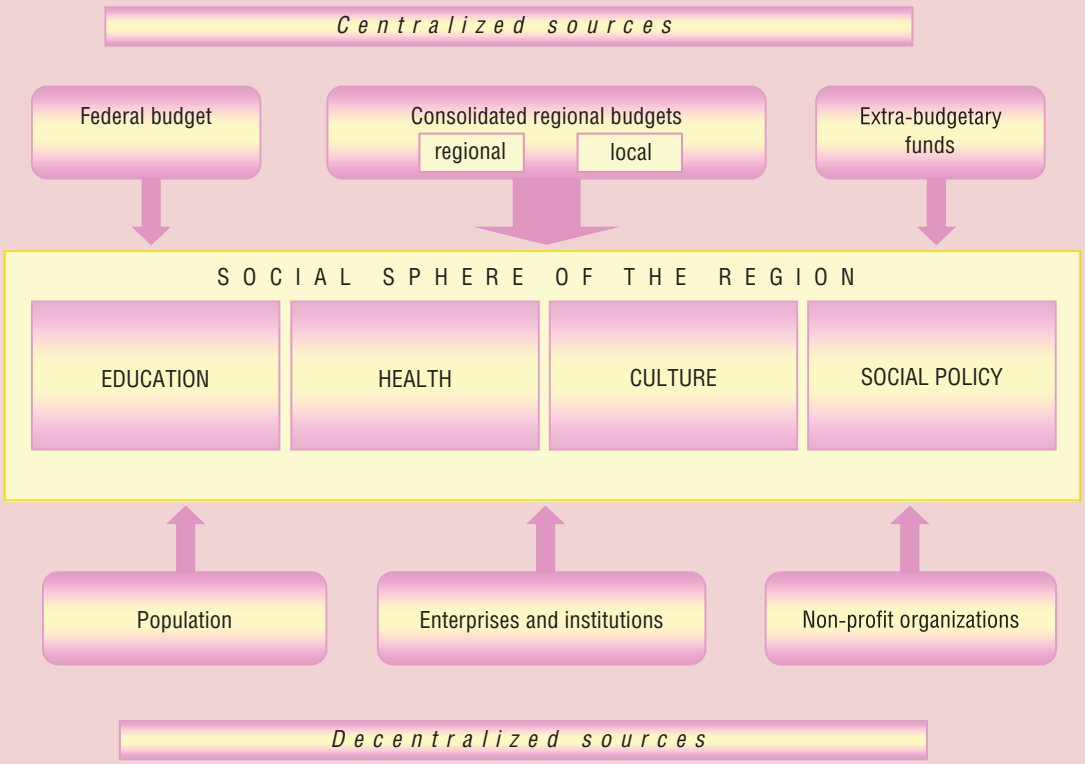
In general, the responsibility between *centralized sources* of social financing is divided as follows.

The regional social expenditures of nationwide importance are financed from the federal budget. They include the expenditures on fundamental researches in the relevant fields, higher and postgraduate education, the protection of important cultural heritage, the activity of federal law enforcement and supervisory authorities, delivery of some types of medical care (provided by the federal health organizations, including high-tech medical care, as well as some high-cost preventive areas), financial support for the disabled persons, war veterans, heroic persons and some other categories, etc.

Regional budgets finance the expenditures on primary and secondary vocational education, youth policy, some types of specialized medical care, cultural policy and regional cultural events, social protection of the poor, some social benefits for labour veterans, home front workers, rehabilitated persons and some other categories, etc.

Local budgets are responsible for financing of preschool and general education, emergency medical services and primary health care in the case of socially significant diseases, local cultural institutions and other similar areas[1].

Figure 1. The main sources of social expenditure in the region




[1] The differentiation of financial authorities between the regional and local governments can vary in the Federal subjects of Russia.

Extra-budgetary funds are responsible for the following areas: the Social Insurance Fund finances temporary and professional disability allowances, social protection of motherhood and childhood, rehabilitation and sanatorium treatment; the Pension Fund finances pension benefits for the elderly and some other categories of people; the Mandatory Health Insurance Fund finances basic types of health care (primary and specialized health care, with the exception of high-tech medical care) within the governmental program of state guarantees.

*Decentralized sources* include funds of the population, enterprises, institutions and non-profit organizations.

Population funds are the citizens' expenses on the paid educational, health and cultural services. The funds of enterprises and institutions include the charges for education, medical treatment, voluntary health insurance, leisure and recreation of their employees and their family members, as well as co-financing of temporary disability allowances and financial assistance in difficult situations. Non-profit organizations, both domestic and foreign, finance the social sphere in the form of grants; they include charitable foundations, social and religious groups, trade unions, etc.

The expenditure of centralized sources on social services and the population's payments are registered by official statistics [1, 3, 10]. The voluntary investments of enterprises, institutions and non-profit organizations in the social sector are not fixed. According to expert assessment of their value in education [11], it is possible to get a rough idea of the relationship between centralized and decentralized sources in the total amount of social expenditures. It is 80:20. This proportion indicates that the budgetary system retains the leading role in the country's social expenditure.

**The structure of financing sources**

Extra-budgetary funds are the most important part in the structure of centralized sources of social expenditure financing in the northern regions. They amount to 51% of total assets. The share of local budgets in social expenditure is 29%. The regional budgets take last place; they amounted to 20% *(fig. 2)*[2].

The structure of social expenditure is different in various areas: extra-budgetary funds are the most important source in the financing of social policy (almost 80%). Local budgets play a key role in other spheres. The share of regional budgets is significant in all areas.

The share of local budgets is significant in social expenditure in the North of Russia as opposed to the rest of the territory (29% vs. 17%), but the share of extra-budgetary funds is lower by 10% (51% vs. 61%). The shares of the regional budgets are roughly equal *(tab. 1)*.

The increased share of local budgets can be explained by the fact that there are high educational, health care and cultural expenditures in the northern regions, especially in the regions that have large budget revenues due to their natural resource rents (the Magadan Oblast, the Sakhalin Oblast, the Nenets Autonomous Okrug, the Khanty-Mansi Autonomous Okrug, the Yamalo-Nenets Autonomous Okrug, Yakutia). Their social expenditures are twice as more as the average social expenditure in Russia. These spheres are financed mostly by local budgets; this fact leads to a significant increase in the share of the latter.

The main reasons of high costs of the regional social systems, mentioned above, include low population density, severe climate conditions, undeveloped infrastructure, as well as the additional "resource" revenues that are allocated to improve living conditions of the population. For example, under the condition that the average share of local budgets in the financing of social policy varies from 2 to 5%, it amounts to 25% in the Yamalo-Nenets Autonomous Okrug; this fact indicates a significant budget investment to the social support for the local population.

[2] Federal budget expenditure in the regions isn't considered here because of its low share (about 3%) and difficult availability of returns from the regional point of view.

Figure 2. The structure of centralized sources of social expenditure financing in the northern regions of Russia in 2010, % [1, 10]

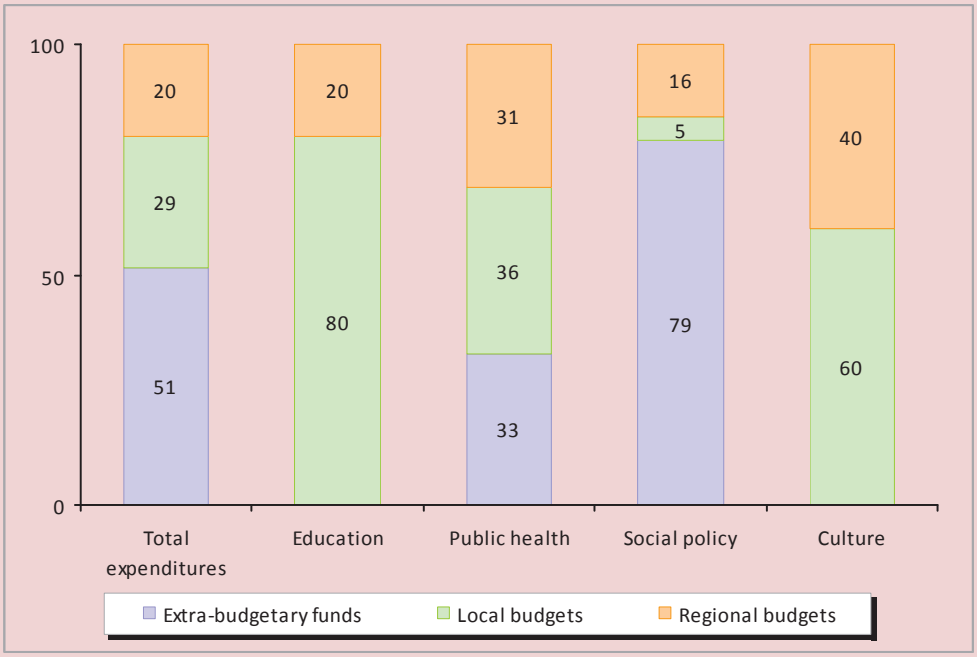



Table 1. The structure of financing sources of social expenditure in the northern regions of Russia in 2010, % [1, 10]

| Region | Extra-budgetary funds | Local budgets | Regional budgets |
|---|---|---|---|
| Russian Federation, total | 61 | 17 | 22 |
| Northern regions, total | 51 | 29 | 20 |
| Including: | | | |
| Republic of Karelia | 63 | 18 | 20 |
| Republic of Komi | 65 | 18 | 18 |
| Arkhangelsk Oblast | 66 | 16 | 19 |
| Nenets AO | 33 | 42 | 25 |
| Murmansk Oblast | 60 | 23 | 17 |
| Khanty–Mansi AO | 43 | 35 | 23 |
| Yamalo-Nenets AO | 37 | 50 | 14 |
| Yakutia | 47 | 30 | 24 |
| Kamchatka Krai | 49 | 30 | 21 |
| Magadan Oblast | 50 | 26 | 25 |
| Sakhalin Oblast | 47 | 31 | 22 |
| Chukotka AO | 46 | 29 | 26 |

The level of extra-budgetary funds' per capita expenditure, especially the expenditure of the Pension Fund, is much closer to the average value in Russia, which deviates upward from it by only 30 – 50%, and thereby it leads to a relative decrease in the share of extra-budgetary funds in the financing of social expenditure in the North of Russia. Average weighted rate of the pensions in the northern regions is only 37% higher than the average level in the country, while there are twofold differences in other areas of social expenditures, and the difference in the average value of monthly salary is more than 1.5-fold.

For example, the scale of pension in the Chukotka Autonomous Okrug is only 80% above the national average level, whereas the specific social costs are three times as many than the average Russian social expenditures and wages are higher by 2.2-fold [4].

The following figures allow us to get a quantitative understanding of the northern price rise factors, mentioned above *(tab. 2)*.

Average weighted rate of the northern and regional wage allowances shows that there is a 1.5-fold price rise of living in the North of Russia, which is lower in the lived-in regions, and it is 2-fold and more in the remote regions. The population density in the North is eight times lower than in Russia. It is enough high only in the Murmansk Oblast, the Sakhalin Oblast and the Republic of Karelia. Average annual air temperature is lower in most northern regions than in Russia[3]. The level of road network (Engel's coefficient) is close to the average values only in the Republic of Karelia, the Republic of Komi, the Arkhangelsk Oblast, the Murmansk Oblast and the Sakhalin Oblast; other northern regions are provided with the roads poorly. Finally, the revenue of consolidated regional budgets also show a huge gap between the North and the rest parts of the country – up to 5 times or more, the average gap is more than doubled.

**The structure of expenditure according to their directions**

The share of social policy is the main direction (58%) in the structure of social expenditure of the northern regions *(tab. 3)*. Then there are approximately equal directions – educational expenditure (22%) and health expenditure (18%). Cultural expenditure takes the last place; it amounts to 3%. The dominant position of social policy is determined by a large amount of pension expenses, which accounts for about 40% of total social expenditure.

The northern regions in Russia are characterized by a significant lower share of social policy expenses as opposed to the rest of the territory (58% vs. 68%), but the shares of social, health and cultural expenditures are higher. The main reason for this is an above-mentioned difference in the financing of various directions of social expenditure in the North as compared with average level of social financing in Russia: it is lower in the field of social policy because of a relatively weak increase in the size of pensions and it is higher in other spheres due to the northern price rise and the additional investment at the expense of their resource rent. Therefore, regions with a high level of budget revenues (Kamchatka Krai, the Magadan Oblast, the Sakhalin Oblast, the Khanty-Mansi Autonomous Okrug, Yamalo-Nenets Autonomous Okrug, the Nenets Autonomous Okrug, Yakutia) are significantly different from other regions that have increased share of social, health and cultural expenditures.

The structure of social expenditure has changed greatly over the last decade. The main changes include the sharp increase in the share of social policy (20%) with the simultaneous decrease in the share of other social expenditures. The reason for this structural shift is an outstripping increase in social payments over these years; especially it is the growth of pensions, the share of whose has increased from 19% up to 40% in the total social expenditure in the North over this period. The amount of the Pension Fund's per capita expenditure has increased by almost 17-fold over this period in the northern regions, while there is only 6-fold increase in other social expenditures.

This trend isn't a prerogative of the northern regions. It was caused by the policy in Russia, which had allowed our government to increase the level of pensions, that was extremely low previously. The correlation of pensions with the living wage of pensioners grew from 76% up to 127%,

[3] It is necessary to note that average annual air temperature in the country is significantly deflated by the inclusion in the calculation of vast territories of Yakutia and Krasnoyarsk Krai. Average annual air temperature in the European part of Russia is near $+40^0$C.

Table 2. Price rise factors in the northern regions of Russia in 2010, % [4, 7, 9]

| Region | Price rise coefficient* | Population density, pers./km$^2$ | Average annual air temperature, $^0$C | Engel's coefficient**, railways | Engel's coefficient, highways | Regional consolidated budget revenue per capita, thsd. rub. |
|---|---|---|---|---|---|---|
| Russian Federation, total | 1.2 | 8.4 | -1.5 | 17.3 | 13.5 | 46 |
| Northern regions, total | 2.1 | 1.0 | -3.7 | 8.1 | 5.4 | 94 |
| Including: | | | | | | |
| Republic of Karelia | 1.8 | 3.6 | 1.7 | 65.1 | 19.6 | 49 |
| Republic of Komi | 1.9 | 2.2 | -2.0 | 27.9 | 9.5 | 55 |
| Arkhangelsk Oblast | 1.8 | 2.9 | 0.0 | 17.7 | 10.6 | 51 |
| Nenets AO | 2.3 | 0.2 | -3.6 | 0.0 | 2.2 | 266 |
| Murmansk Oblast | 2.2 | 5.5 | -0.6 | 25.6 | 8.1 | 65 |
| Khanty–Mansi AO | 2.0 | 2.9 | -2.4 | 11.8 | 3.7 | 110 |
| Yamalo-Nenets AO | 2.3 | 0.7 | -7.2 | 7.3 | 2.2 | 204 |
| Yakutia | 2.3 | 0.3 | -11.1 | 3.6 | 4.8 | 110 |
| Kamchatka Krai | 2.4 | 0.7 | -0.9 | 0.0 | 4.3 | 139 |
| Magadan Oblast | 2.5 | 0.3 | -8.8 | 0.0 | 8.1 | 133 |
| Sakhalin Oblast | 2.0 | 5.7 | 1.1 | 38.5 | 5.9 | 109 |
| Chukotka AO | 3.0 | 0.1 | -10.3 | 0.0 | 3.0 | 267 |

Table 3. The structure of social expenditure in the northern regions of Russia according to their directions in 2000 and 2010, % [1, 10]

| Region | Education | | Public Health | | Social Policy | | Culture | |
|---|---|---|---|---|---|---|---|---|
| | 2000 | 2010 | 2000 | 2010 | 2000 | 2010 | 2000 | 2010 |
| Russian Federation, total | 20 | 16 | 23 | 15 | 54 | 67 | 3 | 2 |
| Northern regions, total | 27 | 22 | 30 | 18 | 38 | 58 | 5 | 3 |
| Including: | | | | | | | | |
| Republic of Karelia | 22 | 13 | 19 | 15 | 55 | 70 | 3 | 2 |
| Republic of Komi | 21 | 17 | 30 | 15 | 47 | 67 | 2 | 2 |
| Arkhangelsk Oblast | 18 | 14 | 20 | 13 | 60 | 72 | 2 | 1 |
| Nenets AO | 36 | 38 | 26 | 15 | 31 | 37 | 7 | 10 |
| Murmansk Oblast | 22 | 19 | 27 | 14 | 49 | 65 | 2 | 2 |
| Khanty–MansiAO | 29 | 24 | 38 | 23 | 26 | 50 | 7 | 3 |
| Yamalo-NenetsAO | 27 | 28 | 29 | 19 | 38 | 47 | 6 | 6 |
| Yakutia | 35 | 27 | 25 | 16 | 35 | 53 | 5 | 4 |
| Kamchatka Krai | 30 | 23 | 22 | 17 | 45 | 56 | 3 | 3 |
| Magadan Oblast | 25 | 20 | 28 | 23 | 42 | 53 | 5 | 4 |
| Sakhalin Oblast | 21 | 21 | 25 | 22 | 51 | 53 | 3 | 3 |
| Chukotka AO | 30 | 30 | 30 | 20 | 36 | 45 | 4 | 6 |

the correlation of pensions with average size of gross wages and salaries increased from 31% up to 35% [5, 8].

But the increasing degree in the share of social policy in the northern regions was more significant than the average growth rate in Russia (20% vs. 13%), which was the result of the senility of the age structure of the population. It was expressed clearly in the Khanty-Mansi Autonomous Okrug and the Yamalo-Nenets Autonomous Okrug, where the increase in the number of pensioners amounted to more than 50% per 1000 people over the last decade; it varied from 10% to 30% in other northern regions (average rate in Russia – 6%) [4].

It should be noted that the increased growth of pension spending didn't provoke the decrease in educational, health and cultural expendi-

tures; their share in the GDP remained virtually unchanged. That is, these fields were developed evenly; they kept pace with the economy. But the pension spending was a major priority of the social development in Russia during that period; they led to such a sharp social policy growth in the structure of expenditure.

In addition to the sharp increase in the share of social policy in the structure of social expenditure in the North, there was a change of priorities: the share of health expenditure was decreased more (by 12%) than educational expenditure (5%) due to a cut of the extremely high health expenditure in the well-off regions. As a result, public health let the educational expenditure to take the second place in the structure of budgetary social expenditures and it moved to the third position.

It should be noted that cultural expenditures, despite their low share, lost their positions in the list of priorities: their share declined from 5 to 3%. All these changes conciliated significantly the structure of social expenditure in the North and national average social expenditure.

**Spatial structure**

The share of the northern regions in the total budget financing of social expenditure in our country is about 9% *(tab. 4)*, while their share in the population size is significantly lower – 5.5%.

This disparity is explained by the differences in the level of spending per capita due to the price rise in the northern regions. Currently, there is a convergence of these figures: the share of the North in the social expenditure of our country was 12% at the constant proportion of the population ten years ago. These figures illustrate a strong trend of the rapprochement between the northern regions and other Federal subjects of Russia in the amount of social expenditure. There is a steady picture in comparison with the share of the gross regional product: the contribution of the North to the total GRP of Russia (13.4%) is roughly equivalent to its share in social expenditure.

The share of the North in the nationwide financing indicators of social expenditure is unequal according to different sources. The least share of them is in extra-budgetary funds

Table 4. The spatial structure of financial sources of social expenditure in the northern regions of Russia in 2010, % [1, 10]

| Region | Total | Including the sources | | |
|---|---|---|---|---|
| | | Regional budgets | Local budgets | Extra-budgetary funds |
| Russian Federation, total | 100 | 100 | 100 | 100 |
| Northern regions, total | 9 | 8 | 15 | 7 |
| Including: | | | | |
| Republic of Karelia | 7 | 5 | 4 | 9 |
| Republic of Komi | 10 | 7 | 6 | 12 |
| Arkhangelsk Oblast | 13 | 9 | 7 | 16 |
| Nenets AO | 1 | 2 | 2 | 1 |
| Murmansk Oblast | 9 | 7 | 7 | 11 |
| Khanty–Mansi AO | 22 | 26 | 27 | 19 |
| Yamalo-Nenets AO | 10 | 12 | 17 | 7 |
| Yakutia | 13 | 14 | 14 | 12 |
| Kamchatka Krai | 5 | 5 | 5 | 5 |
| Magadan Oblast | 3 | 3 | 2 | 2 |
| Sakhalin Oblast | 7 | 8 | 8 | 6 |
| Chukotka AO | 1 | 2 | 1 | 1 |

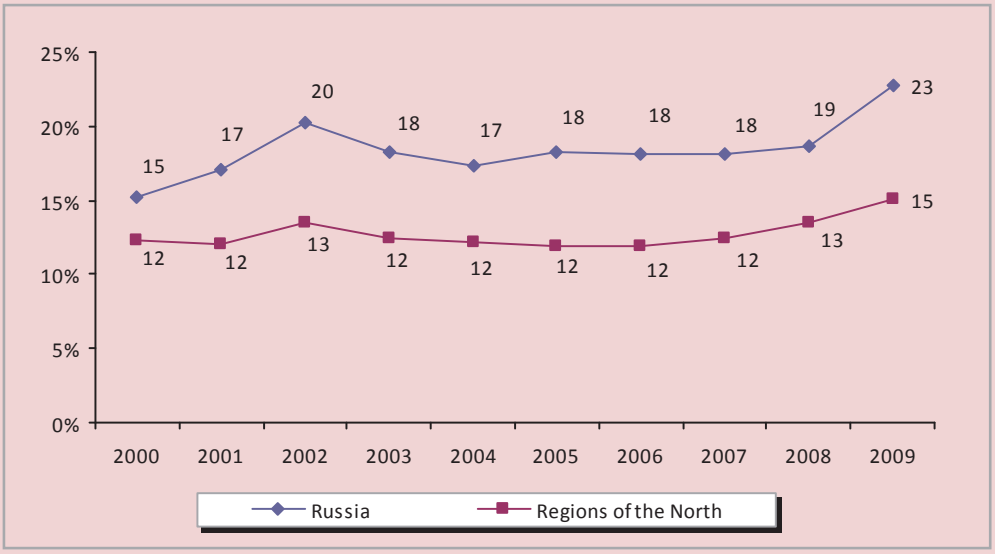
(7%) due to the relative similarity of the pension expenditure per capita. The share of the North is more in the regional budgets (8%). And this share is higher in the context of local budgets (15%) that is caused by the preferential concentration of the additional revenue and expenditure the export-oriented regions just in this section of the budgetary system.

The internal spatial structure of social expenditure in the northern regions is characterized by a moderate concentration of them: the individual share of three regions (the Khanty-Mansi Autonomous Okrug, Yakutia and the Arkhangelsk Oblast) is more than 10%, their total share is about 50%. The shares of most other regions are in the range from 5 to 10%. And there are insignificant shares of such sparsely populated areas as the Chukotka Autonomous Okrug and the Nenets Autonomous Okrug (1%), as well as the Magadan Oblast (2.5%).

There was a strong decline in the shares of the main resource regions in the dynamics of the last 10 years, which wasn't associated with the relevant change in the population size: 10.2% in the Khanty-Mansi Autonomous Okrug, 2% in the Yamalo-Nenets Autonomous Okrug and 1.4% in Yakutia, while there was an increase in the shares of the Arkhangelsk Oblast (4.2%), the Murmansk and Sakhalin Oblasts (2.2%), the Republic of Karelia (2%) and Kamchatka Krai (1.6%). This phenomenon should be assessed as positive, because it indicates the smoothing of extremely high levels of social security differentiation in the northern regions that existed before through fiscal centralization and income redistribution.

**Significant increase in the share of social expenditure of the North in the gross domestic product** is an important trend in recent times. This share has increased by 3% over the past decade, and it has reached the level of 15% *(fig. 3)*; the main growth was during the last three years. The principle reason is a significant increase in budget social expenditure, especially in the spending for pensions. This trend was particularly intensified during the recent financial crisis, when the government

Figure 3. The share of social expenditure the in GRP of the regions in Russia for the period from 2000 to 2009, %* [1, 2, 10]




* The amount of social expenditure and the GDP in Russia is calculated here as the sum of the regional ones for the purpose of correct comparison.

of the country, despite the economic downturn, announced a complete fulfillment of social obligations. And there were the priority growth rates of social expenditure in 2010, when the positive economic growth was being restored. All these facts testify the efficient increase in the importance of social services among the priorities of the state's development.

The share of social expenditure in the GRP is considerably lower in the northern regions, than in Russia on average – 15% versus 23%. This difference doesn't arise because of the lower financing of social services in the North, but it is due to the extremely high GRP per capita in the main oil-producing regions: in the Nenets Autonomous Okrug (the share of social expenditure is only 5% of GRP), the Khanty–Mansi Autonomous Okrug (8%), the the Yamalo-Nenets Autonomous Okrug (9%) and the Sakhalin Oblast (12%). The share of social expenditure in the GRP is significantly higher in other regions of the North; it is 30 – 40% or more there due to the strong price rise of life support in the northern regions and the need for increased budgetary expenditure.

It should be also noted that the increase in the share of social expenditure in the in GRP of the northern regions in Russia was lower than in Russia on average – 2.8% vs. 7.5%. It's caused by the fact that the smoothing process of the inter-territorial differences left its mark on the upward trend in social expenditure.

In general, the increase in the share of social expenditure in the in GRP is assessed as positive, because it symbolizes the beginning overcoming of the critical state of the social sphere. It is expected that this share will fix at this level and it will continue to grow slowly for some time in the next few years if there are no deep economic shocks. The reasons for such assumptions are the appeals and intentions to close the gap between the developed countries in terms of the financing of social services, especially of education and health care [6].

However, it should be noted that the possibility to increase the social burden on the budget system is limited. For example, in 2011 the improvement of the financial security in the social sphere provoked a sharp increase in taxes on business that seriously affected small-scale enterprises, the amount of wage allocations of whose was raised by 2.5 times. Such drastic measures can provoke long-term adverse consequences for the development of the real sector of the economy. Therefore, the task of further increasing the share of social expenditure in the GRP is preferable to be solved through the development of alternative, non-budgetary financing instruments, for example, such as voluntary insurance.

The characteristic feature of budget financing of social expenditure in the North is **a significant excess of average funding per capita over the same showings of other regions.**

There was a 1.7-fold gap in 2010; it amounted to 106 thousand rubles per person vs. 63 thousand rubles per person in other regions of Russia. This difference in per capita funding level is natural. It can be explained by three main reasons that include, firstly, the increasing costs of living in the North; secondly, high-income budgets of resource regions that allow them to allocate the additional funds for social support; thirdly, clearly defined ethnicity that requires the priority allocation of funds to study, preserve and develop the culture of indigenous peoples and provide their social support.

The level of per capita financing among the northern regions is very plural, so they can be divided into three main groups:

1. *The developed regions*, which located in the European part of Russia. They are the Arkhangelsk Oblast, the Murmansk Oblast, the Republic of Karelia and the Republic of Komi, which have insignificant difference in per capita financing as compared with other regions of the country; it is less than 1.5-fold. It can be explained by the natural northern high cost of living as compared with the central and southern territories.

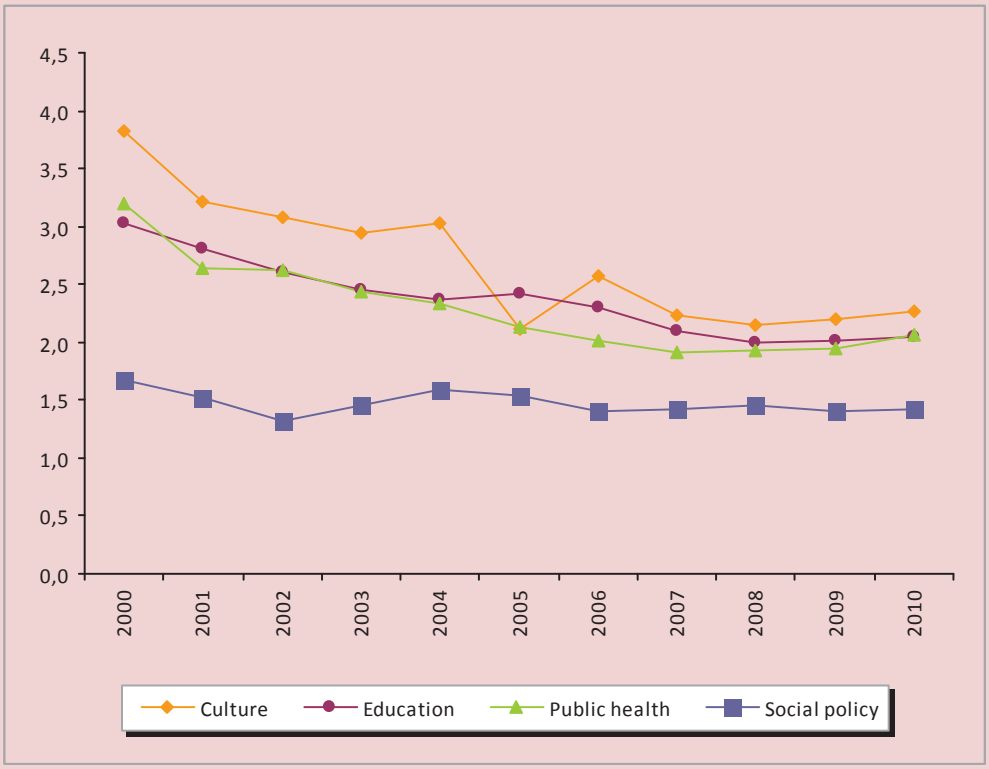
2. *The less-developed resource regions*, which located in the Eastern part of Russia. They are the Magadan Oblast, the Sakhalin Oblast, the Khanty-Mansi Autonomous Okrug, the Yamalo-Nenets Autonomous Okrug, Yakutia and Kamchatka Krai. There is a 2-fold gap between these regions and the rest part of Russia in per capita financing due to the better economic position and the higher northern costs because of severe economic conditions.

3. *The underpopulated* Nenets and Chukotka Autonomous Okrugs, where the financing of specific social areas is three or more times greater than in the rest regions of Russia due to the weak development of the territories.

There are unequal differences in the financing of the various expenditure directions. This gap reaches its maximum value (2.3-fold) in the cultural allocations *(fig. 4)* due to the protection programs of native minorities in the North, federal historical monuments protection, functioning of the specialized museum complexes, memorializing the victims of political repressions, as well as the increased attention of the regional authorities to the preservation and enhancement of cultural potential in order to develop tourism as a way to diversify the economy.

The differences in educational and health expenditures are about two times lower. This is a normal northern price rise. The level of per capita financing of the social policy in the North is close to the average per capita financing in Russia (the gap is less than 1.5-fold) due to a relatively weak increase in the level of pensions in the North in comparison with educational, health and cultural expenditures.

Figure 4. The gap between the North and other regions of Russia in per capita financing of social expenditures in 2000 – 2010, -fold [1, 10]



As it has been already mentioned, the social development of the Russian North is characterized by **the significant reduction in the gap between the northern and other regions of Russia in the level of per capita financing of social expenditures.**

If there was a 2.4-fold gap ten years ago, it has been reduced almost by half down to 1.7-fold today. This change didn't involve any random shock; it was developed sequentially throughout period under our study (see fig. 4).

The main reason for this process was a strong reduction in the gap between the northern territories and such regions as Yakutia, the Nenets, Khanty-Mansi and Yamalo-Nenets Autonomous Okrugs, which have high tax allocations due to the sale of natural resources – oil, gas, diamonds, gold.

The degree of the gap between oil and gas producing regions and other northern regions decreased from 4.5-fold down to 3-fold and from 3-fold down to 2-fold in Yakutia. The reason for that change was the increase in the alignment of budgetary security of the regions in the country on the basis of income redistribution. It is noteworthy that the crisis of 2008, which significantly reduced the export regional earnings, wasn't the main factor of that change; it just accelerated and fixed it. As well as a sharp increase in the flow of "rental" income during the period of favorable market conditions in 2004 – 2007 did not provoke a significant increase in inter-regional differentiation.

It is important that the process of convergence between the financing levels of the northern regions and the main territories of the country was fixed in each type of social expenditures, which proved its deep character that was not associated with short-term advances.

If the gap between the financing levels of "rich" regions was being decreased, the dynamics was multidirectional and flat in other regions. In particular, the superiority over the average level in Russia increased slightly in Kamchatka Krai (from 1.8 to 2-fold), the Sakhalin Oblast (from 1.6 to 1.8-fold), the Arkhangelsk Oblast (from 1.2 to 1.4-fold). There was a slight increase in the Republic of Karelia and the Murmansk Oblast. On the contrary, there was a decrease of the gap in the Republic of Komi (from 1.7 to 1.4-fold) and the Magadan Oblast (from 2.2 to 2-fold). The Chukotka Autonomous Okrug was characterized by the peculiar dynamics; the superiority over the average Russian level of per capita social financing increased there firstly from 3.3 to 6.3-fold, but then it dropped down to the previous values. Such fact could be likely explained by political circumstances, such as the change of governors.

In general, the process of reducing the spatial differentiation is evaluated as positive, because it indicates the effective policy of the Government of Russia, aimed at the decrease in spatial disparities in the socio-economic development of the regions in our country.

In 2010, when the oil and gas regions recovered their revenues, they began to predominate over the rest regions. It is difficult to determine if this trend will be sustainable and long- or short-term. The choice of a path is in the hands of the Russian Government. However, the policy in this sphere will influence over the reduction or, on the contrary, the increased differentiation of the population according to the quality of life.

Thus, we can summarize **the main features and trends in the financing of social systems in the northern regions of Russia** at the modern stage of economic development:

- the prevailing role of centralized sources such as regional and local budgets and extra-budgetary funds is remained in the financing of social systems;
- there is a significant improvement in the financial of social expenditure in the northern regions and in the whole country, which is indicated itself in the increasing share of social issues in the GRP;
- the share of per capita social expenditure in the North is higher than the average level in

other regions of Russia (from 1.5 to 3-fold) due to the "northern" price rise factors such as peripheral character, low population density, severe climatic conditions, as well as high budget security of the resource regions;

- there is a sustainable decrease in the gap between the northern and other regions of our country in terms of per capita financing of social expenditure due to the slower growth of expenditure in the rich regions (the Khanty-Mansi Autonomous Okrug, the Yamalo-Nenets Autonomous Okrug, the Nenets Autonomous Okrug, the Republic of Komi and Yakutia) because of the increased degree of budget security alignment;
- there is a positive smoothing of the financing levels of social systems among the northern regions due to the decrease in the predominance of rich regions, as well as because of the fact that such less-developed territories as the Republic of Karelia, the Arkhangelsk and Murmansk Oblasts began to be closer to the average level of financing;
- pension provision has become a priority of social development in recent years, so it has been possible to improve the living standards of retirees without decrease in financing of other social expenditures;
- the share of social policy costs is being increased in the structure of social expenditure in the North, as well as across the country, while the other types of social expenditures are being reduced due to the advanced growth of pensions; educational expenditure is becoming more important than the public health spending; in general, the structure of social expenditures in the northern regions is becoming closer to the average level of national social expenditure;
- price rice of pensions in the northern regions is lower than the relevant differences in wage rates and per capita social expenditure, which requires a separate study.

Based on the identified trends, is necessary to study in further research, devoted to social expenditures in the North of Russia, such problems as the origin reasons for regional convergence in terms of budgetary provision; it is important to consider the impact of financial security on the natural developmental quotients in the social sphere; it is reasonable to reveal the mechanisms of budget expenditure and the possibility to improve them and to predict the basic functioning parameters of the regional social systems.

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UDC 332.1 (470.22)


# The spiritual component of the investment process in the Republic of Karelia

*The article describes the possibility to modernize the socio-economic system of the region on the basis of spiritual component. In modern conditions it's necessary for the Republic, as well as for the whole country, to include a revival component of Russian spirituality in the process of modernization. The authors characterize the investment process in the Republic of Karelia in this article and consider the necessity to increase investment in human capital in the implementation of a major integrated project "Spiritual rebirth of the North".*

*Regional economy, economy modernization, investment activity, investment in human capital.*

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The economy of Karelia is connected historically with its natural and climatic features. The socio-economic development of the Republic is largely determined by investing activities and the successful activity of the timber and mining industries.

The investment activity is carried out in the Republic, but the downward trend of the physical volume index of fixed capital investments is being observed during some years [10] *(figure)*. The investment volume of 2000 hadn't been reached yet by 2010.

The intensification of the investment process was being observed in Karelia in 2010-2011. During the last decade the republic's enterprises that specialize in producing paper bags, newsprint and iron-ore pellets hold their position among the leading enterprises of Russia. According to the official data the Republic of Karelia produced over 25% of the Russian iron-ore pellet output, 25% of paper produced in Russia, 61,5% of paper bags production, 4,5% of market pulp production, 6,8% of timber production, 10% of common wire production and 3,4% of lumber production [12].

Dynamics of the physical volume index of investments in fixed capital in the Republic of Karelia


The positive results of the economic activity in the post-crisis period (2011) include the increase in the volume of industrial production in such types of economic activity as wood processing and wood production (108,2%), nonmetallic mineral production (121,9%), primary metal manufacturing and fabricated metal product manufacturing (107,6%), machinery and equipment manufacturing (109,5%), electrical, electronic and optical equipment manufacturing (102,0%) [13].

The positive growth tendency in timber production continued in 2011, e.g. in such enterprises as Stora Enso Company (119% by 2010), Karelian Forest Group CJSC (129%), Kondopoga Logging Enterprise OJSC (107%), Nord Inter House CJSC (2.3-fold), Ladvinsky Logging Enterprise CJSC (2.3-fold), Valma LLC (3.2-fold), Rusforest LLC (2.2-fold), Kometek CJSC (2-fold), EuroLesProm LLC (1.7-fold), Helicon-Onego LLC (1.4-fold), Setles LLC (110%), Swede Wood Karelia LLC (117%), KarlisProm CJSC (118%), Karelian Forest LLC (2.5-fold), EcoResources LLC (2.8-fold), etc.

The situation has stabilized at the enterprises of mining complex in the Republic. The physical volume index of mining operations amounted to 106.6% over 9 months in 2011, including the metal ore mining (102.3%) and the mining of other mineral resources (168.8%). The following enterprises worked successfully: Karelian Pellet OJSC (102.3%), Prionezhskaya Mining Company LLC, Karelprirodresurs LLC, Large Array Quarry CJSC; the enterprises that produce ashlar stone such as KARA-TAU LLC and Another River CJSC.

Solonensky Timber Mill CJSC has been reopened after radical reconstructions and modernization in Petrozavodsk. It has increased its production volume by 1.2 times. It is planned to use this enterprise as the base to found an industrial complex for glued wood constructions and wood pellets production.

Swedish concern IKEA International Group has launched a factory for the production of furniture components in Kostomuksha. Wood tables are being produced there. Swede Wood Karelia LLC improves and develops logging production in the Kostomuksha urban district and in the Muezer municipal region.

The production of energopellets (fuel granules) from low-grade wood raw material and wood waste is organized by Setles LLC and Biogran LLC. Swede Wood LLC also produces fuel pellets. The volume of fuel pellets production amounted to 13.3 thousand tons over the period from January to May in 2011; it was148.4% to the similar period in 2010. It exceeded the growth rate in Russia in whole (fuel pellets production amounted to 114.2% in Russia).

A new enterprise Karelia's Berry for deep processing of forest and garden berries has been launched in the Prionezhsky region. It is the first enterprise in Russia that has a full cycle of berries processing – from electronic clearing and sorting to packaged products release. 160 people work in this enterprise (mostly women), the average salary is over 20 thousand rubles. This project has social value because it employs rural population and gives the opportunity to earn during seasonal gathering of berries. There are forest and garden berrying centers all across the republic.

A large investment project on the construction of the first in the country plant for the production of oriented strand boards Woodworking Complex Kalevala LLC is being realized in the republic, based on the principles of public-private partnership with the city government . It is expected that the launch of the plant will increase tax revenues to the budgets of all levels up to 500 million rubles a year; it will create more than 400 new jobs, as well as it will revive allied industries with the potential up to three thousand new jobs.

The industrial production index amounted to 101.3% in January – September, 2011. The consolidated budget of the Republic of Karelia received 26.4 billion rubles of revenues on October 1, 2011. This amount was 15% higher than the revenues for the same period in 2010. At the same time the own budget revenues amounted to 19.2 billion rubles (72.7% of total budget revenues) and exceeded by 23.3% the level of the previous year for the period from January to September [13].

Two powerful groups IKEA and Swedewood began to invest in wood processing in Kostomuksha. Segezha Pulp and Paper Mill, the largest pulp and paper company in the North-West Federal District, as well as Kondopoga Pulp and Paper Mill are being reconstructed and modernized. Organizational changes are being introduced into the order providing the entrepreneurs with forest resources; they are aimed at the timber processing in the republic.

The amount of roundwood for export to the European Union was halved in 2011. Conifer sawlogs were sent to the domestic market for lumber production. There was the growth of production in the timber industry in 2011. Thus, the raw wood production volume was 2.4 million cubic meters or 111.6% of the relevant period in 2010. The production index of lumbering amounted to 112% for the period from January to May in 2011, which was more than the nationwide rate (106.7%). The production index of woodworking and wood production amounted to 117.5% for the period from January to May in 2011. The cost of shipped products was 2.437 billion rubles; it was 125% of output for the relevant period of the last year. The growth rate in woodworking and wood production was higher than the nationwide rate (106.7% in Russia in the period from January to May, 2011).

There was a positive dynamics in the production of all major types of wood products. Thus, the production of plywood and wood chipboards was doubled in the republic for the period from January to May in 2011, which was more than the nationwide rate (in Russia: plywood – 113.3%, wood chipboards – 128.8%).

The production index of pulp, ground wood, paper and paperboard amounted to100.6% for the period from January to May in 2011. The cost of shipped products was 9810.7 million rubles (it was 127% of output for the relevant period of the last year). The growth rate in the pulp-and-paper industry was higher than the nationwide rate (99.9%in Russia in the period from January to May, 2011).

The production volume of wood cellulose and cellulose made of other fibrous materials amounted to 455.2 thousand tons for the period from January to May in 2011, or 101.3% of the corresponding period in 2010. The growth was caused by the increasing demand for market cellulose. Thus, the production volume of market cellulose, produced by Cellulose Plant Pitkäranta JSC, amounted to 36.6 thousand tons for 5 months in 2011 or 109.7% to the relevant period of the last year.

They deal with the problems of reforestation and forest conservation in the republic, they apply new methods of planting and plan-ting stock growing and develop a forest fire control system.

The same work is being done in the mining industry. All these achievements can be considered as the undoubted success of the republic in the post-crisis period, which ensure the receipts of funds to the local budget.

The republic has headed for the application of modern technologies in wood processing. The republic will invest in the modern forest fire control system. They are working together with the Federal Forestry Agency to change the rules of cutting. All these examples show that the republic is staging a recovery with dignity; it is progressing and carrying out the modernization process. Nevertheless, it is necessary to look for the points of investing increase, which is possible through the use of the cultural heritage of Karelia.

The investment policy of the Government of Karelia is based on the openness for investors. This involves a transparent, profitable and predictable operating regime of the company with tax, control, law enforcement and other government agencies. This approach is provided by the clear project management.

The Government of Karelia has established the Corporation of the Republic of Karelia Development JSC in order to develop and realize the investment projects [11]. The Corporation is aimed to provide effective communication of business and government in the implementation of the large investment projects.

The main priorities of the new organization's activity is promoting the implementation of public policy, aimed at the development of the Republic, attracting investment to the region and creating new jobs. The Corporation also supports the investors in the republic and helps to implement the priority investment projects. It is a kind of "bank" of developed attractive investment points (places, lots, territories, facilities) for the successful implementation of innovative projects.

The Corporation's employees have prepared and worked out several projects over a short time. They are going to implement ten large projects to the amount of over 10 billion rubles during 2011 – 2012 [7]. There are investors for each project. Some agreements have been already signed. The projects will be carried out mainly based on the principles of public-private partnership. The state will finance significant social infrastructure projects within the federal and republican target programs. The republican co-financing will be minimal; the bulk of this sum will consists of the companies' money and the resources of federal programs. Such cooperation allow investors to reduce the payback period. The effect is clear for the republican economy: there are new businesses and jobs, and promising industries are being developed.

The Government of the Republic of Karelia develops and implements the investment projects in all spheres of economic activity. There is an experience in developing and implementing the industrial projects today. All projects are aimed at increasing economic activity of people, using their creative potential and involving them in the implementation of these projects.

There is a project to create a balanced production of logging and deep wood processing, based on the manufacturing of laminated veneer lumber and energopellets, in Kostomuksha urban district. The project is planned to be realized by Kostomuksha Construction Company LLC.

Pulp and Paper Mill Kondopoga JSC is reconstructing the pulp and paper production due to the replacement of outdated equipment by high-tech equipment that meets the requirements of the best world standards. It is planned to build a large plant in Kondopoga, manufacturing heat insulating slabs (mineral wool), based on modern nanotechnology.

The project company Hord-hydro is aimed at the development of a small-scale power system in Karelia. It provides for the development of the republican power system through the reconstruction and construction of small hydropower stations and their inclusion into the unified system of energy supply. 46 small hydro powers are planned to be put into operation by 2015.

A large project on the reconstruction and modernization of Segezha Pulp and Paper Mill JSC (the project "Polar Bear") for the production of bleached pulp has been launched.

The project on the modernization of the basic technological equipment of Cellulose Plant Pitkäranta will increase the capacity up to 120 thousand tons of pulp per year.

There is a project on the development of production capacities of Plywood Mill "Bumex" in Lakhdenpokhya, which involves the measures to increase the production capacity of plywood and veneer.

It is planned to build a saw-processing timber plant on the base of Medvezhyegorsk Logging Enterprise LLC in Medvezhyegorsk, which will use a new technological scheme of lumber filing, sawing, drying and packaging.

An urban locality Khelyulya will be developed again within the project on the logging development and the construction of a plant for deep timber processing, implemented by Kay Forest CJSC.

Taking into account cement shortage in the country, it is planned to build a large cement plant in the Loukhi District, which is needed most in the republic. There are necessary deposits there.

It is intended to implement a new mega-project on the development of chromium, which is utterly lacking, on the basis of the poly-metallic deposit in the Pudozh District. It is proposed to build some ore-dressing and metallurgical plants here, to lay a railway, to build a high-voltage line and to lay a new town for 40 thousand people.

Living conditions in the most remote areas could be improved greatly. It is planned to lay a gas pipeline from the North to the South within the Shtokman field development, which will ensure gas supply for urban and rural territories of the republic and solve some pressing problems of housing and communal services.

The Strategy for the Socio-Economic Development of the Republic of Karelia till 2020 declares the policy of "investment in people". The national projects are the basis of this policy. It was possible to build up a clear system of implementation in the republic, based on them, and get not only the republican bodies of executive power, but also local governments, federal territorial governments, business and public organizations involved in this work.

All necessary organizational structures have been created and a production string to manage the national projects has been built: it has included the authorities from the Coordinating Council at the Head of the Republic and the Ministries' working groups in various national projects to the municipal working groups. This chain allows them to define clearly the preparedness of the project participants to perform their tasks, to monitor the intermediate results and the implementation of agreements and arrangements in accordance with network schedules, as well as to control cash inflows and the distribution of financial resources, which are transferred to the republic within the scope of national projects.

The priority national projects have become the most important resource to improve life quality of the population in the republic. There are the first real results in all directions.

For example, the Republican Hospital has been upgraded recently. Now it is one of the best hospitals in the North-West and the only hospital in the country that has full-fledged branches in the districts. The most difficult cardiac surgeries are free of charge for the population in the Republican cardiac and vascular center.

Forestry Agency (FFA) has established a working group to develop new methods to eliminate the tick population in the forests, and neurological department of the republican hospital has become a successful research platform for the treatment of the diseases caused by tick bites: tick-borne encephalitis and borreliosis.

The Regional Hospital in Kondopoga has been also modernized. Kondopoga Pulp and Paper Mill helped to build the Palace of Arts, where the organ concerts take place, the Ice Palace and the modern youth center.

The implementation of national projects is the work for the sake of the further development of the country and its citizens, aimed at strengthening social and state foundations, creating a solid base for the sustainable economic development and highly competitive social infrastructure. The quality and accessibility of education and health services, housing problem solution, the revival of the Russian village and "caring for future generations are the most reliable, intelligent and generous investments" [9]; they are indispensable conditions for full-fledged living of citizens today and in future.

The historical developmental experience shows that any breakthrough in the development of a state, a region or an enterprise begins with an idea, and it is implemented in the following sequence: the origin of the idea, the creation of an image to realize this idea and the implementation of the idea.

In our country the general idea is modernization, which is the process of renovation, the elimination of backwardness and entering the up-to-date developmental level that is comparable to the developed countries [16].

The process of modernization affects all spheres of life: economic, social, political and cultural. However, modernization can be considered as a social phenomenon in its origin, which is a process of the revival and development of moral and spiritual qualities of the population in the specific real circumstances [8]. And this social component affects the other spheres of social life.

But, carrying out modernization, we often continue to prioritize an economic component and leave spiritual and moral education of the population on the sidelines, which is able to reproduce and use the modern advancements for a good case. "Developing the economy, we won't achieve the result that people expect. It is necessary to prioritize the progress of spirituality as a major condition for the development of our country" [15]. Thus, the idea of regional development and modernization should be based on the revival of spiritual and cultural heritage, where the cognitive component of human activity comes to the fore.

In modern terms the modernization process in our republic, as well as in the whole country, should include a component, aimed at the revival of Russian spirituality. This trend concerns the quality of life that characterizes the main living qualities of each person. Spirituality is a specific feature of human life, which is expressed in caring for ourselves and our environment, our detachment from vile and rude sensual interests, as well as in the desire for internal improvements that forms a set of intangible assets resistant to devaluation [2].

According to the Russian journalist Yuri Krupnov, the level of spirituality is determined by the nature, range and number of creative initiatives and innovative projects, as well as by the frequency of violations of the universal moral commandments such as "Thou shalt not kill", "Thou shalt not steal", "Honour thy father and thy mother", "Thou shalt have no other gods before me", etc [3].

The concept of living quality is included in the group of indicators that assess the spiritual state of people. The industrial development organizes a social construction through the living quality indices [4]. Therefore, the creation of new modern enterprises and the implementation of new technologies, as well as the development of a new technological structure are pushed to the sidelines. It is necessary that "the development of spirituality has become a priority condition for the development of our country" [1].

The implementation of this direction in the republic is reflected in the Strategy of the Socio-Economic Development of the Republic of Karelia till 2020, which advances the policy of "investment in man", aimed at developing and strengthening the human factor [11].

This strategy allows the Republic of Karelia to be the first in giving utterance to the problem of spiritual development. The Republic has a project "Spiritual Revival of the Russian North", which reflects its vision for the modernization and spiritual rebirth. "Russian North" is a historical and cultural territory of our country, which has enduring spiritual values.

These territories preserve the specific cultural and spiritual heritage. "A unique feature of the Russian North is the fact that it holds not only the origins in remembrance, but also a sense of the direct relationship with them. We can see the usual distance of time here. Closed into a ring of traditions, it reproduced the key archetypes, myths and rituals from one generation to another. Similar cyclism has been undermined in other territories. But the North has been retaining memory of centuries for a long time. We can touch the initial layers of our culture due to its conservatism [5, p.15].

The Republic of Karelia is located almost in the center of this unique territory, which unites historical, spiritual and cultural traditions of the Russian North [6].

The project "Spiritual Revival of the Russian North" is based on the spiritual unity of three Orthodox churches of the Transfiguration, located on the island of Valaam in Lake Ladoga, the island of Kizhi in Lake Onega and the Solovetsky Islands in the White Sea. As it is situated in the heart of the unique space of three islands, which are the spiritual and cultural support structure of the Russian North, the Republic of Karelia announced its intention to become a kind of spiritual and moral center of the Russian North at the International Investment Forum (Petrozavodsk, November 24-25, 2011).

The Republic made the initiative to show its own path of modernization on the basis of goodness and spiritual human development. This commitment of the republic was supported by the Patriarch of All Russia Kirill, and the project was approved by the President of the RF Dmitry A. Medvedev.

According to this project, it is planned to establish a modern center of Orthodox culture in the Republic of Karelia, including the construction of a temple, an administrative and business center, a hotel complex and an ethnic village on the islands of Kizhi Necklace by the 300th anniversary of the Kizhi ensemble [14]. It is a very ambitious project, because you can reach the islands of Kizhi Necklace only by boat or by plane. It will be necessary to build an electrical power source there, to pull up modern roads and to build additional infrastructure including moorages, hotels, cultural and business centers.

The main purpose of the project is to preserve and increase the Orthodox and cultural traditions of the Russian North, based on the spiritual wealth of three great islands. The project involves the development of spiritual pilgrimage and cultural tourism in the republic. It should combine tourism and spiritual pilgrimage into a single system. So, it will allow the republic to use effectively its historical and cultural potential and historical monuments.

The project is positioned as a commercial one, but its purpose is to serve the revival of the Russian North, as it will facilitate the development of spiritual pilgrimage and cultural tourism on the route "Valaam – Kizhi – Solovki". The project will be implemented within the scope of federal program for the development of domestic and in-coming tourism that has been approved by the Government of the Russian Federation recently.

This project will give impetus to the development of the institutional environment of the socio-economic development based on the spiritual component.

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# ENVIRONMENTAL ECONOMICS

UDC 504.062.2(470.23-25)


## The implementation of the economic control mechanism of environmental protection (in the case of water bodies in St. Petersburg)

*Economic approaches to rational nature management and environmental protection are becoming increasingly important in environmental management. There are inevitable contradictions between economic activity and natural systems that reveal in varying degree and that have different ways of solution. The formation of an effective economic mechanism of nature management and environmental protection is a preferred direction in this case. The article investigates the payment for natural resources, fines for violations, as well as the cost of the natural environment restoration as the most significant factors in environmental protection.*

*The economic mechanism of nature management, environmental protection, rational nature management, natural resource limits, standards of payments and the amount of payments, environmental funds, environmental stimulation.*

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Environmental issues are one of the most pressing global problems in the modern world in recent years. They are strained especially in large cities due to the whole complex of factors that include the development of the city, its industry, construction, transport and socio-economic sphere.

Economic approaches to rational nature management and environmental protection are becoming increasingly important in the state environmental management in cities along with the use of administrative methods. The formation of an effective economic mechanism of nature management and environmental protection is a preferred direction in this case.

The concept of the "economic mechanism" of environmental protection is a set of legal norms, governing the conditions and procedures of money accumulation, received as the payment for environmental pollution and other harmful impacts on it, financing of conservation measures and economic incentives for business entities by force of tax and other remissions.

The law "On Environmental Protection" [1] defines the basic elements of the concept of the economic mechanism of environmental protection. They include:

- economic aspects of natural resource accounting;
- planning and funding of environmental arrangements;
- natural resource limits, pollutant emission and waste disposal limits;
- standards of payments and the amount of payments for natural resources, pollutant emissions, waste disposal and other harmful effects;
- the creation and consumption of environmental funds;
- environmental insurance;
- promotion of activities that provide a conservancy effect, promotional prices and allowances for ecologically pure products.

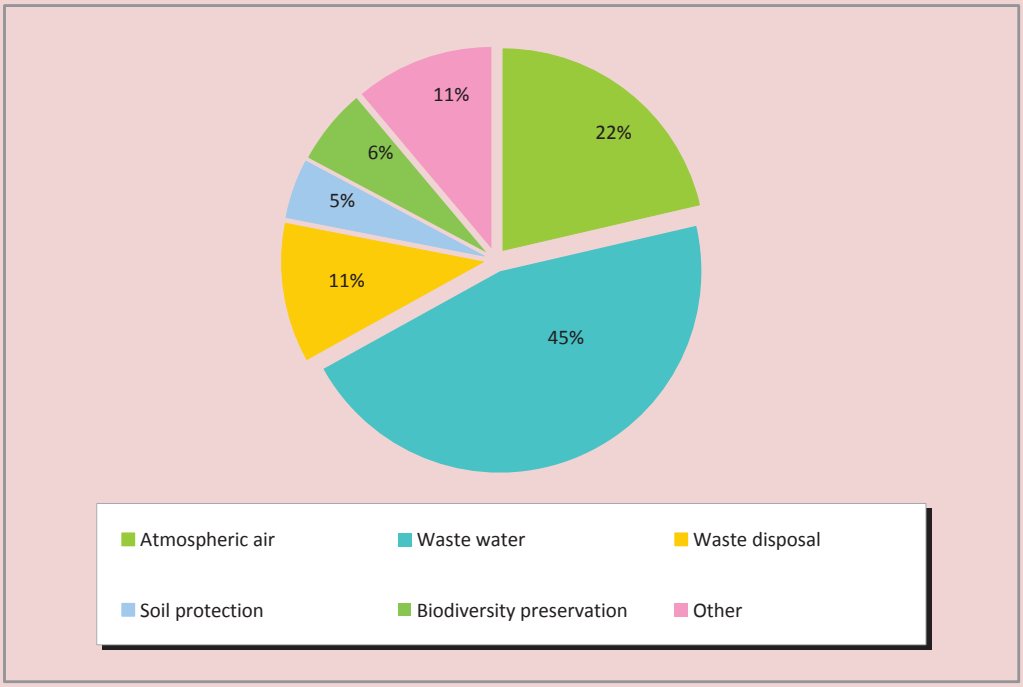
This article deal with some of these issues relating to the payment for natural resources, fines for violations and natural environment restoration costs as the most significant factors in environmental protection in Saint Petersburg. Having regard to the fact that environmental standards and regulations are the measures to harmonize environmental and economic interests, it's possible to note that the economic mechanism of urban environmental protection is aimed at the creation of the conditions for the considerate attitude to nature both of people and businesses.

The issues of water consumption, water pollution and waste water treatment are acute environmental problems of large cities. Data on the ratio of waste water treatment costs in the total environmental costs in the RF show that waste water treatment costs are increased each year, and they account for more than 40% *(tab. 1, fig. 1)* [2].

Table 1. Environmental costs in the Russian Federation, bln. rub.

| The directions of protection activity | 2008 | 2009 | 2010 | 2010 to 2010, ± |
|---|---|---|---|---|
| Total | 368627 | 343368 | 372382 | 3755 |
| Including:<br>air protection | 76773 | 60101 | 80071 | 3298 |
| waste water treatment | 159299 | 162175 | 169152 | 9853 |
| waste disposal | 40326 | 38806 | 41510 | 5184 |
| protection and rehabilitation of soil, ground and surface water | 27321 | 18696 | 17219 | -10102 |
| Biodiversity and habitat preservation | 26597 | 21463 | 22975 | -3622 |
| Other | 38311 | 42127 | 41455 | 3144 |
| Source: Data of Russian Federal State Statistics Service. | | | | |

Figure 1. The structure of environmental costs in the Russian Federation, 2010




Modernization allowance or increase in the basic assets in the sphere of environmental protection and rational nature management, as well as water protection costs amount to more than 40% in the structure of total costs. The sum of 46 million rubles or 52% of the total amount of 89 million rubles was used for water protection in 2010 *(tab. 2, fig. 2)*.

The analysis of the implementation of water protection facilities in the Russian Federation proves that the plants for waste water treatment turned up their power from 234 thousand $m^3$ to 462 thousand $m^3$ per day in 2010 as compared with 2008, and water recycling systems – from 992 thousand $m^3$ to 1050 thousand $m^3$ per day.

As a result of untreated water discharge by industrial enterprises and municipal sewerage, a lot of water bodies in the country are so polluted that the use of them for water supply is difficult or even practically impossible. Waste water dumping is the main cause of the continued pollution of natural basins; this fact is evidenced by statistical data on the North-West Federal District and, in particular, on the city of St. Petersburg *(tab. 3)*.

The table shows that there is an annual increase in the volume of waste water discharge in the North-West Federal District (it was more by 6.7% in 2010 than in 2008); the increase in the volume of waste water discharge in St. Petersburg has been almost stopped in in recent years. At the same time the share of St. Petersburg in the total waste water discharge is decreased rapidly (11.2% in 2008, 11.1% in 2009, 10.56% in 2010).

The main volume of waste water dumping in St. Petersburg includes the waste water discharged into surface water bodies (about 90%). Therefore, the share of other types of waste water dumping is less than 10%, including the waste water discharged directly to soil. The volume of the waste water discharged into surface water bodies includes the volume of normative-clear wastewater, effluent water and polluted water (industrial and communal) discharged into surface water bodies. However, it is possible to discharge industrial, residential, drain waste waters, as well as their other types only with the permission of water protection organizations

Table 2. Fixed capital investment in environmental protection and rational nature management in the Russian Federation, bln. rub.

| Investment pattern | 2008 | 2009 | 2010 | 2010 to 2010, ± |
|---|---|---|---|---|
| Total | 102388 | 81914 | 89094 | -13294 |
| Including fixed capital investment in the protection of: atmospheric air | 27542 | 23242 | 26127 | -1415 |
| water resources | 45696 | 39219 | 46025 | 329 |
| land | 17749 | 11045 | 9340 | -8409 |

Figure 2. The structure of fixed capital investment in environmental protection in the Russian Federation

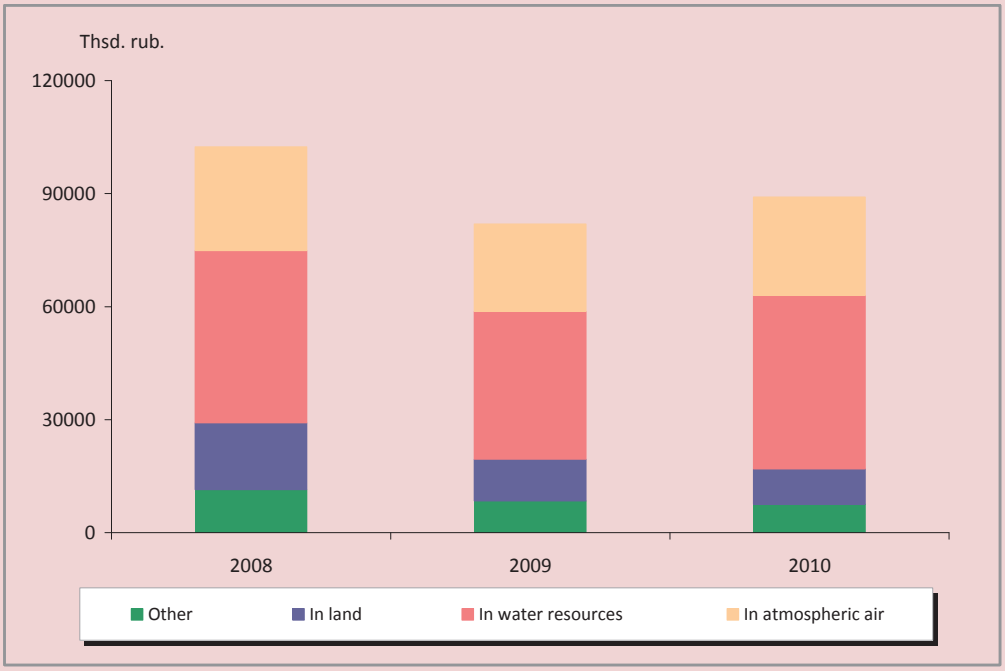



Table 3. The volume of waste water dumping in St. Petersburg, thousand $m^3$

| Indicator | 2008 | 2009 | 2010 | 2008 to 2006, ± |
|---|---|---|---|---|
| Waste water discharge in the regions of the North-West Federal District, total | 11648 | 11865 | 12427 | 779 |
| in St. Petersburg | 1304 | 1317 | 1312 | 8 |
| including waste water discharge into surface water bodies | 1173 | 1187 | 1174 | 1 |
| The same indicator, in % | 90.0 | 90.1 | 89.5 | -0.5 |

and according to the agreement of the state sanitary supervision. The quality of discharged water must meet the required standards. If these requirements are violated, the discharge of waste water should be restricted, suspended or denied by control authorities.

The current costs of water protection and rational water utilization, as well as the overhaul costs of basic assets, constructions, effluent treatment plants and rational water utilization in St. Petersburg increase permanently *(tab. 4)*.

Table 4. The costs of water protection and rational water utilization in the North-West Federal District and in St. Petersburg, mln. rub.

| Types of costs | 2008 | 2009 | 2010 | 2010 to 2008, ± |
|---|---|---|---|---|
| *Current costs* | | | | |
| North-West Federal District, total | 11877.2 | 19589.9 | 20493.2 | 8616.0 |
| St. Petersburg | 1979.0 | 7802.9 | 7752.2 | 5773.2 |
| *The overhaul costs of basic assets* | | | | |
| North-West Federal District, total | 1000.7 | 886.9 | 1028.8 | 28.1 |
| St. Petersburg | 154.3 | 303.9 | 432.2 | 277.9 |

The costs of water protection and rational water utilization have increased dramatically over the past two years: there is a 1.7-fold increase in the North-West Federal District and 3-fold increase in St. Petersburg. The share of current costs in the total expenses of St. Petersburg has also enlarged: from 16% in 2008 up to 39% in 2009 and 37% in 2010 in the North-West Federal District. The same dynamics can be observed in overhaul costs of basic assets, constructions, effluent treatment plants and rational water utilization. The share of the overhaul costs of basic assets in St. Petersburg in the total expenses of the North-West Federal District amounted to 15.42% in 2008, 34.27 in 2009 and 42.02% in 2010. This shows, on the one hand, the steady growth of capital equipment depreciation, and, on the other hand, it indicates an increase in the funds aimed at reconditioning.

Investigating the economic mechanism of water pollution regulation, it is necessary to point out the changes in legislation. The Water Code of the Russian Federation has been functioning since the beginning of 2007. It has established the key principles of water legislation, which are the basis of the regulation and implementation of water relations. In addition, the Federal Law "On Introducing Amendments to the Water Code of the Russian Federation and to the Certain Legislative Acts of the Russian Federation" N 118-FL as of 14.07.08 has made changes in the Water Code aimed at the improvement of water legislation and the strengthening of measures to protect water bodies. Payment for the use of water has become the basic principle of economic regulation of rational water utilization and water protection.

The system of payments for water use is regulated by the Water Code of the Russian Federation, the Federal Law "On Payment for Water Bodies Use", as well as by the Government Resolution "On the adoption of the minimum and maximum fees for the use of water objects in river basins, lakes, seas and economic regions" and other standard acts. The use of water objects can be realized with withdrawal (water intake) or without it (water discharge, the use of waterways, etc.) [3].

The citizens and legal persons, who have a license for water use, should:

- pay for the use of water (water tax);
- make the payment, aimed at water rehabilitation and protection.

The payments for the use of water are allocated to the federal budget and to the budgets of the federal regions, whose water objects are used. The target payments, aimed at the water rehabilitation and protection, are allocated to the special accounts of the federal budget and to the federal regions, whose water objects are used.

The payments, aimed at water rehabilitation and protection, are taken for:

- water intake from surface water bodies within established limits;
- water withdrawal above the limit;
- the use of water bodies without water withdrawal according to the license for water use;
- the discharge of waste water of standard quality into the water bodies within the established limits.

Pollutant discharge fees are taken from the enterprises regardless of their forms of property and departmental affiliation. Regional administrations can consider the local conditions and excuse companies, organizations and institutions from the fees for pollutant discharges, produced within the maximum permissible limits for emissions and discharges. There are basic standards of fees for pollutant discharges within the established limits and rates that take into account the territorial ecological features. The increased fee is set for pollutant discharges and waste disposal above the limit; it is based on the key fee standards, the rates that take into account the territorial ecological features, and fee ratio coefficients for pollutant discharges above the limit. If there are no approved limits on pollutant discharges and waste disposal in the enterprises, then the pollutant discharge fee is taken as a payment above the limits.

Payment rates are fixed by special regulations. The procedure of pollution fee calculation depends on the kinds of standards that are used by the organization: within the acceptable standards of pollution, within the established limits of pollution or in excess of the established limits. The organizations calculate and transfer the pollution fee no later than the 20th day of the month following the reporting quarter.

Data on the payments for allowable and excessive emissions (discharges) of pollutants (waste disposal) in the North-West Federal District and in St. Petersburg are presented in *table 5*.

The data show that these payments increase both in the North-West Federal District and in St. Petersburg each year. Significant growth occurred in 2010 (there was a 3-fold increase in the North-West Federal District and 12.5-fold increase in St. Petersburg as compared with 2008). The share of the city's payments in the total amount of the North-West Federal District has been changed: from 21% in 2009 to 75% in 2010. The principal amount of payments for allowable and excessive emissions (discharges) in the district was paid by business entities of St. Petersburg.

The payment for the use of natural resources does not excuse a nature user from environmental measures and reimbursement of environmental damage fees. As a result of the state environmental control, according to preliminary data, the budget of St. Petersburg got 20.5 million rubles fines for environmental and natural damages in 2011.

The environmental monitoring services of Hydromet fixed 1354 cases of extreme- and high-water pollution in the first half of 2011 that amounted to 95.3% of pollution in 2010. They found 11 cases of accidental pollution of water bodies (22 in 2010). There were 286 cases of extremely high water pollution (75.1% of pollution in 2010). So, water pollution has been decreased in comparison with 2010, and especially extremely high pollution has been reduced. It's a positive trend. The volume of administrative penalties for the environmental violation increased in St. Petersburg in 2010 as compared with 2008 and 2009 (it was 31% more in 2009 than in 2008 and 62% more in 2010 than in 2008).

It's necessary to have a target use of these funds. The payments, aimed at water rehabilitation and protection, should be used:

- to implement the federal and territorial government programs of water utilization, water rehabilitation and protection;
- to finance the measures relating to rational water usage, water rehabilitation and protection;
- to protect from the harmful water effects;

Table 5. Payments for allowable and excessive emissions (discharges) of pollutants (waste disposal) in the North-West Federal District and in St. Petersburg, bln. rub.

| Indicators | 2008 | 2009 | 2010 | 2010 to 2008, ± |
|---|---|---|---|---|
| Total amount in the North-West Federal District | 1559.1 | 2033.6 | 7249.7 | 5690.6 |
| in St. Petersburg | 256.0 | 433.6 | 5487.7 | 5231.9 |
| The same indicators, in % to the total amount in the District | 16.42 | 21.32 | 75.70 | 59.28 |

- to conduct researches and projects;
- to achieve other objectives of rational water usage, water rehabilitation and protection.

The Water Code of the Russian Federation (Art. 128) has defined some water fee benefits. For example, preferential limits of the payment size, aimed at water rehabilitation and protection, are fixed by the governmental agencies operating in the social sphere, as well as by water consumers using water in agriculture. The benefits for the water consumers, mentioned above, as well as the benefits for other categories of water users, which are allocated to the regional budgets, can be established by the laws and other normative legal acts of the Federal subjects of Russia within the limits of the sum that is allocated to their budgets.

But there are a lot of unsolved problems in this sphere. In order to address them, the Ministry of Natural Resources of the Russian Federation prepared a draft resolution "On the measures to improve the quality of wastewater" in 2008. It is aimed at the creation of the economic mechanism to promote economic entities to reduce the discharge of pollutants into water bodies. It provides for a single measure to establish such a mechanism – the manifold increase in charges for excess discharge of pollutants into water bodies.

The Ministry of Natural Resources proposes to introduce raising coefficients to the current level of payments since January 1, 2014: a 25-fold coefficient to the current level of payments and 100-fold increase in super allowed one. The payments for negative environmental impact are regulated by the 1992 and 2003 resolutions of the Government of Russia. According to the Ministry of Natural Resources, they don't meet environmental requirements, and they can't stimulate the enterprises to engage in environmental safety. "Environmental" assessments of businesses do not cover even a tenth of necessary financial costs of environmental protection. Annual minimum one-time investment in water treatment plants across the country are estimated at 35 billion rubles. In fact, the companies paid only 4.8 billion rubles for harmful waste water in 2008.

However, the project does not consider that nonrecurrent manifold increase in excess discharge fees can provoke negative social consequences, as well as it can lead to the situation, when most enterprises won't be able to pay penalties contemplated in the project. The adoption of that resolution was stopped due to the active position of water supply organizations, regional authorities and local authorities, which estimated the possible consequences of that "economic mechanism". In our opinion, it's impossible to solve the problem of waste water quality only by the increased payments for negative environmental impact. These issues require deeper studies, and they should be resolved at the legislative level based on the fact that the use of water resources involves the introduction and combination of environmental and economic aspects.

In conclusion we note that the task of implementing the economic mechanism of environmental protection can be achieved more successfully if some elements of the economic mechanism are regulated and implemented rationally. Nowadays the formation of a new economic mechanism of nature management and environmental financing should be an integral part of an effective system of economic management and regulation.

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Passed for printing 02.05.2012.
Format 60×84 1/8. Digital recording. Poster paper.
Con. pr. sheets 18.7. Number of 100 copies. Order № 151.

Certificate of registration of mass media PI FS77-37798 dated October 12, 2009 in the Federal Service for Supervision of Telecom and Mass Communications (Roskomnadzor)

Institute of Socio-Economic Development of Territories of RAS

Add.: 160014, Vologda, 56a Gorkogo Str., ISEDT RAS

Founder: Institute of Socio-Economic Development of Territories of RAS
The make-up page is edited and printed in ISEDT RAS