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Industrial Development Issues in the Economy of the Old Industrial Regions of Russia

Tamara Vital'evna
USKOVA
Institute of Socio-Economic Development of Territories of Russian Academy of Science
Vologda, Russian Federation, 56A, Gorky Street, 160014
E-mail: tvu@vscc.ac.ru

Evgenii Vladimirovich
LUKIN
Institute of Socio-Economic Development of Territories of Russian Academy of Science
Vologda, Russian Federation, 56A, Gorky Street, 160014
E-mail: lukin_ev@list.ru

Aleksei Evgen'evich
MEL'NIKOV
Institute of Socio-Economic Development of Territories of Russian Academy of Science
Vologda, Russian Federation, 56A, Gorky Street, 160014
E-mail: ae.melnikov@mail.ru

Ekaterina Georgievna
LEONIDOVA
Institute of Socio-Economic Development of Territories of Russian Academy of Science
Vologda, Russian Federation, 56A, Gorky Street, 160014
E-mail: eg_leonidova @mail.ru

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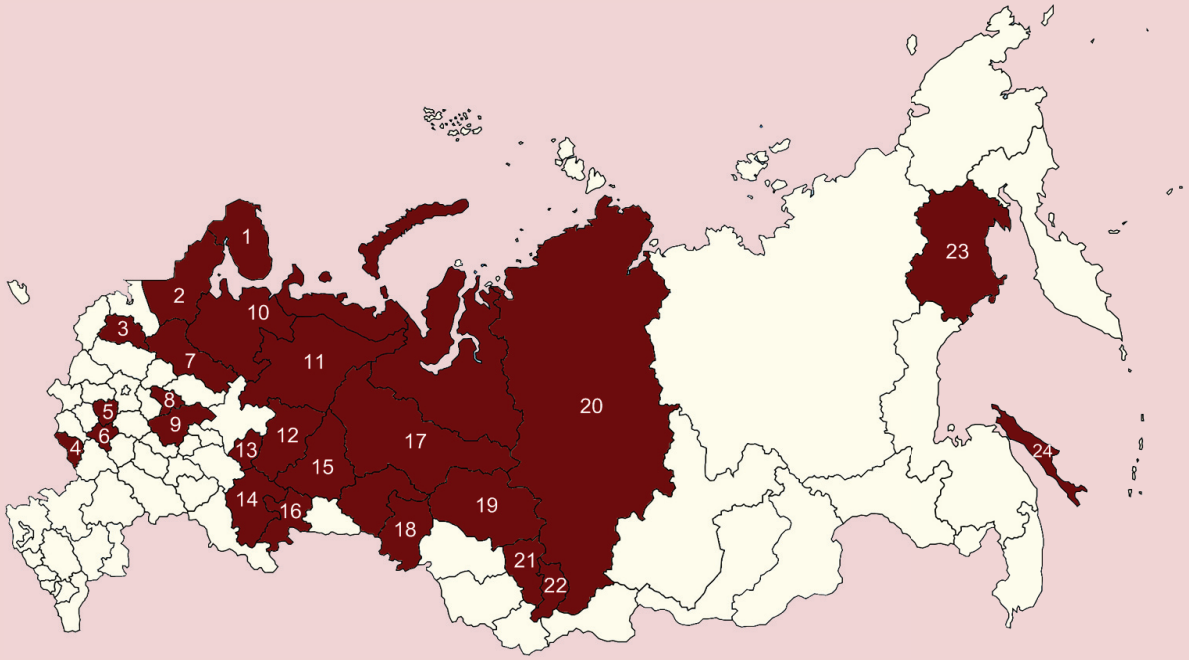
Abstract. Achieving balanced economic development is a key task for old industrial regions, in which many industrial sectors are concentrated. However, current macroeconomic situation does not promote the development of industrial sectors and new technological modes; moreover, it can lead to a decline in production output, tax proceeds, people's real incomes, consumer demand and other negative trends in socio-economic development. A considerable gap in labor productivity between Russia and developed countries as well as between old industrial regions indicates the existence of major problems in Russian industry. For this reason, the aim of the research is to identify main trends and issues in the industrial sector of old industrial areas in order to work out its further development prospects. Methodological framework of the study includes economic, statistical, and comparative analysis, generalization, and sociological survey. The works of Russian and foreign economists in the field of regional economics, official data of the Federal State Statistics Service, databases of international organizations including the World Bank, the Organization for Economic Cooperation and Development and the U.S. Bureau of Labor Statistics constitute the information base of the present study. It also uses research findings of I.V. Makarov, G.B. Korovin, K.V. Pavlov and others. The paper defines problems in the development of old industrial regions; the major problem is insufficient funding, which does not allow industrial enterprises to carry out full reconstruction and technological upgrade. The paper points out measures that would promote economic modernization in Russia's old industrial regions. Findings of the research can be used by regional authorities in the elaboration of economic development programs.

Key words: regional economy, region, old industrial regions, industry, labor productivity, investment, economic development.

Introduction. Currently Russia enhances the role of its regions as independent units of national economy; they obtain relative autonomy in decision-making and develop interregional relations; spatial forms of development of territories are spreading, and the dependence on raw materials is increasing. An important task for regional management is to ensure balanced economic development. This is especially relevant for old industrial regions with high concentration of industries[1], the structure of which began to be formed back in the 18th century. Subsequently, most of these territories became dependent on the production of one or two types of products. According to these criteria, old industrial regions include more than one third of Russia's constituent entities; it accounts for 30% of the country's population, 33% of its gross domestic product, 44% of its industrial production, and 36% of its investment. Thus, the problem of their balanced economic development becomes most critical.

[1] The proportion of industry in the structure of gross regional product in old industrial regions is over 30%.

Figure 1. Russia's old industrial regions [6]



1 – Murmansk Oblast, 2 – Republic of Karelia, 3 – Novgorod Oblast, 4 – Belgorod Oblast, 5 – Tula Oblast, 6 – Lipetsk Oblast, 7 – Vologda Oblast, 8 – Ivanovo Oblast, 9 – Nizhny Novgorod Oblast, 10 – Arkhangelsk Oblast, 11 – Komi Republic, 12 – Perm Krai, 13 – Udmurt Republic, 14 – Republic of Bashkortostan, 15 – Sverdlovsk Oblast, 16 – Chelyabinsk Oblast, 17 – Tyumen Oblast, 18 – Omsk Oblast, 19 – Tomsk Oblast, 20 – Krasnodar Krai, 21 – Kemerovo Oblast, 22 – Republic of Khakassia, 23 – Magadan Oblast, 24 – Sakhalin Oblast

The largest group of old industrial regions is located in the North-West and in Siberia; however, such regions are also located in the Urals, the Volga region, Central Russia and in the Far East *(Fig. 1)*.

The industry in these regions accounts for 86.4% of products produced in the sphere of material production and 42.7% of the cost of fixed assets, and employs 22.5% of workers. In these territories, the industries with a high value added multiplier are concentrated, and they act as a driving force in the development of other economic sectors. On the whole in Russia, the aggregate value added multiplier[2] decreased significantly in the period from 2007 to 2015. Thus, in 2015, manufacturing industries produced only 1.52 units of value added per unit cost of production in the

[2] This indicator is calculated as a ratio of the total value of commodity weight to the cost of primary raw materials involved in economic turnover. Official data on the detailed development of the production account of the System of National Accounts is used for calculating the indicator [5].

Figure 2. Value added multiplier in Russia's economy [7]

extractive sector, while this figure amounted to 1.61 in 2007[3] *(Fig. 2)*. The value added multiplier reduced even more significantly for Russia's old industrial regions[4]. It is due to system disorganization and deterioration of the manufacturing industry.

The analysis of labor productivity in the industrial sector calculated in compliance with international practice as the ratio of gross value added to the average annual number of employees in the respective industries has shown that Russia lags considerably behind other countries with regard to this indicator. Thus, it lags behind Canada and the United States in 5.4 and 4.8 times, respectively. Even Italy – the least industrialized country of G7 with gradually declining productivity (by 6.4% over 7 years) – is way ahead of Russia in this respect. However, we should still note a stable positive trend in this sphere in Russia: its economy demonstrates one of the highest growth rates in labor productivity in industry among the members of the former G8 (11.9%; *Tab. 1*).

Labor productivity in the industrial sector of Russia's old industrial regions has increased by 21.9% compared to 2007 *(Tab. 2)*. The maximum growth is observed in the Tula Oblast. Negative dynamics is observed in the Lipetsk, Tyumen, Murmansk and Ivanovo oblasts due to the high level of labor cost of workers per unit of products. It is due mainly to the fact that production base is obsolete and does not allow enterprises to automate many of their labor-intensive processes.

[3] The use of the year 2007 as the base period to make comparisons with current indicators is due to the fact that it is the last year of pre-crisis development of the Russian economy. A series of macroeconomic shocks that began in 2007 had a significant impact on economic development in Russia and its regions.

[4] For example, having calculated the value added multiplier for the Vologda Oblast, we obtained the figure of 1.14. The value of this indicator is even lower for the old industrial regions with a large share of mining industry.

Table 1. Gross value added in industry per employee*, thousand US dollars (in constant prices as of 2010)

Country	2007	2008	2009	2010	2011	2012	2013	2014	2014 к 2007 , %
Canada	129.2	126.2	122.1	129.2	132.1	132.0	133.7	138.1	106.9
USA	105.8	108.9	112.6	123.0	123.2	123.7	123.1	121.3	114.7
Japan	85.7	87.1	78.1	91.4	93.8	90.3	91.3	92.2	107.5
Germany	82.6	83.6	73.2	84.4	89.1	88.1	88.0	90.3	109.3
France	85.1	82.3	80.4	82.0	82.7	83.5	86.2	88.4	103.8
UK	71.9	72.8	74.4	79.3	78.8	75.3	76.2	76.4	106.2
Italy	76.3	75.7	67.5	72.3	72.7	72.0	72.5	71.5	93.6
Russia	22.8	23.3	22.5	23.6	24.7	25.1	25.4	25.5	111.9

* Compiled with the use of the following sources: Federal State Statistics Service (Rosstat), World Bank, OECD, U.S. Bureau of Labor Statistics.

Table 2. Labor productivity in the industry of Russia's old industrial regions*, thousand rubles (in prices of 2015)

Territory	2007	2010	2013	2014	2015	2015 to 2007, %
Tula Oblast	681.3	764.3	876.6	1105.8	1235.4	181.3
Novgorod Oblast	775.6	822.8	1020.9	1100.5	1200.3	154.8
Republic of Khakassia	1065.8	1193.0	1333.6	1255.7	1541.2	144.6
Magadan Oblast	1585.7	1718.2	1769.4	1563.6	2267.0	143.0
Nizhny Novgorod Oblast	758.1	915.1	1019.5	1060.4	1081.4	142.7
Republic of Komi	2246.6	2706.3	3035.4	3056.6	3169.1	141.1
Krasnoyarsk Krai	2474.2	2731.3	3073.6	3287.5	3410.2	137.8
Perm Krai	1210.1	1302.4	1454.7	1596.3	1584.3	130.9
Arkhangelsk Oblast	1502.8	1943.5	1744.0	1858.2	1954.8	130.1
Sverdlovsk Oblast	949.6	1039.2	1046.4	1104.7	1207.3	127.1
Sakhalin Oblast	9528.1	12634.4	14516.3	15518.5	12082.1	126.8
Republic of Karelia	1054.0	1218.9	1310.5	1347.5	1304.1	123.7
Tomsk Oblast	1704.2	1691.4	1968.9	2030.3	2097.6	123.1
Omsk Oblast	1283.9	1305.8	1557.5	1611.3	1502.6	117.0
Udmurt Republic	1092.4	1071.2	1176.2	1196.3	1273.8	116.6
Belgorod Oblast	1272.4	1392.8	1493.7	1389.1	1450.9	114.0
Chelyabinsk Oblast	953.3	953.1	906.2	1005.1	1076.0	112.9
Republic of Bashkortostan	1136.7	1238.8	1480.0	1324.1	1281.6	112.7
Kemerovo Oblast	1164.1	1249.4	1019.6	1134.2	1251.8	107.5
Vologda Oblast	1448.3	1221.7	1234.9	1350.7	1539.7	106.3
Lipetsk Oblast	1739.9	1494.7	1370.7	1688.0	1704.2	97.9
Tyumen Oblast	7418.9	7049.4	7461.0	7220.3	7227.9	97.4
Murmansk Oblast	1859.3	1728.6	1559.1	1469.3	1601.0	86.1
Ivanovo Oblast	405.2	395.6	342.8	310.1	279.4	68.9
Old industrial regions	1889.7	2080.7	2191.8	2254.2	2303.8	121.9

* Compiled with the use of the following source: Regions of Russia. Socio-Economic Indicators 2008–2016: Statistics Collection. Rosstat, 2008–2016.

Thus, old industrial regions still have to address the issues of using advanced technology and enhancing the level of processing of commodities. This situation can trigger negative phenomena in socio-economic development such as slowdown of output growth, lower tax revenues, decline in people's real incomes, decrease in consumer demand and in the volume of retail trade, rising unemployment, etc.

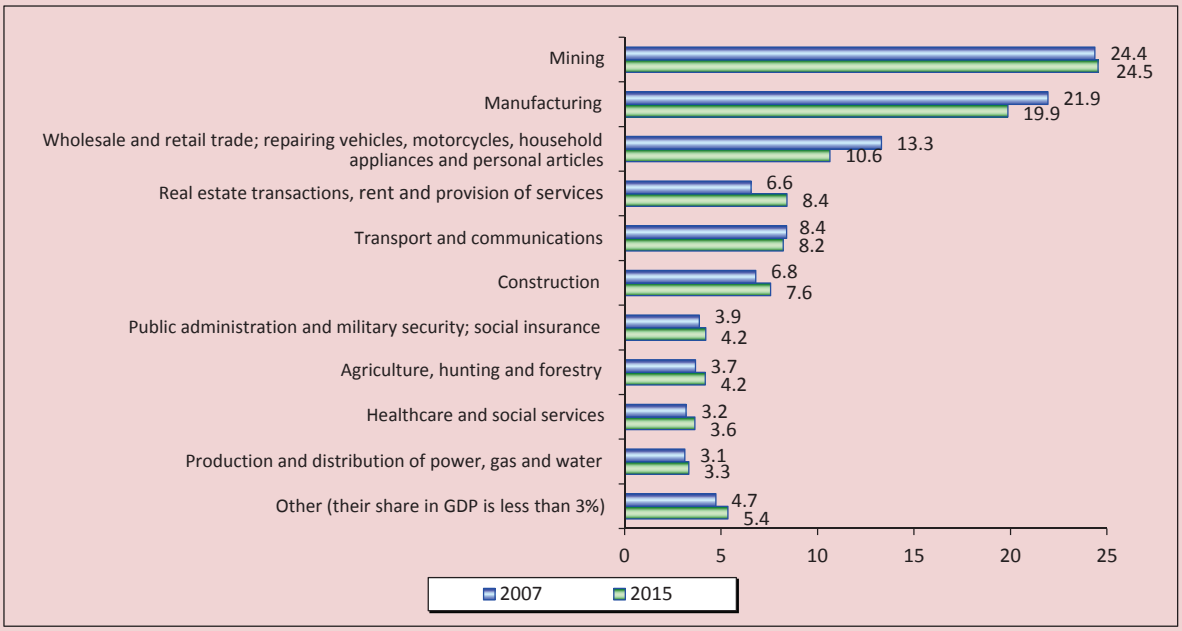
The aim of our study is to identify main trends and problems in the development of industrial sector in old industrial regions in order to work out the areas for their further development. Scientific novelty of the study consists in the fact that it defines the direction of development of the studied sector and corroborates it with evidence based on retrospective analysis of changes in the quality of the sectoral structure of the industry in the territories under consideration. The study also uses expert survey results and statistical data analysis.

Research methodology and methods. Economic, statistical and comparative analysis, synthesis and expert interviews are methods used in the research. Methodological basis is formed by the works of domestic and foreign economists in the field of regional economics. In particular, A.R. Bakhtizin, E.M. Bukhwald, S.Yu. Glazyev, A.G. Granberg, R.S. Grinberg, N.V. Kol'chugina and other researchers [2; 4; 14] study socio-economic development trends in Russian regions. Researchers also study the economy of old industrial regions and prospects for their modernization [8; 9]. K.V. Pavlov in his work proves it necessary to consider socio-economic features of regions in the implementation of structural adjustment. The importance of industrial sector in determining the areas of development of old industrial regions is reflected in the works of I.V. Makarova, G.B. Korovin, N.Yu. Sorokina [8; 12; 13; 16–18].

However, these works do not contain any detailed analysis of industrial sector, the analysis that was tested in the case of Russia's old industrial regions; and without such an analysis we consider it impossible to provide a reasoned determination of the vector of its development, which stresses the relevance of our research. The methodology of our analysis involves identifying changes in areas such as the progressiveness of changes in the structure of industry, investment activity of industrial enterprises, and the dynamics of investment in fixed capital.

Results of the study. Currently, economic development depends largely on the extent at which national economy is provided by industrial products and on the extent of penetration of cutting-edge technology in all spheres of society. For this reason, technological progress is the main source of economic development; it greatly simplifies many labor-intensive tasks, provides the ability to produce goods that were previously unavailable due to technological imperfections, and helps enhance energy efficiency, etc. Industrial plants amass a significant proportion of scientific and technological achievements; this fact allows us to name industry the foundation of modern economy.

Figure 3. Structure of GRP in Russia's old industrial regions*, %



* Compiled with the use of the source: Gross regional product. Rosstat. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts

However, modern economic realities have quite a negative effect on the development of industry, resulting in a gradual loss of scientific, technological and production potential; this leads to the fact that industrial contribution to economy reduces. These changes can be monitored on the example of Russia's old industrial regions: if the share of industrial production accounted for 49.4% of GRP in 2007, then it reduced to 47.7% by the end of 2015 *(Fig. 3)*.

We can express concern that the contribution of industry to economic development of regions in the future will continue due to the absence of positive transformations in the economy, the need to address the impact of the financial crisis in 2008 and the introduction of anti-Russian sanctions in 2014 and their subsequent expansion[5]. In particular, due to the fall of the Russian ruble against the US dollar

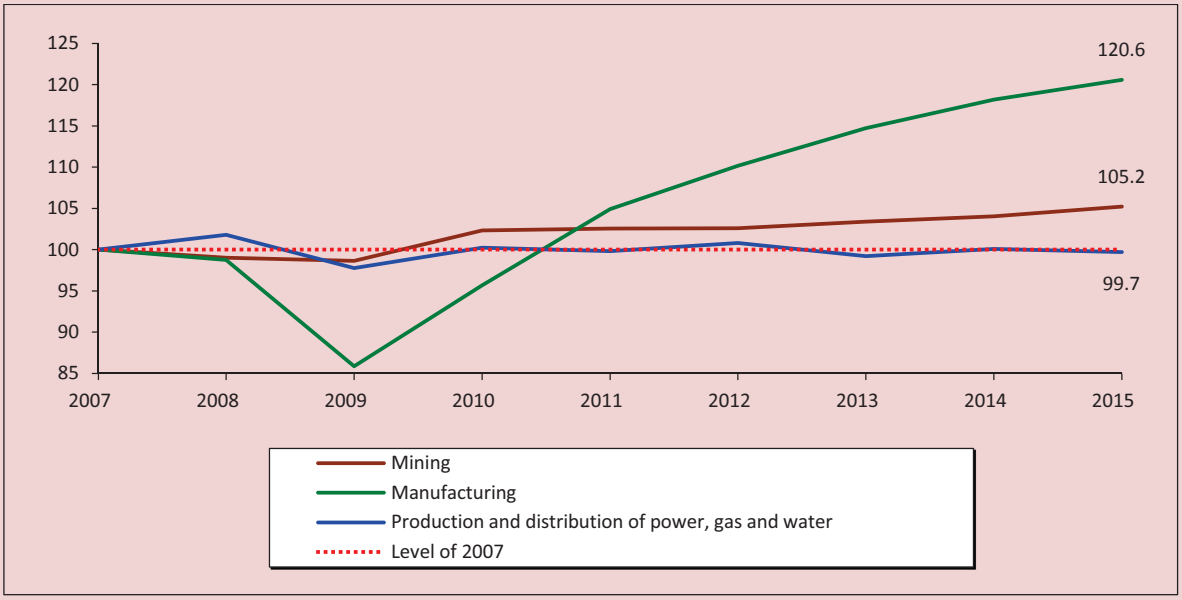
[5] Data from a survey of heads of industrial enterprises of the Vologda Oblast indicate that economic sanctions against Russia affected the activity of 54.4% of enterprises that participated in the survey. The sanctions significantly affect the development of food, timber, engineering industries , and the producers of construction materials. Among the main consequences of the sectoral economic sanctions against Russia the respondents pointed out the rising cost of imported raw materials, components and equipment (94.6%), loss of suppliers or partners (21.6%), and the inability to get cheap loans (18.9%). The survey involved more than 200 heads of industrial enterprises of the Vologda Oblast. The distribution of the sample population by types of economic activity is consistent with to the general population. The questionnaire covers organization of all the districts of the region. Sampling error does not exceed 4%.

and the Euro there has been an increase in production costs, which ultimately worsened the financial condition of enterprises, reduced their investment attractiveness and return on investment.

At the same time, it is not quite right to link the changes only to the consequences of the macroeconomic events noted above. They only aggravated negative phenomena in the economy of Russian regions and, in particular, they have complicated the conditions in which industry is operating [15]. First of all, current negative development trends are due to the devastating effects of market reforms that took place in the 1990s. They caused a breakdown in interregional relations that had existed within the country and between CIS member states. Dramatic decline in economic activity, shutdown of production facilities, and destruction of cooperative ties resulted in a deep fall of the Russian economy in the mid 1990s, which, in turn, caused sharp deterioration of people's welfare. The impact of those problems on old industrial regions was especially acute.

The volume of production in such regions is not supported by continuously increasing demand, so it has remained almost on the same level for years. Relative to 2007, the largest increase in output occurred only in the manufacturing industry (by 20.6%). In the mining sector, shipments increased by only 5.2%, while enterprises engaged in the production and distribution of electricity, gas and water showed a negative trend: 99.7% of the 2007 level *(Fig. 4)*.

Figure 4. Industrial production dynamics in Russia's old industrial regions, % to 2007



* Compiled with the use of the following source: *Regions of Russia. Socio-Economic Indicators 2008–2016: Statistics Collection*. Rosstat, 2008–2016.

Having analyzed the dynamics of enterprises raising investments in fixed capital in old industrial regions, we observe that over the period from 2007 to 2015, total investment increased by only 13.8%, and the average annual growth rate was 1.6%. The largest decline in investment occurred in old industrial regions of the Siberian Federal District (with the exception of Krasnoyarsk Krai) and in the Arkhangelsk, Vologda, Ivanovo and Chelyabinsk oblasts *(Tab. 3)*. A continuous inflow of investments is accumulated mostly in the regions with developed commodity production.

Table 3. Investments in fixed capital in Russia's old industrial regions*, billion rubles (in the prices as of 2015)

Territory	2007	2010	2013	2014	2015	2015 to 2007 , %
Magadan Oblast	23.6	27.1	45.6	45.6	60.7	256.5
Krasnoyarsk Krai	184.4	342.5	443.4	411.7	396.9	215.2
Murmansk Oblast	48.5	52.3	81.5	98.6	100.4	207.0
Tula Oblast	65.5	100.4	105.1	105.5	105.6	161.3
Republic of Komi	117.0	165.9	233.9	227.8	169.9	145.3
Tyumen Oblast	1282.0	1429.2	1854.4	1922.4	1762.9	137.5
Novgorod Oblast	51.0	61.3	64.1	69.9	69.3	135.9
Sverdlovsk Oblast	322.0	363.8	398.3	411.2	350.0	108.7
Sakhalin Oblast	222.4	176.2	222.2	252.6	241.5	108.6
Lipetsk Oblast	107.1	138.4	114.9	115.7	116.1	108.5
Belgorod Oblast	139.4	131.9	142.1	128.8	147.2	105.6
Republic of Karelia	31.4	30.8	38.4	35.7	32.7	104.3
Republic of Bashkortostan	308.8	243.9	305.8	316.2	317.8	102.9
Perm Krai	220.0	189.2	257.2	233.0	226.2	102.8
Udmurt Republic	83.8	71.1	96.2	101.5	81.8	97.7
Nizhny Novgorod Oblast	254.8	288.3	331.1	313.4	235.1	92.3
Chelyabinsk Oblast	253.9	227.6	256.7	259.9	217.2	85.6
Kemerovo Oblast	207.8	226.8	255.5	261.9	170.5	82.0
Omsk Oblast	124.7	100.6	121.6	106.9	94.2	75.6
Ivanovo Oblast	34.3	45.6	41.1	37.8	25.7	74.9
Tomsk Oblast	147.9	118.7	125.5	120.2	105.0	71.0
Republic of Khakassia	42.4	31.6	34.3	42.3	29.9	70.7
Arkhangelsk Oblast	252.0	151.0	183.6	176.8	172.2	68.4
Vologda Oblast	148.8	106.0	94.3	93.4	87.1	58.6
Old industrial regions	4673.4	4820.3	5846.8	5888.8	5316.0	113.8

* Compiled with the use of the source: Investments in non-financial assets. Rosstat. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/investment/nonfinancial

Table 4. Dynamics of the quality of the sectoral structure of industry in old industrial regions* (by volume of output), %

Industrial sector	2007	2015
Raw materials sector:	67.4	62.5
– mining	32.3	35.2
– metallurgy	2.5	17.3
– timber complex	22.3	2.3
– production and distribution of power, water and gas	7.8	7.7
High-tech sector:	24.3	9.5
– mechanical engineering	8.2	7.2
– chemical industry	16.1	2.3
Consumer sector:	12.5	9.4
– light industry	4.5	0.4
– production of construction materials	2.5	1.8
– food industry	5.5	7.1
Ratio of high-tech and consumer sectors to raw materials sectors	0.55	0.30

* Compiled with the use of the following source*: Regions of Russia. Socio-Economic Indicators 2008–2016: Statistics Collection*. Rosstat, 2008–2016.

Table 5. Dynamics of the quality of the sectoral structure of U.S. industry* (by volume of output), %

Industrial sector	2015
Raw materials sector:	23.2
– mining	5.7
– metallurgy	7.7
– timber complex	4.7
– production and distribution of power, water and gas	5.1
High-tech sector:	44.4
– mechanical engineering	24.5
– chemical industry	19.9
Consumer sector:	32
– light industry	1.1
– production of construction materials	18.8
– food industry	12.1
Ratio of high-tech and consumer sectors to raw materials sectors	3.3

* Compilation source: the U.S. Bureau of Economic Analysis.

These figures are quite insignificant for the country whose real sector is in need of intensive high-tech development, enhancement of competitiveness and productivity. According to experts, the economy can be actually upgraded if the annual growth of investment is about 18% [1]. However, as the example of old industrial regions shows, in current situation this figure is more a dream than a near and achievable reality[6].

Having analyzed the quality of the structure of gross regional product in the regions under consideration, it did not undergo any significant changes in 2007–2015. We determined the dynamics of its changes using an approach developed by experts at the Institute of Economics, Ural Branch of RAS [8]. The dynamics of this index in the mentioned period has a declining trend: from 0.55 in 2007 to 0.30 in 2015 *(Tab. 4)*.

Thus, the development of industrial sector in Russia's old industrial regions does not focus on high-tech branches. Meanwhile, countries leading in high-tech production, for example, the U.S., have a different ratio of high-tech and consumer sectors to raw materials sectors *(Tab. 5)*.

Having analyzed the quality of economic structure in the regions under consideration,

[6] It should be noted that for the Russian economy in general, the situation is even more depressing. For the period from 2007 to 2015, the growth of investment in fixed capital amounted to only 6.3%, and its average annual rate – 0.77%.

Table 6. Impact of economic factors on the work of industrial enterprises in the Vologda Oblast*, percentage of respondents

Factors hindering the development of production		Factors hindering investment activity	
High prices of raw materials and resources	76.5	High cost of new equipment	61.8
High fuel and energy prices	63.2	Shortage of own funds	60.3
Delays in the payment of delivered products	48.5	High interest on commercial loans	50.0
Shortage of own funds	42.6	Change in the exchange rate of the ruble and interest rates of banks	33.8
* According to a survey of heads of industrial enterprises of the Vologda Oblast, conducted by ISEDT RAS in the first half of 2016.			

we can make a conclusion that in the current situation the transition to modernization is difficult. Factors hindering progressive changes in the industry, along with technological backwardness and low scientific activity of enterprises[7], include the shortage of necessary funding, which greatly hampers the development of new technological modes and production of goods competitive on international markets. As a consequence, the quality of items produced does not change significantly, which makes them less appealing to potential consumers and does not create prerequisites for increasing the volume of shipment. The financial aspect is the main cause of difficulties arising in connection with attracting highly skilled employees and purchasing modern means of production (in particular, high-quality raw materials and equipment).

Based on the results of a survey of managers of industrial enterprises conducted in the Vologda Oblast – one of Russia's old industrial regions – it is possible to conclude that such dynamics of production and a lack of development of high-tech activities is caused primarily by high prices of the means of production and objects of consumption, and also by a lack of own funds *(Tab. 6)*.

Of course, the government takes steps to mitigate negative factors in industrial development. In particular, it participates in the funding of projects on development of new Russian equipment and machinery, in promoting the demand for it in conditions when government agencies are not allowed to purchase foreign equipment if its domestic analogues are available. However, such measures are not sufficient to change the situation radically [3].

According to research carried out at the Center for Macroeconomic Analysis and Short-Term Forecasting, it is mainly the

[7] Perechneva I. Mery otvetstvennosti [Penalties]. *Ekspert Severo-Zapad* [Expert North-West], 2013, no. 21. Available at: http://expert.ru/northwest/2013/21/meryi-otvetstvennosti/

primary industries and the food industries that introduce changes in the range and characteristics of their goods, improve the quality of their products and upgrade their fixed assets; and these processes are mostly inert. These processes are going on slower in the engineering industry and in the manufacture of technologically sophisticated non-food items [10].

As a result, it often happens that financial resources allocated to R&D, innovation technology, and improvement of production processes with the aim of increasing the competitiveness of the products are spent only on maintaining their current level or paying off debt rather than allocated directly to meet development needs.

This situation is primarily due to inefficient tax and monetary policy in the country. In the first case, having paid the taxes, the entrepreneurs are left without financial resources sufficient for their further work. In the second case, the business gets access to external sources of funding, usually on very unfavorable conditions. As a consequence, industrial production is characterized by the following cyclic issues[8].

1. Stable industrial development requires adequate amount of funding; however, enterprises spend a substantial share of their profits on tax deductions.

2. Tax expenditures can be compensated and working capital financed through commercial loans, but high interest rates reduce the attractiveness and prevalence of this method.

3. The insufficient amount of financial resources leads to slowdown or lack of plans for modernization of fixed assets, which results in a high proportion of outdated and worn equipment.

4. Flaws in the technological base of enterprises result in poor quality of products, their backwardness or low competitiveness on the markets of developed countries.

5. Due to the fact that domestic goods lack competitive advantages, many Russian companies do not receive a sufficient amount of orders.

6. A small number of orders, advantageous positions of foreign manufacturers, and low investment attractiveness of domestic industry are factors due to which the amount of profit obtained is insignificant.

7. Having paid the taxes, enterprises with small profits are left with only an insignificant amount of free financial resources that are not enough for comprehensive modernization, R&D or mastering some new technology. Thus, enterprises have to deal with the question of external funding, which is virtually inaccessible due to above mentioned reasons.

[8] This question is considered in more detail in the publication: Uskova T.V., Lukin E.V., Mel'nikov A.E. Organizatsiya i faktory novoi industrializatsii [Organization and drivers of a new industrialization]. *Ekonomist* [Economist], 2016, no. 11, pp. 3-15.

Conclusion. Economic development in old industrial regions is largely determined by the status of their industrial sector. Problems existing in this sector affect social sphere and performance figures, so economic development tasks must be addressed alongside industrial modernization. This process implies the transition to high-tech production, but it is constrained by insufficient funding. In this regard, we consider that finding sources for the implementation of modernization, and the activities for qualitative improvement of parameters of functioning of the economy of old industrial regions should be viewed as main directions. Among such events are the following activities:

– forming the chains of vertical integration of extraction and processing industries that will increase value added multiplier;

– creating conditions for increasing the volume of production of industrial enterprises, solving the problems of sales and demand for products; this can provide additional funds for modernization;

– implementing regional policy in the sphere of human resources, aimed to enhance the internal resources of old industrial regions on the basis modernization and creation of new highly productive jobs.

The prospects for the implementation of these directions are connected in many respects with intensification of government intervention and stimulation of activities in industrial sector:

1. The government should provide industrial actors with preferential terms of functioning, subsidies, investment loans for the implementation of promising projects in technological development and exploitation of innovative developments. In the context of development of personnel potential it is necessary to provide grants to educational institutions engaged in training highly qualified specialists for innovative economic sectors.

2. Improvement of current legislation in the field of regulation of tax policy and reduction of administrative burden. First and foremost, it is necessary to intensify the practice of granting tax exemptions, reduce the number and specification of mandatory requirements for industrial enterprises, and reduce the number of inspection procedures. Governmental impact on industrial sector must aim not only to create favorable conditions for the functioning of its well-off regions, but also to increase its attractiveness to new actors of the market.

3. The extent of cooperation between the government, industrial enterprises and educational institutions should be increased in order to improve the quality of training of personnel for the industry and increase the number of graduates for innovative economic

sectors. It is necessary to restore the system for training of professional workers, to promote on-site training at industrial enterprises, and to upgrade the facilities and equipment of educational institutions.

In our view, modernization of industrial sector in old industrial regions is one of the main sources of their further sustainable economic development. However, the implementation of these processes should take place along with a number of important changes at the federal level. These include the improvement of tax policy that will help overcome a technological gap between Russia and advanced economies and restore the scientific and technological potential of the country that was lost during the transition period; this can be done by releasing the financial resources allocated at present to the payment of taxes.

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Information about the Authors

Tamara Vital'evna Uskova – Doctor of Economics, Associate Professor, Deputy Director, Department Head, Institute of Socio-Economic Development of Territories of Russian Academy of Science (56A, Gorky Street, Vologda, 160014, Russian Federation; e-mail: tvu@vscc.ac.ru)

Evgenii Vladimirovich Lukin – Ph.D. in Economics, Laboratory Head, Institute of Socio-Economic Development of Territories of Russian Academy of Science (56A, Gorky Street, Vologda, 160014, Russian Federation; e-mail: lukin_ev@list.ru)

Aleksei Evgen'evich Mel'nikov – Research Engineer, Institute of Socio-Economic Development of Territories of Russian Academy of Science (56A, Gorky Street, Vologda, 160014, Russian Federation; e-mail: ae.melnikov@mail.ru)

Ekaterina Georgievna Leonidova – Junior Research Associate, Institute of Socio-Economic Development of Territories of Russian Academy of Science (56A, Gorky Street, Vologda, 160014, Russian Federation; e-mail: eg_leonidova @mail.ru)

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