

PROBLEMS OF LABOR PRODUCTIVITY GROWTH IN RUSSIA

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Abstract: This article discusses the problem of boosting labor productivity in Russian enterprises. A national project - "Labor Productivity and Employment Promotion" has been developed, where the main objective is to ensure the growth of labor productivity in medium and large enterprises of non-primary sectors of the economy of not less than 5% per year by 2024. The article analyzes the starting conditions and significant factors for this. Of particular importance is the state of fixed capital and investments in its modernization and renewal. In Russia, the depreciation of fixed assets averages 45-50%, and in some industries reaches more than 60%, investments in capital assets also lag behind in growth rates. Russia is also far from the first positions in research and development costs in general and per researcher, as well as in the number of researchers per million inhabitants. There are doubts about the full implementation of the plan to increase labor productivity at such a high pace for our country.

Keywords: labor productivity, efficiency, investment, human capital, import dependence, R&D.

1 Introduction

The stable continuous growth of labor productivity is the basis for the development of any society. Its low level in all areas of the Russian economy has become one of the causes of the economic crisis in Russia at the beginning of the century. The experience of developed countries shows that the accelerated development of fundamental and applied science and the corresponding system of training and retraining of personnel and increase labor productivity on this basis, primarily in industry; capital and labor gradually release for further growth of the social sphere and acceleration of the country's military potential, as well as improvement of the quality of life of the population.

2 Methods

The research methodology is presented by methods of comparison, graphical analysis, as well as the inductive method. To assess the situation with labor productivity, we used data provided by the Analytical Center under the Government of the Russian Federation, as well as statistical data provided by the Federal State Statistics Service.

3 Results

An important factor in the growth of labor productivity is the balanced structure of the economy: a rational combination of extractive and manufacturing industries, as well as the ratio of the small, medium, and large enterprises. There are serious imbalances in the Russian economy: import dependence, both on consumer goods, and products of machine-tool and machine-building, as well as on modern latest technologies. This is another serious disproportion in the Russian economy with the low competitiveness of almost all the products of its manufacturing sectors. Significant dependence on a highly unstable oil market environment exacerbates the state of an unbalanced economy. The final straw was political sanctions, which to some extent have a negative impact on the economy. The starting opportunities for increasing labor productivity in the short term are generally unfavorable.

Let us consider the indicators of the level of labor productivity and its change over time in 2005-2015 (Figure 1).

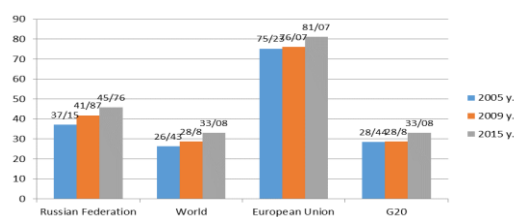


Figure 1. The level of labor productivity and its dynamics in 2005–2015, constant prices for 2011 in Purchasing Power Parity (PPP), thousand US dollars (Labor productivity in the Russian Federation, 2017).

In 2005-2015, in terms of the level and dynamics of labor productivity, Russia was ahead of the average in the world and in the Big Twenty countries, but 1.8 times behind in 2015 the European Union (81.07: 45.76); in 2005, the gap was 2 times. The gap from the global average level has changed from 2.9 times in 2005 to 1.4 times in 2015. In general, there was a positive dynamics in the level of labor productivity in the Russian Federation.

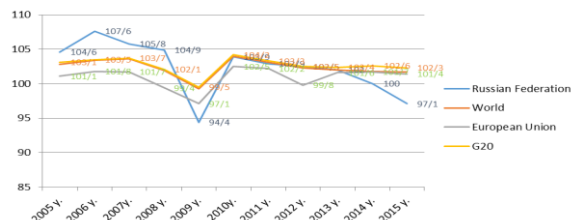


Figure 2. The dynamics of the labor productivity index in 2005–2015, constant prices of 2011 in PPP, % (Labor productivity in the Russian Federation, 2017).

The dynamics of the labor productivity index in Russia is characterized by extreme instability and significant dependence on world market conditions (Figure 2). By 2015, labor productivity indices in the world and the European Union reached the pre-crisis level, and Russian indicators almost returned to the low crisis level of 2009. Experts on this subject note that this is "...a rather dangerous phenomenon - both in terms of sustainable economic growth, the formation of competitiveness of the economy, and of the standpoint of the country's social development..." (Labor productivity in the Russian Federation, 2017). Indicators of labor productivity at the micro-level, in the context of enterprises and industries in the regions of the Russian Federation, are shown in Tables 1-3.

Table 1. Leading enterprises of the regions of the Russian Federation in terms of labor productivity in the mining industry in 2017 (million rubles/person) (Leaders of the regions of Russia in labor productivity, 2019).

No.	Company	Region	Performance
1	Bashneft	Bashkortostan Republic	81,29
2	Group LUKOIL	Moscow	57,3
3	Udmurtneft	Udmurtskaya Republic	54,56
4	E. Shashin Tatneft	Republic Tatarstan	27,53
5	Ksenevskij mine	chitinskaya oblast	17,44
6	NOC-Pechoranef	Republic Komi	15,1
	Total		253,22

Table 1 groups of enterprises operating in the mining industry.

Table 2. Leading enterprises of the regions of the Russian Federation in terms of labor productivity in the processing industry (primary processing) in 2017 (million rubles/person) (Leaders of the regions of Russia in labor productivity, 2019).

No.	Company	Region	Performance
1	NOVATEK	Tyumenskaya oblast	71,6
2	Central Concentrating Factory "Abashevskaja"	Kemerovskaya oblast	34,96
3	NLMK-Kaluga	Kalugskaya oblast	26,84
4	Altai-koks	Altayskiy Krai	22,5
5	Technokol-Vyborg	Leningradskaya oblast	20,71
6	Novolipetsk steel	Lipetskaya oblast	15,65
7	Group Severstal	Vologodskaya oblast	9,16
	Total		2011,42

Table 2 shows the data of enterprises of the processing industries involved in the primary processing of raw materials; Table 3 shows enterprises producing the final product.

Table 3. Leading enterprises of the regions of the Russian Federation in terms of labor productivity in the processing industry (final processing) in 2017 (million rubles/person) (Leaders of the regions of Russia in labor productivity, 2019).

No.	Company	Region	Performance
1	Sakhalin Energy	Sakhalin Oblast	139,44
2	Hyundai Motor Company	St. Petersburg	67,55
3	Plant Lodzhikruf	Ryazanskaya oblast	44,56
4	Enel Russia	Sverdlovskaya oblast	29,09
5	Boguchanskaya Ges	Krasnoyarskiy Krai	28,14
6	Fortum	Chelyabinskaya oblast	27,52
7	Pavlovsky dairy plant	Nizhegorodskaya oblast	19,44
8	Orelmaslo	Orlovskaya oblast	17,42
9	The second-generation company of the wholesale electricity market	Stavropol Krai	16,53
10	Novomoskovsk joint stock company "Azot"	Tul'skaya oblast	14,09
11	Novorossiysk bakery plant	Krasnodarskiy Krai	13,6
12	Akron	Novgorodskaya oblast	12,9
	Total		439,43

Tables 1-3 show 25 enterprises from 25 regions of Russia characterized by high labor productivity. Labor productivity indicators are deeply differentiated: from 9.15 in the Smolensk region to 139.44 million rubles per person per year in the Sakhalin region.

More than half (55%) of the enterprises analyzed were manufacturers of final products. A quarter (25%) are manufacturing enterprises (primary processing of raw materials), and 8 out of 40 (20%) relate to mining industries. This distribution shows that this indicator is higher in general in industries that manufacture products with high added value. The level of labor productivity in the country will be higher than in the structure of manufacturing enterprises, the advantage of which is the creation of a greater volume of added value, under otherwise equal conditions. In mining industries (primarily in oil production), the price factor significantly affects the level of labor productivity.

The Russian Federation primarily needs to develop manufacturing industries based on accelerated growth in labor productivity. The share of manufacturing industries (% of GDP) is of decisive importance; in 2017 this share in Russia amounted to 12%. At the same time, the number of people employed in this sphere of production in 2017 amounted to 10,258.8 thousand people, or 14.3% of the total number of employees (Russia in numbers, 2018). In 2016, Russia in terms of labor productivity in

manufacturing was 3.8 times behind the United States, two times behind the European Union, and 1.8 times behind the PRC .

The labor productivity indicator essentially boils down to determining the result of the labor of each of those employed in the country's economy. This result depends on many interrelated factors. The whole huge combination of these factors can be divided into fundamental (basic) and applied (organizational). The first type should include scientific, technical, and technological equipment of labor and the ability of workers to manage the production process. Another group of factors is the creation of conditions for productive activities: the scientific organization of labor, stimulation of labor productivity, safe normal working conditions, etc. Basic factors are formed at the macro level and, as a result of the corresponding economic policy of the state, "descend" to specific sectors, enterprises and organizations and, combined with organizational factors, are implemented at the micro-level. Thus, economic policy in the broad sense should be aimed at both the macro and micro levels.

In the context of this article, we are interested in the fundamental factors of labor productivity. This is, primarily, investment and structural policy. The steady growth of labor productivity requires the investments of the state and business in science (R&D) and human capital (Iscandarov, 2018; Sharafutdinov et al., 2018; Dmitrieva et al., 2018; Akhmetshin et al., 2018). The role of labor organization and economic management at all levels is also no less significant. Indicators of the level and dynamics of labor productivity (Figures 1 and 2) indicate an ineffective implementation of the factors under consideration. The development of investment policy should proceed from an analysis of the degree of technical and technological equipment of labor, which is objectively determined by the degree of depreciation of fixed assets.

The degree of depreciation of fixed capital is not just high but is growing every year and is approaching almost 50%. In individual industries and enterprises, this indicator is much higher than the average. Depreciation of fixed assets in the mining industry is 57.5 percent. Experts believe that in 2015 the actual depreciation throughout the economy amounted to 64.4% since after 1997 most enterprises (with the exception of budgetary institutions) did not reassess the funds. In Russia, the level of technical equipment of labor is rather low (Equipment depreciation becomes the most expensive disease of the Russian industry, 2018). In modern conditions, equipment and technologies are rapidly becoming obsolete. The growth of labor productivity in such conditions is out of the question.

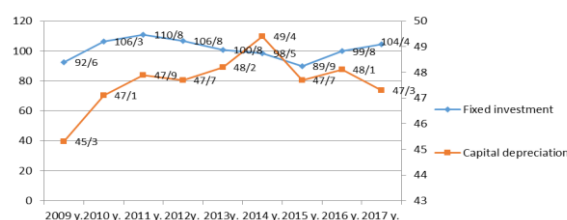


Figure 3. Dynamics of investments in fixed assets and depreciation of fixed assets of enterprises of the Russian Federation, % compared with the previous year

The main condition for solving this problem can only be increasing investment in fixed assets in order to update and modify it. In the early 2000s, investment in fixed assets grew and fell sharply during the crisis of 2008-2009. From 2010 to 2012, high investment rates were again replaced by a sharp slowdown in 2013 and a very significant decline in 2014-2016. And only in 2017, there was a slight increase. A comparison of indicators shows an almost complete correlation of the dynamics of the compared indicators, considering the time lag (Figure 3).

The dynamics of depreciation of fixed assets is stable; it remains at the level of 45% due to the growth of investments in the early

2000s. Further depreciation increases as a result of falling investment during the 2008-2009 crisis. In 2013-2015, investments were significantly reduced, respectively, depreciation shows an upward trend (48-49%). The same situation is observed in 2017. The interconnection of these processes raises no doubts.

Another problem is the large deterioration of industrial, transport and other infrastructure. To solve it in 2016, 4 trillion rubles was required. In 2018, this figure already reached 6 trillion rubles. Based on the depreciation of fixed assets up to 64.4%, and also in order to reach the level of GDP growth of 3% per year, according to experts, an astronomical amount of annual investment of 26.8 trillion rubles will be required. This is almost a third of the current GDP. Moreover, there are investments in working capital (approximately 6% of investments in fixed assets) (Equipment depreciation becomes the most expensive disease of the Russian industry, 2018).

Investment policy differs significantly from the policies of developed countries in the following important characteristics. About 80% of investments in fixed assets are state-owned and only 20% are private. Developed countries, otherwise, show an inverse relationship.

The share of bank loans is small due to high-interest rates. Banks do not give loans to enterprises for a long period, while business modernization is impossible in the short term. The reasons for this lie in the fact that banks need state guarantees since trust between banks and business is not enough, and in cheap western loans, which decreased as a result of sanctions. Most loans are issued for a period of one to three years. The payback period for investments in fixed assets is 5–7 years. By 2017, 16.8 million high-tech jobs were created in Russia (Increase in the number of high-performance jobs, 2017). All the data presented indicate certain potential sources of investment in the modernization of the economy. This would be a positive factor in increasing labor productivity, however, not in the medium term but in the long term. This is also a possible subject to interest rates not exceeding 3-4%.

An important issue is the development of science, scientific developments, and research, as well as their costs (Table 4).

Table 4. Research and development expenses, by countries, in 2016 (Research and development, 2016; R & D, 2018).

Country	Research and development costs				The number of researchers per million residents
	Billion of dollars	% of GDP	Place in rating	One researcher, thousands of dollars	
USA	511.1	2,74	11	359,9	4220
China	451,2	2,12	15	266,6	1206
Japan	168,6	3,1	4	253,4	5210
Germany	118,5	2,9	6	295,6	4893
South Korea	79,4	4,2	2	219,6	7113
France	62,2	2,7	8	220,6	...
UK	47,2	1,7	27	162,1	4430
Russia	399	1,1	34	93,0	2979

The dynamics of expenditures on science shows a very mixed picture of the situation of the Russian Federation in various aspects. While Russia is among the top ten countries in terms of total expenditures on research and development and the number of scientists, then it lags far behind in other indicators. The current position of Russia in spending on science is characterized by a significant lag of our country from developed countries precisely in terms of indicators that determine the effectiveness of the use of considerable expenses in general.

R&D expenditures (% of GDP) are a priority for labor productivity growth. The top ten countries in the world for this indicator in 2016 were the United States, Germany, Japan, France, and South Korea. Russia ranks 34th in this indicator. This suggests that the scientific potential of the Russian Federation for

the growth of labor productivity in the short term is insignificant. Russia also lags behind in the relative number of researchers (per million inhabitants and 10 thousand employees). This situation can be explained by the indicator of internal R&D expenses per researcher (93 thousand dollars a year); Russia ranks 47th only in this indicator. One of the goals of the national project "Science" is to increase the number of researchers to 79 per 10 thousand people employed in the economy and it is planned to spend up to one trillion rubles on this project (Dmitrieva et al., 2017).

4 Summary

A brief analysis based on statistics and expert estimates allows us to draw some conclusions.

Increasing labor productivity over almost the entire period of market reforms has not been set as a priority by economic investment policy.

In general, investment and structural policies, as two components of the whole, turned out to be ineffective.

The annually growing deterioration of fixed assets was a serious enough signal to determine priorities in investment policy. However, priorities were chosen in a different direction.

Insufficient and even declining investments in research and development, as well as their low efficiency, do not contribute to the growth of labor productivity.

A short-sighted credit policy based on high-interest rates and short-term loans does not stimulate the modernization of production, and, therefore, inhibits the growth of labor productivity.

5 Conclusions

Thus, summing up all the above, we cast doubt on the fulfillment of the tasks of the national project "Labor Productivity and Job Security" by 2024 - to achieve a five-percent increase in labor productivity per year. Moreover, the socio-economic development of the country largely depends on the situation on the world market.

Acknowledgments

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