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STUDYING THE IMPACT OF THE DEPRECIATION POLICY ON THE DEVELOPMENT OF INNOVATION POTENTIAL OF INDUSTRIAL ENTERPRISES

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Abstract. The problem of creating a competent depreciation policy is of particular relevance due to the condition of the modern Russian economy, which is in urgent need of the innovation potential development, as well as in the conditions when the dynamics and efficiency of investments in the country and the investment activity of enterprises largely depend on the expansion of internal savings and potential. The current state of the facilities and equipment in the country (basic production assets) is analyzed in this article, along with the dynamics of investments in fixed assets in the GDP reproduction and the structure of sources of their financing. The specifics and advantages of depreciation charges as a source of investments in fixed capital for its modernization are disclosed. This enabled the authors to identify the investment potential of depreciation and to develop a forecast in order to identify the extent of the impact of the depreciation growth on investments in fixed capital in the medium term. The proposals aimed at restoring the reproductive function of depreciation are developed. The theoretical and practical significance of the article lies with justification of the need to restore the reproductive function of depreciation, increase the role of depreciation in investments in fixed capital, and competent implementation and arrangement of the state control over the accrual and use of depreciation in order to develop the innovative potential of industrial enterprises and the economy as a whole.

Keywords: investments; innovation potential; investment sources; depreciation; depreciation charges; depreciation funds; depreciation policy; accelerated depreciation; investment potential of an enterprise

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1. Introduction

The investment crisis, which did not allow to create the basis for innovation-driven growth, was one of the most acute forms of the crisis state manifestation in the Russian economy in the past century and in recent years. As is known, it had negative impact on the innovation and investment potential of the Russian economy and caused its

multiple recession. After more than 25 years since the beginning of the reforms (1992 – 2018), Russia has still not achieved many performance figures of the Soviet period. Some Russian authors describe its depth and systemic nature when covering this problem (e.g. Nikitina et al., 2018). One of the points of view on this problem is "... lagging behind the level of the dying Soviet economy is an indisputable fact of the insufficient investment in fixed capital" (Daskovsky, Kiselev, 2016, p.60).

This describes one of the main problems of the Russian economy: the problem of renewal and growth of fixed capital in the conditions of the high demand for the modernization of physical assets in the country's economy. The situation is aggravated by the decline in access to cheap external funding for large businesses, which was a result of sanctions restrictions. At the same time, the possibilities of debt financing in the domestic market are insufficient due to the limited credit capacity of the banking sector and the underdevelopment of the bond market as a mechanism for raising long-term investments, which is not as developed in Russia as in Western countries. In turn, institutional constraints did not lead to an increase in foreign direct investment.

Internal resources – depreciation funds – should become the most important source of the fixed production assets modernization at Russian enterprises under the current conditions. The preliminary analysis and its results presented in this article indicated that their potential was obviously not being used in full. Meanwhile, the depreciation of fixed assets participates in the formation of not only the residual value of fixed assets, but also the financial performance of enterprises.

Analysis of the impact of depreciation charges as a source of increasing the innovation potential of the Russian economy firstly implies that their systemic significance must be understood, and secondly implies that depreciation charges are not only a source of simple reproduction, but also the most important source of profit generation for organizations. Depreciation of fixed assets has always been and remains one of the important components of the investment process at enterprises, as well as an element of the fiscal policy with respect to profits and assets of organizations.

As such, the main goal of this article is to reveal the role and significance of depreciation charges as an investment source at the macro and micro levels, as well as developing approaches to the formation of a rational depreciation policy of industrial enterprises. The following tasks should be solved to achieve this goal: 1) to analyze the current state of facilities and equipment in the country (basic production assets), dynamics of investments in fixed capital, structure of its financing sources; 2) to reveal the role and advantages of depreciation in investments in fixed capital; 3) to identify the investment potential of depreciation and develop a forecast to identify the extent of the impact of the depreciation growth on investments in fixed assets over a five-year term; and 4) to develop proposals for improving the depreciation policy of enterprises and organizations.

2. Methods

The methodological basis of the article was defined by the use of a set of general scientific and economic methods that enabled to achieve the goal of this article. In particular, the use of the scientific abstraction methods allowed determining the relationship between depreciation policies and the innovation-driven growth of the economy; the method of ascent from the abstract to the concrete and from the concrete to the abstract allowed studying the content of the investment policy and the dynamics of the investment activity in the Russian Federation and was used in developing proposals for improving depreciation policies that had direct impacts on the quality of the innovation potential of Russian enterprises. The methods of analysis and synthesis, generalizations and grouping were used in identifying general trends and features of depreciation policy in Russia, problems of innovation development of the Russian economy, assessing the structure of sources of investments in fixed capital, analyzing and comparing statistical indicators of investment dynamics and their share in GDP, and assessing the state of the basic production assets. The functional analysis was used to study the specifics of the distribution of investments

by types of economic activity and in assessing the state of the basic production assets. The comparative analysis was applied to the implementation of the tasks of cross-country and historically temporary comparison of depreciation policy and its role in the innovation-driven growth of the Russian industry. The statistical analysis methods were applied in calculations in graphic material (tables, figures); the exponential prediction method was used to assess the dynamics and forecast of investments in fixed assets in the Russian Federation from 2011 to 2017 and in the five-year forecast until 2022. Accordingly, the trend analysis method was used when forecasting the total volume of investments and investments in fixed assets through proprietary funds (depreciation). The scenario forecasting method was used in building the scenarios for the depreciation policy development and in developing recommendations on the depreciation policy formation at Russian enterprises.

The methodological base was formed and the categorical framework of this article was based on the works of Karl Marx (1972), A. Marshall (1993), P. Samuelson and W.D. Nordhaus (1999), J. Schumpeter (2001), M. Blaug (2004), as well as S.Yu. Glazyev (2008), V.B. Daskovsky, V.B. Kiselev. (2016), R.M. Nizhegorodtsev (2009), M.M. Sokolova (2014), B.E. Utkina (2014), J. Baltgailis (2019), F. Vigliarolo (2020).

The regulatory legal acts in taxation of profits and property of organizations, as well as in accounting for depreciation charges were used in the article.

The classics of economics have revealed the essence of the object under study in this article and created its theoretical framework, while contemporaries who explore this object have reviewed its applied aspects and conducted a meaningful analysis of the works for this study. V.B. Daskovsky and V.B. Kiselev (2016) should be particularly mentioned, who analyzed the practice of using depreciation charges in the Soviet and post-Soviet periods, paying special attention to the problem of qualifying the costs of overhaul of fixed assets and modernization as investments and to differentiation between the investment and repair investments in their works. Other authors, M.M. Sokolov (2014) and B.E. Utkin (2014), revealed the experience of using accelerated depreciation by many economically developed countries and the Russian economy in order to increase the volume of investments in fixed capital, suggested the necessary measures to improve state regulation of accrual and use of depreciation. S.Yu. Glazyev (2008) explores the most problematic issues in the Russian economy transition to an innovation-driven growth in his works, where the main methodological problem is highlighted, consisting in modeling the economy transition from the inertial (energy source) development path to the innovation-driven one, which implies a qualitative change in the dependencies between the variables of such a scenario model.

For their part, the authors also published several articles related to the object of study in this article. For example, T.Yu. Mazurina (2012) considered the instruments of the depreciation policy at the enterprise in her article, where a net cash flow was proposed as a criterion for the efficiency of the latter, and a number of measures aimed at restoring the economic functions inherent in depreciation were proposed. The problems of the innovation potential development of the Russian economy are considered by Ya.S. Matkovskaya (2014).

Information sources such as the Federal State Statistics Service (Rosstat) and data from reviews of the Analytical Center under the Government of the Russian Federation were used by the authors as an information base.

3. Results

Analysis of the dynamics of investments in fixed assets: trends in the recent decades

It is known that deep depressive changes have taken place in the Russian economy since the 90th of the past century, expressed in a decline in production and investment activity. These processes are described in figures as follows: for example, the volume of industrial production declined by almost half since 1991, and amounted to 51

% in 1999 compared to 1990, while investments in fixed assets decreased five times on average to 22.2 % in 1999 to the level of 1990 (Investments in Russia. 2009).

Meanwhile, according to the formal criteria, which can be directly quantified, both positive and negative changes have taken place in recent years of the new century and influenced the investment processes in the country (Table 1). As can be seen from the table, the dynamics of the main macroeconomic indicators were multidirectional and unstable in 2010 – 2018. As such, the dynamics of GDP and investments in fixed assets from 2010 to 2016 had a negative trend. It must be admitted that a slight acceleration in the growth rates of GDP and investments in the last two years is largely not systemic in nature, since it occurred due to unstable discrete processes. The sectoral sanctions, which extended their influence on the most important sectors of the economy, played a significant negative role, thereby limiting the possibility of investments in basic production assets.

Table 1. Dynamics of investments in the GDP reproduction (in comparable prices, as a percentage of the previous year)

Indicators	2010	2011	2012	2013	2014	2015	2016	2017	2018
Gross domestic product	104.5	104.3	103.5	101.3	100.7	97.5	99.8	101.5	102.3*
Industrial production	107.3	105.0	103.4	100.4	101.7	99.2	102.2	102.1	102.3*
Investments in fixed assets	106.3	110.8	106.8	100.8	98.5	89.9	99.8	104.8	104.3*
Investments in fixed assets as a percentage to 1990 (in comparable prices)	63.9	70.8	75.6	76.2	75.1	67.5	66.9	n/a	n/a
Share of investments in fixed assets in GDP**	20.6	20.7	20.9	21.2	20.8	20.0	21.2	21.5	20.7

Notes:

*estimated

**share of investments in fixed assets in 2014 – 2018 was recalculated in March 2019 and incomparable with the data for 2010 – 2013.

Sources: Russian Statistical Yearbook – 2016; Russian Statistical Yearbook – 2018; Investments in Russia – 2017; Dynamics of investments in fixed assets in the Russian Federation, n. d.; Share of investments in fixed assets in GDP, 2019.

It is clearly demonstrated in the table that there was a negative reversal of the investment growth trend under the influence of sanctions in 2014, which have been in effect for the past three years. The economic downturn of 2015 – 2016 was accompanied by a prolonged contraction of investment activity, which began in the second half of 2014. The decline in investments in fixed assets was 1.5 % in 2014, 10.1 % in 2015, and 0.2 % in 2016, with a decrease in GDP by 2.5 % in 2015 and by 0.2 % in 2016 (Table 1). After the recession, investments in fixed assets in Russia demonstrate a recovery growth: the gross capital formation increased by 4.8 % in 2017 and by 4.3 % in 2018 (Bulletin on the current trends of the Russian economy, 2018). At the same time, the adaptation of the investment process due to the changing structure of investment sources towards the confident predominance of the proprietary sources of business entities should be noted as an important aspect.

However, the investment growth in 2017 and 2018 was largely determined by the comparison base, which was low in 2016 and previous years.

Analysis of the dynamics of investments in fixed assets since 1990 allowed to conclude that their volume had not reached the 1990 level of investments, and it had been reduced by 33.1 % in 2016, as an example. This trend continued in 2017 – 2018, despite the growth of investments in fixed assets compared to the previous year of 104.8 % and 104.3 %, respectively. Overall, the ratio of investments in fixed assets to GDP in Russia decreased from 21.4 % in 2017 to 20.6 % in 2018.

As such, the authors support the opinion of the researchers who talk about the unreasonable use, actual "devouring" of fixed assets, which has been observed in the Russian economy in recent years. According to some estimates, this waste made the country lose a quarter of its total economic potential so far. It becomes obvious that against the background of a decrease in the investment activity, the inflow of investments observed in recent years

does not meet the needs of the morally and physically obsolete assets of the Russian economy either to maintain the existing potential or to its further growth. Moreover, the aging process of fixed assets is progressing, which has negative impact on the efficiency of the economy as a whole.

State of the fixed assets and investment resources in the Russian economy

According to the Decree of the President of the Russian Federation No. 204 dated May 7, 2018 "On the national goals and strategic objectives of the development of the Russian Federation through to 2024", Russia should enter the top five world economies by 2024. This should happen if the macroeconomic stability is maintained, and inflation does not exceed 4 %. The economic breakthrough should be backed by the growth of investments, which should amount to 7.6 % from 2020 and not less than 6 % annually further (Nikolaev, Marchenko, 2018).

Meanwhile, the gross fixed capital formation is an important component of economic growth. At the same time, the task was set long ago to increase the share of investments in fixed assets in GDP to 25 % by 2015 and to 27 % by 2018, according to the Decree of the President of the Russian Federation No. 596 dated May 7, 2012 "On the long-term state economic policy". However, these targets have not been met. It is obvious for many experts that this goal cannot be met due to a number of limiting factors (On the national goals and strategic objectives of the development of the Russian Federation through to 2024, 2018).

As noted above, investments in fixed assets accounted for 21.5 % of the GDP in 2017, and this figure was 20.7 % in 2018.

However, let us turn to the analysis of the state of the productive potential of the economy and its basic production assets before referring to the sources of investment activity in the economy.

The need for an active renovation of production assets is evidenced by the data on the degree of wear of fixed capital in Russian enterprises, as reflected in Figure 1.

For example, the indicator of depreciation of fixed assets reached 48.1 % in the whole economy and 50.0 % in manufacturing in 2016. Similar indicators amounted to 47.3 % and 49.6 %, respectively, in 2017 (the degree of depreciation of fixed assets in the Russian Federation by type of economic activity, n.d.). In turn, the rate of the fixed production assets renewal was 4.3 %, while disposals rate was 0.7 %. It is important that these figures in 1990 were 6.3 % and 2.4 %, respectively (the rates of renewal and disposal of fixed assets in the Russian Federation, n.d.).

The state and dynamics of the wear of fixed assets in the Russian Federation in 2010 – 2017 illustrated in Figure 1 are described by the fact that the level of depreciation of these assets in 2017 approached the level of 2010, while the resulting exponential trend allows predicting that the degree of wear and tear in the course of the year will grow at the current level of its renewal by 2022, which will generally lead to a decrease in the competitiveness of the Russian economy.

The trend analysis of the dynamics of retirement rates and fixed asset upgrades, shown in Figure 2, also illustrates negative trends.

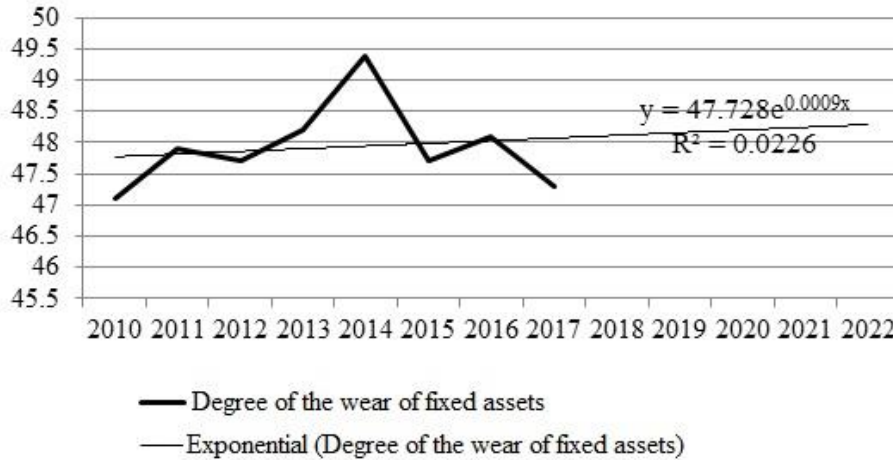


Fig. 1. Dynamics of the wear of fixed assets in the economy in 2010 – 2017 and trend forecast through to 2022 (Investments in Russia, 2017; Russian Statistical Yearbook, 2018; Growth (decrease) rate of the main socioeconomic indicators (cost indicators in comparable prices, 2018; Degree of wear of fixed assets in the Russian Federation by type of economic activity, 2018)

It can be seen from Figure 2 that there is a decrease in the retirement rates and fixed asset upgrades. In turn, the results of forecasting (exponential trend) indicate that the dynamics of these indicators will remain in the same range in the next five years, with a relatively low degree of renewal of fixed assets in the economy, which, respectively, proves the sustainability of the trend of relatively low innovation activity in the Russian economy once again.

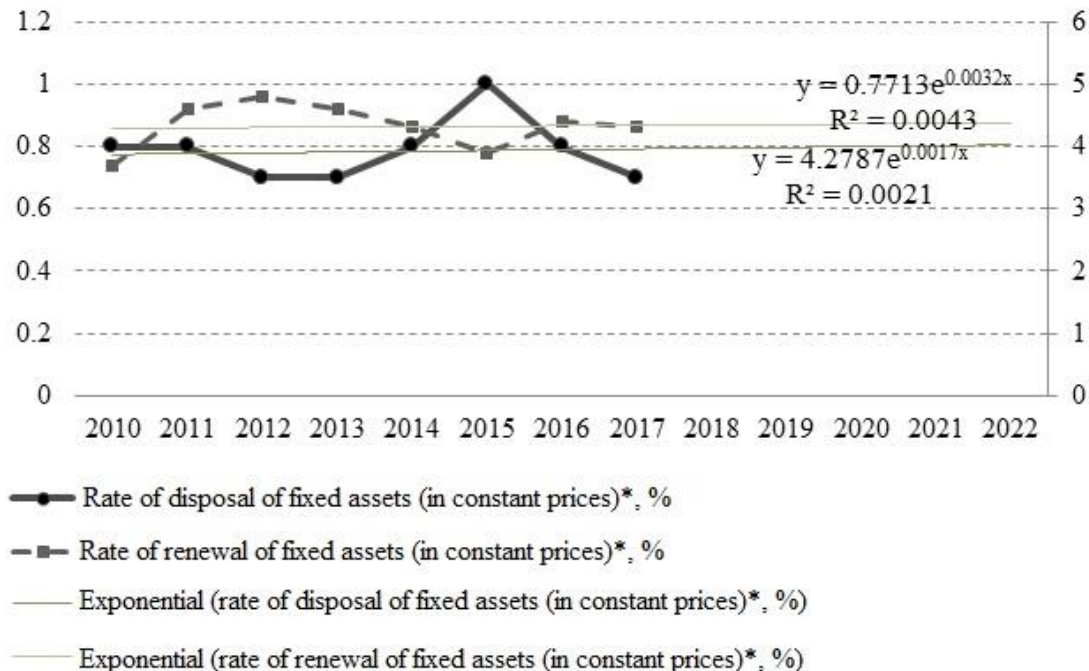


Fig. 2. Dynamics of the retirement rates and fixed asset upgrades (Investments in Russia, 2017; Russian Statistical Yearbook, 2018; Rates of renewal and disposal of fixed assets in the Russian Federation, n. d.).

Meanwhile, during the period of investment decline in the three largest industries (mining, processing, transport), which accounted for more than half of all investments in fixed assets (for large and medium-sized organizations),

the mining sector and transportation maintain positive investment growth rates in annual terms according to 2017 data. Distribution of investments in fixed assets by industries and sectors (excluding small businesses) as of 01.01.2018 is the following: mining accounts for a significant share (24 %), processing industries – for 16.4 %, and transportation and storage – for 18.4 %, while the share of investments in the production of machinery and equipment is only 0.4 %, and in the production of electrical equipment – only 0.2 % from the total investments in fixed assets (Russian Statistical Yearbook, 2018). Besides, there is a clear deformation of the structure of investments in fixed assets towards the passive part of the fixed assets (buildings and structures, residential buildings).

As such, following the results of the crisis, there is a concentration of investment resources mainly in export industries in the Russian economy, with an acute shortage of them in industries focused on the domestic market.

That is why the availability of investment sources is one of the urgent problems in these conditions. This is confirmed by the materials of the sample surveys of the investment activity of organizations conducted in 2018, according to which it was noted that the main investment sources in fixed assets for most organizations in 2018 had been proprietary funds, as well as in previous years. They were used by 80 % of the respondents. Loans and borrowed funds were used by organizations operating in the field of mining other minerals (56 %), providing services in mining (54 %), coal mining (47 %), production of coke and oil products (45 %), iron and steel production (42 %), as well as chemicals and chemical products (40 %). The state funds were used by 29 % of the organizations engaged in mining other minerals and 19 % of the organizations engaged in the collection, purification, and distribution of water (Investment activity of organizations in 2018).

Meanwhile, 60 % of the managers from the surveyed organizations indicated a lack of proprietary funds as a factor limiting their investment activities. 62 % of the heads of organizations indicated high inflation and uncertainty of the economic situation in the country, 58 % of the leaders of organizations surveyed noted investment risks, and a high interest of commercial loans was noted by 54 % (Investment activity of organizations in 2018).

This confirms the need to form an efficient mechanism for mobilizing the internal reserves of organizations once again.

According to the current legislation, the investment activities on the territory of the Russian Federation can be financed by the proprietary (net profit and depreciation) and borrowed sources – for example, bank loans, loans, bonded loans, investors' funds, funds of various budgets, funds of extra-budgetary funds, and funds of foreign investors (Federal Law "On investment activity in the Russian Federation carried out as capital investments" No. 39-FZ dated 25.02.1999).

Of course, the proprietary sources of investment are the most reliable and in some cases preferred. Since they are described by relative simplicity and long-term nature, they secure a stable financial condition of the company and reduce the risk of bankruptcy. Self-financing is the main source of financing investments for enterprises with a high level of technical equipment. Enterprises with an undeveloped technical base lack proprietary funds, and there is a need to raise additional resources. It is extremely difficult to count on state funding, since it is necessary to fulfill a number of stringent conditions.

However, the use of equity as the sole source of financing has its drawbacks for an enterprise: the limited amount of funds available for the expansion of business activities; their higher cost compared to alternative borrowed sources of capital; and unrealizable opportunity to increase the return due to their use, unlike the borrowed funds that generate the effect of financial leverage.

The borrowed funds, including bank loans, increase the financial risks of organizations, but are described by relatively high complexity of their attraction. Unlike a bank loan, the securities market allows raising a fairly large amount of funding for an indefinite period, although there is a problem of the high cost. Unfortunately, such forms of financing as leasing and venture financing are still not widely spread in Russia.

Role of depreciation charges in investments and the investment potential of depreciation

It is commonly known that net profit and depreciation charges are the main proprietary sources of financing investments in any commercial organization. At the same time, depreciation charges are the most important source of financing investments, and successful implementation of investment projects largely depends on it. Meanwhile, international statistics show that "... the share of depreciation in the total investments in developed countries was only 25 – 30 % in the middle of the 20th century, while it stably remains at 70 – 80 % at present. Conversely, the share of profits in total investments decreased from 50 % to 5 – 10 %, and the share of the borrowed funds decreased from 25 – 30 % to 12 – 15 %. Such changes in the structure of sources for financing capital investments efficiently encouraged the economic development. The share of depreciation charges in the total volume of investments in fixed assets in the US was 78.4 % in 2003, 74.2 % in 2010, while in Russia it was about 20 % in 2010 (Utkin, 2014, p. 285).

If we refer to Russia, then "... of the total amount of depreciation charges accrued in 2012 in the amount of 4 trln rub., more than half was spent not on the development but on financial investments: acquisition of securities, provision of loans, and other operations. As a result, the country fell short of 2 trln rub. in investment, which reduced their volume by 13.7 %. Moreover, the state fell short of 400 bln rub. to the state budget on income tax mainly to the regional budgets of the Federation" (Sokolov, 2014, p. 25).

Meanwhile, the efficient consumption of the accumulated depreciation resources opens opportunities to reduce the dependence on external sources of financing for companies and hinders the increase in the "debt load" on the economy, but using this proprietary resource directly will allow modernizing equipment at Russian enterprises and purchasing new equipment, thus increasing their competitiveness (Matkovskaya, 2014).

As such, the main sources of financing today are the proprietary funds of enterprises in the form of net profit and depreciation; state funds (with a declining trend); and bank and commercial lending (Table 2).

Table 2. Structure of the sources of investments in fixed assets, %

Indicators	2010	2011	2012	2013	2014	2015	2016	2017
Investments in fixed assets – total	100	100	100	100	100	100	100	100
of which by sources of financing:								
Proprietary funds	41	41.9	44.5	45.2	45.7	50.2	51.0	51.3
of which:								
profit	17.1*	17.9*	19.5*	18.9*	-	-	-	-
depreciation	20.5*	20.4*	19.6*	22.5*	-	-	-	-
Borrowed funds	59.0	58.1	55.5	54.8	54.3	49.8	49.0	48.7
of which:								
bank loans	9.0	8.6	8.4	10.0	10.6	8.1	10.4	11.2
of which from foreign banks	2.3	1.8	1.2	1.1	2.6	1.7	2.9	5.4
borrowed funds of other organizations	6.1	5.8	6.1	6.2	6.4	6.7	6.0	5.4
investment from abroad	-	-	-	0.8	0.9	1.1	0.8	0.8
budget funds (funds of the consolidated budget)	19.5	19.2	17.9	19.0	17.0	18.3	16.4	16.3
of which:								
funds from the federal budget	10.0	10.1	9.7	10.0	9.0	11.3	9.3	8.5

regional budgets of the Russian Federation	8.2	7.9	7.1	7.5	6.5	5.7	6.0	6.7
local budget funds	-	-	1.1	1.5	1.5	1.3	1.1	1.1
funds of the state extra-budgetary funds	0.3	0.2	0.4	0.3	0.2	0.3	0.2	0.2
funds of organizations and population for shared-equity construction	2.2	2.0	2.7	2.9	3.5	3.2	3.0	3.3
other	21.9	22.3	20.0	15.6	15.7	12.1	12.2	11.5
Note: *Rosstat has not published the data on shares of profit and depreciation in the sources of investments in fixed assets since 2010.								

Sources: Investment in nonfinancial assets, n. d.; Bulletin of the socioeconomic crisis in Russia, 2015

Meanwhile, the borrowed funds amounted to more than 50 % of the total amount of financing investments in fixed assets until 2015. Moreover, their share has steadily declined. Since 2015, the borrowed funds accounted for less than half of the total sources of financing investments in fixed assets. There is a steady downward trend: 49.8 % in 2015, 49 % in 2016, and 48.7 % in 2017. As can be seen from Table 2, the share of budgetary sources in financing investments fluctuates and averages 18 %. At the same time, the dynamics of these sources have been negative in recent years.

Unprofitability of almost one third of organizations on average, out of their total number, limits their investment opportunities to just one source – depreciation funds. Since 2003, the share of depreciation charges in the total volume of sources of financing investments in fixed assets steadily declined: it was 24.2 % in 2003, 20.9 % in 2005, and 17.3 % in 2008. This trend was reversed only in 2009, and the share of depreciation as a source of financing for capital investments increased to 18.7 % (by the end of 2009). As can be seen from Table 2, it further amounted to 20.5 % in 2010, 20.4 % in 2011, 19.6 % in 2012, and 22.5 % in 2013. The share of invested profit increased from 2010 to 2012 from 17.1 % to 19.5 %, after having decreased in 2013 to the level of 18.9 %.

It is obvious that the savings formed in depreciation funds in the Russian Federation are not being sufficiently invested in the creation of new production funds and are mainly used to repair and modernize the fixed assets. The attention in the analysis of these aspects should be drawn to two negative trends. The first is related to the fact that the investment activity and investments in the repair of the existing (sometimes morally obsolete) capacities are equated in the statistical reporting, which, according to many researchers, not only disavows the situation, but also cannot but lead to serious economic consequences. In this regard, the Russian scientists rightly argue that "Overhaul and modernization cannot be considered as forms of the investment activities. The depreciation rate had two components in the Soviet economy: overhaul and renovation of the fixed assets" (Daskovsky, Kiselev, 2016, p.57). The second trend is that the current depreciation rates are actually aimed only at maintaining the existing (sometimes even exploited since the beginning of the industrialization of our country and earlier) fixed assets, which does not contribute to an increase in capital productivity and the production of competitive modern products. What is the real situation in Russia, according to official statistical sources? These data indicate that investments in fixed assets through depreciation charges in 2000 – 2016 averaged slightly less than 20 %, which is clearly not enough (as noted earlier, this indicator stably remains at 70 – 80 % in developed countries) (Utkin, 2014).

Summarizing the above, it can be noted that the issue of moral and physical obsolescence of basic production assets continues to be relevant and unresolved for the modern Russian economy, and its acuteness continues to worsen, while the lack of the efficient mechanisms to solve this problem by developing innovation potential will continue to lead the economy to a serious lag behind the Western economies. The longer it continues, the wider this gap will be. A number of Russian enterprises still need global technical and technological re-equipment, which is increasingly difficult to implement, given a number of current problems caused by both global factors and macro- and microeconomic conditions (including sanctions, insufficient long-term lending, high cost of

resources borrowed on the securities market, etc.). The difficulty of finding sources of financing and servicing their debt in the face of the need to update equipment and resources corresponding to the modern standards of production should encourage the managerial decisions aimed at finding and using internal sources. Depreciation funds, as an internal source of renewal of fixed assets, should resume the performance of their main function. However, this does not happen, as can be seen from Table 2. Moreover, neither depreciation funds nor net income have been reflected in the structure of sources of financing investments in fixed assets in official statistics in the Russian Federation since 2011, which is difficult to explain in terms of the importance of depreciation in the economy.

In order to attract the attention of many researchers to the problems of investment and innovation-driven growth, draw the attention of specialists (scientists and practitioners, experts and auditors, business representatives, and government bodies), and reanimate the theoretical and practical functions of depreciation funds by pointing at the underused investment economy of the depreciation funds potential, the authors of the article first made an attempt to get an answer to the question of how much investments in fixed assets would rise in the following five years and later if their annual increase due to depreciation was 20 % (this level of this indicator was reasonable relative to the trends that had developed over the past years). Secondly, a hypothesis was put forward about the multiplicative effect of depreciation as a source of financing investments on the growth of investments in the fixed assets in the medium term. In this regard, the dynamics of investments in fixed assets in the Russian Federation in the total volume were analyzed for 2011 – 2017, as well as investments in fixed assets through the proprietary funds (depreciation) for the same period. Then the exponential forecast (trend) was built for a five-year period (2018 – 2022) for the above indicators. Finally, scenarios were drawn up to determine the degree of impact of using the depreciation funds (as proprietary funds) on investing in the renewal of basic production assets, taking into account the importance of depreciation funds for indicators of the renewal of basic production assets, as well as their investment potential and basic purpose. This is shown in Figure 4.

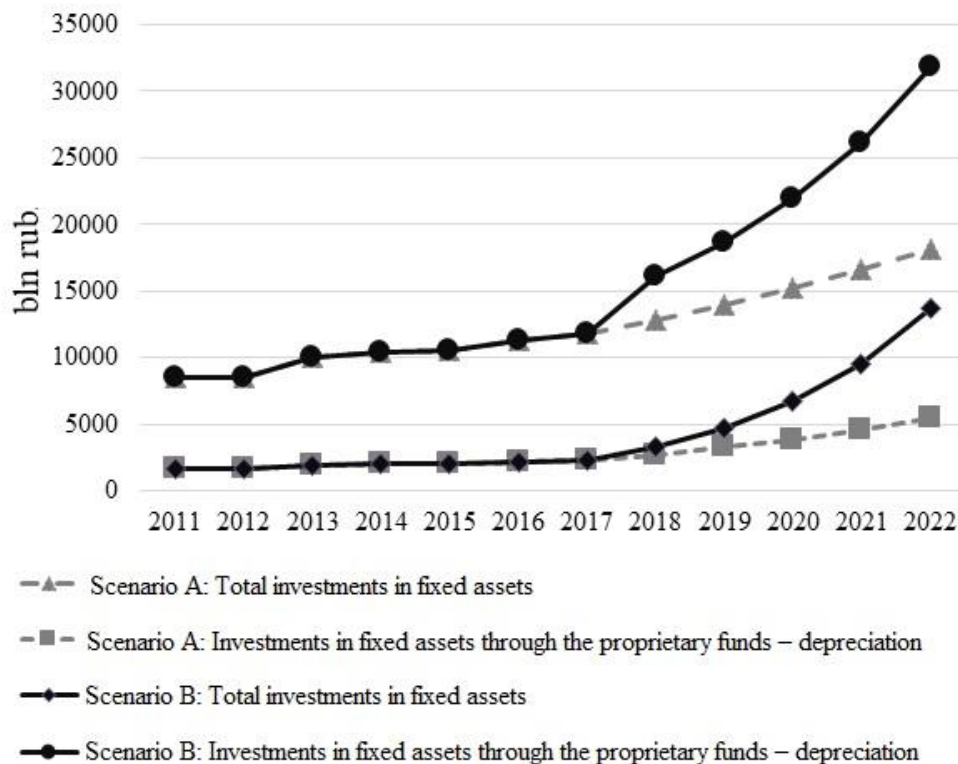


Fig. 4. Dynamics and forecast of investment in fixed capital (scenario forecast) (Growth (decline) rate of the main socioeconomic indicators, 2018; Investment in fixed capital by sources of financing, 2003; Investment in nonfinancial assets, n. d.).

As can be seen from Figure 4, an increase in investments in fixed assets occurred when investments in it through depreciation funds increased – a multiplicative effect of depreciation manifested. The authors used the method of forming scenarios to conduct a situational analysis (Abt et al. 1977). The forecasting period was taken as five years (due to an increase in error when exceeding the five-year lag) – 2018 – 2022 (since no official statistics for 2018 have been submitted at the time of writing the article). It seems reasonable to highlight two scenarios in the final form (Scenario A and Scenario B). If Scenario A is implemented, investments in fixed assets through depreciation charges are made in accordance with the identified growth rate within 19.32 % characteristic for 2005 – 2016, and if Scenario B is implemented, investments in fixed assets through depreciation occur annually with an increase of 20 % (Scenario A + 20 %).

It must be clarified that the main assumptions in forecasting are the following: a) calculations are relevant in 2017 prices; b) since the federal statistical bodies of the Russian Federation have not provided data on the share of depreciation in the structure of financing investments in fixed assets since 2011, and considering the sustained growth of the structural dynamics of investments due to depreciation, the figures for 2011 – 2017 were calculated using chain substitutions; and c) 2010 was taken as the reference year on the basis of calculating the average growth rates of investments in fixed assets through depreciation funds, which seems acceptable as a result of error analysis and mode detection in the respective time series.

As can be seen from Figure 4, a double increase in investments in fixed assets through depreciation leads to significant positive changes in the volume of investments in fixed assets in the economy in general. Meanwhile, an increase in the volume of investments in fixed capital through depreciation funds to a level close to 40 % does not contradict the practice of financing investments in developed countries, while allowing, all other things being equal, to increase the volume of investments in fixed capital by 8,399.7 bln rub. in the scenario forecast presented in this article.

For example, the volume of investments in fixed assets will increase to 6,335.6 bln rub. under scenario A, and up to 20,012.3 bln rub. under scenario B, while the volume of investments in fixed assets through depreciation funds will increase to 3,223.83 bln rub. under scenario A, and up to 11,404.2 bln rub. under scenario B. As such, the absolute increase in fixed capital investment for 2018 – 2022 due to the growth of depreciation as the source of their funding by 8,180 bln rub. will lead to an increase in investments in fixed assets in the economy as a whole by 13,676.7 bln rub., which proves the high efficiency and potential of depreciation funds as a source of investment financing and, all other things being equal, also the multiplier effect created by competent accumulation and consumption of depreciation funds able to significantly increase the innovation potential of the domestic economy and increase its competitiveness.

Conclusions

As such, depreciation is a mechanism that determines not only the investment potential of industrial enterprises and the possibility of their development, but also the economic development of society as a whole, and therefore the depreciation mechanism must correspond to the economic situation prevailing in the country. It should also be remembered that the amount of accrued depreciation can be a full-fledged source of financing only if the cost of the fixed assets used (capital investments made) is high.

In order for the depreciation policy to be a full-fledged dimension of the financial and investment policy of the state and industrial enterprises, the depreciation should regain its inherent economic functions – first of all, by restoring its reproductive function in full (Mazurina, 2012, pp. 22 – 23). The following is required for this:

- to reduce the time of using the equipment based on new technologies;
- to use nonlinear depreciation wider because nonlinear depreciation of objects is in some cases more advantageous than linear one with the current economic parameters. However, the decision on the possible accelerated depreciation of fixed assets for the mobilization of domestic resources should be based on the assessment of the limiting values of the coefficients of acceleration of linear depreciation in the framework of the pricing strategy chosen by the enterprise;
- to create a competitive environment that has direct impact on increasing the interest of organizations in the renewal of fixed assets in order to improve the quality and competitiveness of products and services provided;
- depreciation fund should be considered as a real fund of future capital expenditures; and
- to strengthen the control over the targeted use of depreciation resources, or form a special depreciation fund, which should be used strictly for the intended purpose.

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