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Characteristic of Economic Indicators of Reproduction of Fixed Capital

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ABSTRACT

Economic indicators of the enterprise, its measurement system, forms of material and production base and a comprehensive use of resource potential for the formation of the product and its production. Application of methods of planning and analysis of production activities and the organization of labor, the state of the art, the use of fixed and current assets, labor than dictated by the relevance of the chosen research topic, the consideration of the plan of the enterprise, as well as the study of progressive technical-economic forms and regulations. One of the most urgent problems of modern enterprises is the issue of reproduction of fixed assets, as well as maintaining levels of economic growth. Particularly acute problem is relative to the real economy, namely the “quality” of growth funds: are not converted form of production and not growth efficiency, rather weak component of modernized production activities, there is no growth of technical level of production. If will continue this trend, Russia still long time will remain in the raw materials of the shadow of their Western counterparts. Existing indicators of production (land, labor, capital) are essential factors, the main of which has recently become the capital, and is becoming increasingly popular. It is a measure of value of fixed assets, as well as the involvement of tools, technical content, production facilities and infrastructure.

JEL Classifications: D21, D23, D24.

Keywords: Economic indicators, fixed assets, fixed assets reproduction, fixed capital, depreciation, efficiency.

1. INTRODUCTION

The issue of renewal of fixed capital of the enterprise in the economy, which is based on market forms of management, which consistently updates a tired production base, to find solutions to large tasks, this problem is very complicated. In Russia, economic growth is currently achieved, as a rule, the export of raw materials, and in particular more volume of oil and gas (Misuño, 2005). In the period of lower oil prices, inflow of foreign currency into the country due to the Russian production has decreased significantly, and the domestic market for promotion of domestic goods and services is still underdeveloped. In the current difficult conditions for enterprises of processing industry which do not have enough funds for enhanced production and for working capital and upgrade equipment.

The methodological and theoretical basis of the study was examined and processed data monographs by Russian and foreign authors, research publications, the work of scientists in the field of reproduction of fixed capital of the enterprises. The study used General scientific methods of organize and fundamental approach, the mechanisms of generalization, integration, transition from theory to practice, analysis and synthesis.

2. FIXED CAPITAL OF THE ENTERPRISE

The production process at the enterprise assumes a complex of several factors of production: fixed assets, objects of labor, labor. The object of labor is a factor of nature, in which man acts in the process of production, or mastering in the process of intellectual labor information component (Andrianov, 2009). It is an element undergoing human impact, but is designed for post-processing, is the raw material.

The fixed capital of the enterprise is a component part of productive capital which is absolutely and not once involved in the process of production of goods, disbanded its value to the new product partially, in a certain period of time (Frolova & Kabanova, 2014). The fixed capital of the enterprise contains a portion of the advanced capital, it is allocated for the construction of buildings, infrastructure, purchase of machinery, equipment, tools, loan repayments (Figure 1).

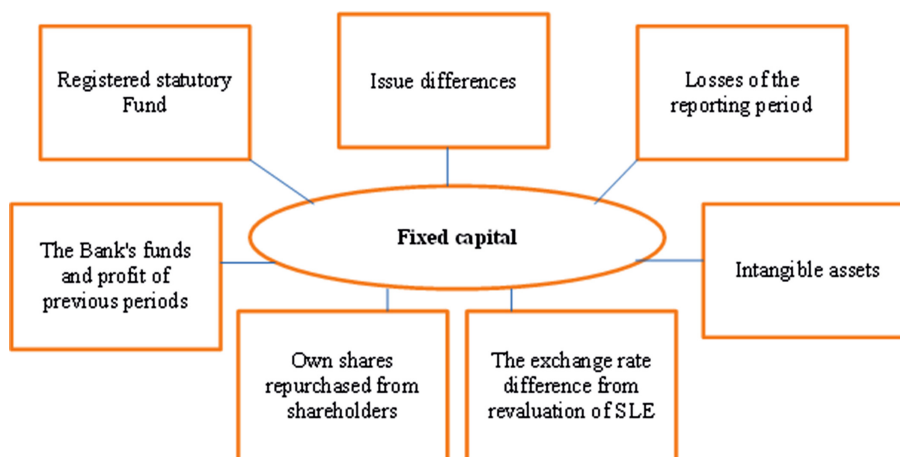


Figure 1: Fixed Capital

Fixed capital – the funds, expressed in monetary terms, involved in the fixed assets of the company. Capital goes through several stages:

1. Investing money in buildings, structures, equipment, and not in bonds or stocks.
2. Production – material form – transferring tools as they wear (physical or moral) for the product, the use of depreciation contained in the Fund's production costs.
3. Compensation – cost of revenue. Through these funds purchased new equipment.

The capital structure of the enterprise consists of two components:

1. Fixed assets (current assets) – fixed assets, long-term financial investments, intangible assets, construction in progress
 - on the land;
 - buildings and constructions;
 - machines, equipment, infrastructure, vehicles;
 - other types of fixed capital.
2. Working capital (current assets) – costs and inventories, receivables, short-term financial investments, cash
 - finished goods, cash and other types of working capital;
 - raw materials, fuel, capital, and intermediate inputs;
 - work in progress, and harvested their own foods.

Refer the means of labor to fixed assets of the enterprise is the term and the purpose of their application. In accordance with the current legislation of the fixed assets of the enterprise consider that the measures of labour with a set lifespan that is longer than one year, and is intended for production use.

Economic Essence of Fixed Capital of the Enterprise

The definition of “knowledge economy” formed the Austro-American scientist F. Maglipon in the 70-ies of XX century, and refers to a particular sector of the economy. Today, this definition, along with the terms “economy based on knowledge” and “innovative economy”, “economy of intelligence”, etc., are used to a certain kind of economy, it is knowledge allocate a crucial role, and the creation of knowledge remains the start of growth. The economy has several fundamental features (Borisov, 2009; Mindlin, Melnichuk, Lisichkina, Golovanova & Litvinova, 2016). One of them is the discreteness of knowledge as a commodity. This means that knowledge should be created, but no. Knowledge does not exist in isolation, it holistically.

Capital becomes the basis, from it economic activity of the enterprise. Since the purpose of the activity is profit, the main objective of the capital - his augmentation, and expansion of its reproduction.

The origins of the meaning of the Latin word “capital” had to do with architecture, AI is interpreted as “dominance”. In consequence the value of capital expanded and acquired several definitions – “major equipment”. Was defined as benefits that were used to increase the production of wealth. Kindred in meaning of the word “Foundation”, from the Latin, which means “support”. Then the word passed into the French language “Fund” and meant “capital”.

The concept and understanding of “capital” over time has undergone many changes and evolved depending on the formation of many diverse areas of economic activity.

Goal and fixed capital lies primarily in the formation of the part of productive capital. Along with this, the accuracy of fixed capital is not formed from the material means of labor, one can mention: long term, immobility and the duration of the operation, etc., and from this main role they take during labor and pricing. Karl Marx in his teachings said that “the means of labor, primarily, become the main capital, in the case where the process of production – capitalist production activities. If not, then they will by means of labor, at the same time will not be the main capital.

Table 1 presents the essential characteristics of core capital obtained from the learning research of I.A. Blank

Table 1
Characteristics of the main capital and its main aspects

<i>Aspect of fixed capital</i>	<i>Feature</i>
Fixed capital accumulation	Previously accumulated stock of the product and the supply of labor for a certain period of time
Fixed capital as a manufacturing power	The aggregate of capital goods, which are used parts that bring value to the finished product. The capital is characterized by the performance
Fixed capital as a source of income	Income is the formation costs it and application in business activities
Fixed capital as a source of self-reproduction	For normal process, the amount of depreciation corresponds to the actual part of means of labor in creating value
Fixed capital as an object of ownership	Ownership relations are implemented: the possession, disposal, use. Today, the company may dispose of capital, but not to possess it. That is, capital is the accumulated value
Fixed capital as the risk	Fixed capital becomes a source of income, using fixed capital as a productive resource to generate income, a company is a calculated risk, lower income
Fixed capital as liquidity	Fixed capital is characterized by its liquidity, i.e. it is sold at its market value

Classification and Valuation of Fixed Assets in the Enterprise

Fixed capital is a part of the capital funds that are involved in the production process, for several cycles, at the same time, costs are attributed to a number of periods and takes into account costs, but not fully and not immediately, and the established parts of the corresponding share of attention in the formation of good.

Economist J.S. Mill described fixed capital “high capital, which is reflected in the instruments of production and have a long period of existence, and also perform a set role in the production (Bashkov & Silnov, 2015), the function of capital is not completed in one-time use”. Capital, emerging in such a long form, and proceeds for a long period of time, is the main capital (Evans & Berman, 2012).

There are several criteria for the classification of fixed capital of the enterprise (Table 2).

The structural constituent of the fixed capital is also lease objects, land plots, as well as natural objects (water, land, mineral resources, etc.).

Table 2
Classification of fixed capital of the enterprise

<i>Classifier</i>	<i>Integral part</i>	<i>Feature</i>
By role in the value creation process	Active part	Part of the capital that participates in the creation of products is the means of labor - machinery, equipment
	Passive part	Funds that create a material platform for the production process: buildings, structures, transport, etc.
In terms of scope and purpose	Main production capital	<ul style="list-style-type: none"> – capital embodied in the means of labor; – is used to produce products that bring profit; – always participates in the production process; – depreciation deductions; – reimbursed after the entire production cycle
	Core non-productive capital	Capital, embodied in social infrastructure objects (cultural-mass enterprises, medical institutions, do not participate in the production process, do not extend their cost to the product
On the basis of industry	<ul style="list-style-type: none"> – Fixed capital of industry – Fixed capital of agriculture – Fixed capital of construction 	
On the basis of membership	<ul style="list-style-type: none"> – equity – borrowed capital 	

The structure of fixed capital is: production, technological and age (Vodenko, Polozhenkova, Matyash, Burmenskaya & Shvachkina, 2015).

- the production structure of capital is the ratio of the various groups of major productive assets in terms of real-natural content in an integral average annual price.
- technological structure of productive assets is determined by their separation in connection with technological specifics and is conditioned, first of all, by the novelty and the period of application of technologies.
- the age structure of productive assets is formed due to the distribution by age groups of their use: up to 5 years; From 5 to 10 years; From 10 to 15 years; From 15 to 20 years; More than 20 years.

A. Marshall, K. Marx, A. Smith in their works developed the idea that the introduction of human capital into the content of the capital stock becomes mandatory. Scientists noted that the expenditure of financiers on the training of specialists in this regard is compared with the remaining capital expenditure and at the same time is the structural basis of capital (Vasilyev, 2008). If you cover the topic of basic human capital, the author speaks about the formation of employees, their professional training, certification, where they accumulate the results of investment, for a long time, correlate their value for goods during the whole period of validity. Summarizing, “fixed capital” contains all the elements of the category.

3. DEPRECIATION AND AMORTIZATION OF THE FIXED CAPITAL OF THE ENTERPRISE

The fixed assets in the enterprise have a property to wear out. There are two types of wear: moral and physical. Otherwise they are called: economic and material wear. Physical depreciation is the material wear of production assets under the influence of the labor process and natural factors. This type of wear occurs during the period of their use or when it is not used. Combines the types of wear and tear that the

fixed assets with time lose their technical and economic properties. A distinctive feature is the methods of cost recovery. Physical depreciation depends on the degree of stress on the funds, the quality of care, the qualifications of employees, etc. Physical depreciation is characterized by two methods:

1. by the service life of the fixed asset;
2. according to the study of the technical condition of fixed assets.

Along with this, the physical wear of all the elements is established separately, and subsequently the average wear index of the object as a whole

Moral wear and tear is the mismatch of fixed assets to the current level of technology, a reduction in the technical and economic feasibility of their application. Moral wear is characterized by a loss of economic efficiency and the need to use before the time of physical wear. Moral wear is characterized by two methods:

1. Lowering costs while reducing the costs of formation in the process of increasing the productivity of the industry;
2. Early depreciation of existing fixed assets upon commissioning (Getman, 2011).

Amortization is a reimbursement of depreciation in monetary terms, the main mechanisms, by keeping the share of their value in the cost of production. Therefore, depreciation is a monetary measure of physical and moral depreciation of fixed assets. The measures of depreciation are noted as a percentage of the book value of the main groups of funds. As a rule, these norms are often set on machines and equipment, as well as the types of work that these mechanisms perform in different industries. The method of uniform determination of depreciation is used when the spheres bring the same profit to all gaps (Lermontov, 2010).

The formation of favorable conditions for production, the achievement of scientific and technological progress, enterprises use the method of accelerated depreciation. In this case, the amount of depreciation is taken into account at the beginning of the life of the facility. In the process of applying and shifting the service life, the percentage of depreciation is reduced. This process is carried out to prevent costs during the inflation period.

There are several methods for calculating depreciation:

1. linear depreciation - assumes uniform wear and tear of fixed assets;
2. at residual value. Amortization is charged as a fixed percentage of the value of the main fund.
3. mixed. Replenish part of the difference between the original and the residual value.

The amount of the amount that is allocated to depreciation is reflected as a percentage of the original value of each type of fixed assets, and is characterized by the depreciation rate (Dr) and is calculated by the formula:

$$Dr = \frac{Iv - L + C}{Fa \cdot Sl} \cdot 100\%$$

where, Fa – The initial value of fixed assets;
L – Liquidity of fixed assets, their value;
C – Costs associated with liquidation;
Sl – Service life of fixed assets.

Depreciation of Fixed Assets of the Enterprise, Types of Depreciation

The fixed assets of the enterprise have a certain period of service, which, as a rule, is determined by several years, later the funds are subject to replacement, as they are physically and morally deteriorated.

From the definition of depreciation of the fixed assets of the enterprise it follows that in this process the funds lose in full or in part the consumer properties and costs, this process can be carried out both in the process of active operation and in inactivity.

There are two types of depreciation of fixed assets in the economic practice, which are reflected in Figure 2.

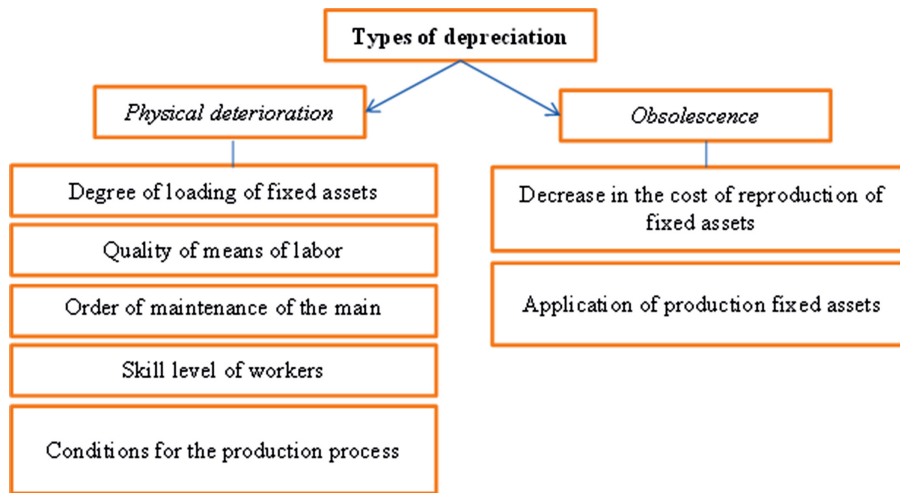


Figure 2: Types of depreciation of fixed assets of the enterprise

As stated above, there are two types of depreciation of fixed assets. Physical wear and tear - loss of fixed assets of their technical characteristics. Such wear is divided into operational (due to production consumption) and natural (under the influence of natural factors). The level of physical wear depends on the degree and conditions of operation, the qualifications of personnel, etc. Moral wear becomes the consequence of scientific and technical progress.

Obsolescence has two forms. The first (F1) of them is associated with a reduction in the cost of reproduction, with the improvement of machinery and equipment, and with an increase in labor productivity. The second form (F2) is characterized by the creation of perfect and economic funds. The use of obsolete technology becomes economically unprofitable (Adamov, 1997).

The depreciation of fixed assets reflects the depreciation of fixed assets, i.e. To what extent they are financially equipped with their possible future change in the degree of wear and tear.

At present, more and more often at enterprises there is an increase in the life of machines and equipment. In the electronics industries, nuclear engineering, space equipment, the shortest equipment life is observed, and it is several years old. In the mining and metallurgical industries, the moral wear of equipment is much longer.

At all enterprises, the period of physical and moral depreciation of fixed assets must be managed. The main strategic goal of such management is to prevent strong physical and moral depreciation of fixed assets, mainly – the active part, this will lead to negative consequences in the enterprise.

Indicators of Reproduction of Fixed Assets

The mechanism of reproduction of the fixed capital of the enterprise forms the basis of vital activity and productivity of production. Its movement is regulated and coordinated at all stages of management of economic activities. The methodology of reproduction of fixed capital is characterized by the optimal economic conditions of its price, which is fixed in production, completely restored, provides an opportunity for continuous technical renewal of the means of labor.

The main reproduction parameters of the expression of significant funds are the data of their growth, renewal and loss. The coefficient of growth reflects the growth of the fixed capital of the enterprise for a certain period and is calculated as the connection of newly connected fixed assets to the value at the beginning of the period.

There is an estimation of indicators of reproduction of fixed assets:

1. Initial cost – costs associated with the construction, delivery and installation of equipment and other costs that are associated with the commissioning of facilities. The initial cost is recalculated when there is a reconstruction or modernization.
2. Recovery cost – the price of acquired fixed assets at the present time. That is, the amount of money that could be spent on acquiring or forming now.
3. Residual value – the real value of fixed assets, net of depreciation costs.

Reproduction of fixed assets of the enterprise is a constant process of their depreciation through the development of new, reconstruction, technical re-equipment, modification and overhaul, which includes the main interrelated stages:

- Creation;
- Consumption;
- Depreciation;
- Recovery and reparation.

Indicators of the Effectiveness of the use of Fixed Assets of the Enterprise

When accounting and formation of fixed assets, the state sets one for classification. The means of labor are grouped according to types, groups, subgroups, in the spheres of the national economy and in the fields of activity; this enables them to be identified by types, encrypted, and organized by unified measures of accounting and reporting. With the scientific and technical progress, the economic and depreciation policies of the state, the systematization of fixed assets is regularly reviewed.

There are a number of indicators of the effectiveness of the use of fixed assets of the enterprise:

1. Effectiveness of the use of fixed assets determines the indicator - return on assets, calculated by the formula that considers the ratio of output to the average value of funds.

The economic effect of increasing the level of application of fixed assets remains the growth of social productivity of labor. The return on assets reflects how much the enterprise receives from each ruble that its fixed assets hold.

2. Capital intensity is the reciprocal of the return on capital, this is the average amount of production fixed assets at the initial cost, which is divided by the volume of output.

The capital intensity shows how much fixed capital is needed for each ruble of finished products. When the use of fixed assets improves, the return on assets should increase, the capital intensity on the contrary is decrease.

3. Stock-equipping is used to determine the degree of equipping the work of employees.

To increase the productivity of production, it is necessary to ensure a faster growth of production in relation to the growth of fixed assets.

4. PROBLEM OF RENEWAL OF FIXED CAPITAL IN RUSSIA, ANALYSIS AND EVALUATION OF OPPORTUNITIES

To the XXI century there is a certain structure of the basic capital in all regions of Russia, the tendency of the location of the productive forces that characterized the economic and geographical characteristics and historical and cultural heritage. In the reform period of the 90s of the XX century, all Russian regions have been changes in the volume and structure of fixed capital.

To enhance the fixed capital of Russian enterprises need to overcome a number of problems, the main ones are:

- technical and technological reorganization and modernization of priority sectors, promotion of infrastructure projects, attracting investment, significant reduction of wear of fixed capital;
- overcome resource and technology restrictions, such restrictions have had a negative impact on machinery, equipment and technologies, contribute to their early aging; reorientation of production.

From the statistical material shows that in 2013 the consumption of fixed capital in Russia amounted in the field of construction is 39.2%, in the transport sector, 50.7 percent (Kamaev, 2012).

The weakest region in the matter of wear of fixed capital in industry is the far East – 44.1% Siberian 47.4 per cent of the Federal district. In the transport sector: Urals Federal district – 46,4%, far East – 48,4%, the Siberian district – 50,2% (Sheremet & Negashev, 2003).

However, there are positive trends were produced for commercial and industrial re-engineering, reorientation of fixed capital on the production of competitive products, activated technical equipment of enterprises in industries whose products have wide demand in the market; increased production rates of the main engineering infrastructure; in the regions began the work of resolving technological imbalances.

To achieve a positive effect it is necessary to provide sufficient innovation, to apply the achievements of modern science and technology, and intersectoral reallocation of capital in a more promising industry.

To form a positive for the market economy of the full age of capital, its professional structure, which will form a competent level of competitiveness of production in the Russian regions need a policy of depreciation of productive capacities.

The likely multiplier effect of technological progress, which forms the result of a process in which the selected “start point”. Technological community, which is formed in connection intersectoral action and having the right amount of internal development prospects that is based on the intellectual level, the ways of its improvement.

5. CONCLUSION

In the modern Russian economy the technological revolution and the progressive development of the intellectual knowledge gain great influence for the production, consolidation and application of the core capital of the enterprise.

Summarizing all the above, we can assume that the fixed capital of industrial enterprises is the economic category of ownership, and reflects special features of the education stock of the productive resources. The activities of such enterprises over time, with partial redistribution of the value on new goods and services, shapes the process of updating the form value and in the period of productive use – is the measure of permanent income businesses.

The real sector of the Russian economy needs to increase the level of investment for enhancement of production and growth working capital and renewal of fixed capital.

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