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REPLACEMENT OF FIXED AND WORKING CAPITAL IN THE NATIONAL ECONOMY OF THE USSR

The method by which fixed capital is replaced in the national economy of the USSR differs from the method of replacement of working capital. Full replacement of fixed capital becomes necessary only after that capital has been in use for a number of years. Individual parts of machinery and other elements of fixed capital may have to be replaced at more frequent intervals, but by and large, the expenditure of fixed capital proceeds in gradual stages and over long periods of time.

Working capital, on the other hand, is fully used up during a single production cycle and must, therefore, be completely replaced after that period.

This difference in method of replacing fixed and working capital is one of the factors determining the volume of the social product which goes for replacement of the means of production.

Let us consider the main factors determining the absolute volume of fixed assets retired, and therefore the absolute volume of the social product which goes for replacement of retired assets. The first factor determining the absolute volume of fixed assets retired is the total volume of the national economy's fixed assets. The greater the volume, the more will be retired, and the more replacement parts will be needed. The second factor is age. Other things being equal, the greater the proportion of new equipment in total assets, the less equipment will be retired. Under socialism, the proportion of new equipment is much higher than under capitalism. In the 10-year period 1928 - 1937, about 90 percent of the fixed assets of socialist industry of the USSR were created anew, and during the same period Soviet agriculture received quantities of new heavy machinery.

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This intensive rejuvenation of fixed assets of the national economy resulted in a sharp reduction in depreciation due to physical wear. In Soviet industry depreciation of fixed assets due to wear was 34.8 percent in 1928, 21.2 percent in 1932, and 13 percent in 1937. The volume of fixed assets retired because of age and wear amounted to 1.6 percent in 1931, 1.4 percent in 1932, and 1.5 percent in 1933 (Sotsialisticheskoye stroitel'stvo SSSR, 1935, p 22), and was approximately the same in subsequent years.

The third factor determining the absolute volume of fixed assets retired is the durability of the assets, which in turn depends upon the materials of which they are made. The longevity of fixed assets as a whole depends on the proportion of long-wearing to short-wearing equipment in each branch of industry.

In modern electric power plants, for example, the life of foundations averages 50 years; of cables, 40 years; of buildings, approximately 30 years, and of iron poles and copper wire, also 30 years. Power machinery lasts 10 years; hydroturbines 20, distributing equipment 15, and wooden poles 20. The average life of industrial buildings is 60 years, and that of machines for the production of cement, fire clay, and glass is 12-16 years.

Not only does the proportion of long-wearing to short-wearing equipment differ in different branches of industry, agriculture, and transport, but the proportion of buildings, power installations, and machinery in total value is also different. In agriculture the value of buildings and other constructions occupies a smaller share in the total value of fixed assets than in industry. In railroad transport the proportion of constructions other than buildings is very large. With respect to USSR industry as a whole, in 1937 the share of buildings in the total value of fixed assets was 30.6 percent; of other constructions, 21.5 percent; of power installations, 9.4 percent; and of machines, 24.1 percent. In ferrous metallurgy these proportions were 25.8, 33.1, 9.6, and 20 percent, respectively; in the coal industry they were 11.1 55.2, 5.3 and 15.4 percent; and in the textile industry they were 39, 6.3, 9.3, and 37.7 percent. Irrigation and reclamation installations compose a very important part of fixed assets of agriculture in some areas. In certain branches of industry and in transport such long-lasting constructions as embankments, bridges, tunnels, subways, etc., are of great importance.

There is no doubt that the structure of the national economy exercises a certain influence on the volume of the social product which goes each year for full replacement of the expended means of production and transport. Two opposing forces are at work. The increase in the relative share of heavy industry and therefore in durable permanent constructions causes fixed assets as a whole to wear out more slowly. On the other hand, the rapid increase in the use of tractors, trucks, truck-tractors, and trailers, which wear out quickly (within 6-7 years), has the effect of accelerating the retirement of fixed assets.

The fourth factor determining the volume of fixed assets retired is the degree of utilization of equipment. Intensive use naturally makes the equip- wear out faster and necessitates more frequent replacement of parts.

The fifth factor determining the volume of fixed assets retired is the rate of technical progress. The more opportunities there are for introducing new equipment, the faster old equipment will become obsolete and have to be retired. In the history of society this has always been connected with the social organization of production. While there is technical progress under capitalism, there are forces in it which retard the rate of this progress, which retard the introduction of new, labor-saving machinery. These retarding forces are not present in a socialist society, and in fact, a socialist society is dedicated to saving labor by the introduction of labor-saving machinery and the replacement of outmoded equipment with technically more efficient equipment. Also, a socialist society can plan the best time and place to introduce new machinery.

A socialist society, planning its economic development, has to decide the proportion of new machinery which is to go for increasing the means of production.

When there is no shortage of labor, the economy can be expanded faster by using new machinery primarily to expand the productive apparatus. This will mean that in certain production sectors (usually secondary), relatively obsolete machinery can be employed along with new equipment.

There is a limit to the use of obsolete but serviceable equipment, however, even as a source of additional production. If labor is short, and old-fashioned equipment prevents an increase in labor productivity, then the old-fashioned but serviceable equipment must be replaced by equipment more saving of labor. The workers released by the use of the new equipment can then be used in new industrial enterprises.

If a shortage of fuel and raw materials is retarding the rate of expansion, then not only must the production of fuel and raw materials be increased, but old-fashioned though serviceable equipment must be replaced by equipment more economical of fuel and raw materials. Thus, remodeling Soviet blast furnaces resulted in less expenditure of coke per ton of pig iron and remodeling of power facilities in industrial enterprises and railroad transport resulted in a considerable saving of fuel.

Thus the more machinery produced and the tighter the supply of labor, fuel, and raw materials, the less can old-fashioned though serviceable equipment continue to be employed efficiently.

With respect to the distribution of modern and less modern equipment, the most efficient arrangement is to use the more modern equipment in the most important branches of the national economy, and the older equipment in the less important branches. When new equipment is introduced into the more important branches of the economy, the equipment it replaces is transferred wherever possible to enterprises using still more old-fashioned equipment, or to enterprises in which work is done mostly by hand labor. Thus, it is more efficient, from the point of view of rapid expansion of the economy, to employ prematurely retired power machinery in reserve thermal stations operated in conjunction with hydroelectric power stations than as independent thermal stations. Less modern locomotives should be used where the load is less, and less modern machine tools should be used in repair shops and other shops where too much work is not required of them.

Economy in the amount of social labor employed per unit of product can also be achieved by proper territorial distribution of modern and less modern equipment. New equipment economical of raw materials, fuel, and labor must be introduced first in areas removed from sources of raw materials and fuel and in areas short of labor.

Prematurely retired machinery can also be used in local industry and industrial cooperatives to increase production in that sector of the economy.

As a result of such planned distribution of equipment, possible only under socialism, there is a steady rate of technical progress and a steady increase in the productivity of labor throughout the national economy, including those enterprises employing equipment transferred from other enterprises for reasons of obsolescence.

So far, we have been considering only fully replacement of outmoded equipment by new equipment. There are other forms of replacement, that is, replacement of worn-out parts, and modernization of existing equipment. Modernization is equipping existing machinery with attachments which make it more productive.

There are economic limits to modernization and repair. Modernization and repair are not expedient when more labor is expended on them than would be expended in the production of a new machine.

Thus, in socialist production, the absolute volume of fixed assets replaced depends not only on the retirement of whole machines and other fixed assets but also on the rate of wear of parts, and on the use of attachments to modernize machinery.

During the war new technological processes were developed in several branches of industry. The technological level of war industry, especially, was raised. What was learned here must be passed on to civilian goods industry. In many enterprises reconverting to production for peacetime needs, outmoded machinery is being replaced in full by modern machinery, or is being modernized. This postwar process of re-equipping industry with new machinery is made necessary by a shortage of labor and of certain kinds of raw materials and fuel. Equipment retired before it is physically worn out should be used to accelerate the reconstruction of the national economy and especially to develop small-scale industry and industrial cooperatives.

The re-equipping process is being carried out on a still wider scale in the restoration of enterprises wholly or partially destroyed during the war. New inventions, discoveries, and improvements are being introduced. The restoration of ferrous metallurgy in the south will result in a considerable increase in technical level and productive capacity. The same is true of the coal industry of the Donets Basin and of other branches of industry.

Let us consider the way in which the replacement of fixed assets is financed under socialism. The price of goods sold by a socialist enterprise, if the enterprise is not being operated at a loss, includes the annual depreciation of the enterprises' fixed assets. This depreciation has been fixed by Soviet law at 5.5-6 percent of the original cost of the assets. (See Decree of the Council of People's Commissars USSR of 8 January 1938 entitled "The Utilization of Amortization Deductions and the Improvement of Repair in Industrial Enterprises," Pravda, 9 January 1938.) The monetary form of this depreciation constitutes the amortization fund of the national economy.

In a situation in which the volume and value of fixed assets remained constant, amortization would be equal to the value of the fixed assets retired each year. However, in a rapidly expanding socialist economy, where the volume of fixed assets in operation increases every year, amortization charges for any given year amount to considerably more than the restoration cost of fixed assets being retired. Thus, if, in a given year, the total value of fixed assets is 100 billion rubles, amortization charges are 5 percent of that figure, i.e., 5 billion rubles, and assets retired amount to 2 percent of the total value of fixed assets, i.e., to 2 billion rubles, then 3 billion rubles of this amortization fund will not be used for replacement of fixed assets in that year. This means that the latter sum, which will eventually be used for replacement of fixed assets, can serve for some time to come as additional capital.

The 8 January 1938 decree cited above leaves only part of amortization deductions (40-65 percent), i.e., the special fund for capital repair, at the disposal of enterprise directors. The rest, which in a few years will be used for full replacement of fixed assets, goes through the Industrial Bank of the USSR (Prombank) for central financing of the corresponding ministry's capital construction.

The case of cooperative ownership of the means of production is different. When the means of production belongs not to the state, but to a cooperative, not only working capital, but the entire amortization fund, is at the disposal of the cooperative. Money to finance replacement of fixed and working capital of cooperative and collective-farm enterprises is obtained from the sale of production, although part of working capital may be in the form of state credit. This decentralized process of replacing the means of production in cooperative and collective-farm enterprises does not mean, however, that this replacement is unregulated. The socialist state sees that the process of replacement of the means of production on collective farms and in craft artels is in line with the national plan and that there is normal replacement.

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