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Analysis of the Behavior of Variable and Fixed Costs as a Tool for Operational CPV-Analysis

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ABSTRACT

The article considers the importance of the operational analysis in the division of costs into fixed and variable, since the presence of such groups of costs provides an objective assessment of the effectiveness of enterprises. This necessitates the disclosure of the essence of variable and fixed costs, the study of their ratio, as well as their impact on the cost of production.

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In the practical activities of business entities special attention should be paid to the division of costs into fixed and variable. The value of this division is to simplify accounting and increase the speed of obtaining data on profit. On it is based the majority of calculations on optimization of a parity "costs - volume - profit", the problem of maximization of weight and its gain at the expense of relative

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reduction of one or another expense is solved, the choice of system of the account and calculation of the cost of production is provided. Also, this division allows for an analysis of marginal profit in the enterprise as a whole and by individual types of manufactured products.

Fixed costs in the sum does not change with changes in the level of business activity, they are relatively constant, but, calculated per unit, change with changes in the level of production. The concept of fixed costs means that they do not automatically change with changes in production volumes or, which in this case means the same thing, with changes in the level of capacity utilization. In this regard, the concept of fixed costs is more applicable to periods within the year, when the composition and level of use of production capacity of the enterprise and its structural units do not change significantly. At the same time the decision to increase these capacities is always associated with the need for additional capital investments, and therefore, fixed costs. The accountant-analyst should know what should be the marginal value of their growth for the investments to be effective. At the same time, capital investment decisions have long-term consequences that extend beyond the year and affect the costs and performance of future periods.

Fixed costs for analytical purposes are divided into the following groups:

- fully fixed costs - these occur even when the company is not operating, such as security costs, rent, interest payments on previously obtained loans;
- fixed costs of sustenance - these are incurred only when the business is in operation, for example, lighting costs, wages and salaries of management personnel;
- conditionally-constant costs - these are costs that remain constant until a certain volume of production is achieved. When the level of business activity changes, these costs change in leaps and bounds. This is the case if the capacity utilization is 100%, and the market capacity requires an increase in production volume. In practice, total fixed costs change under the influence of inflation, revaluation of fixed assets. These costs are constant for a certain volume of production, then increase sharply and remain constant again for a certain interval.

Fixed costs per unit of production are determined by dividing the total fixed costs of a given period by the number of units of production or sales in the same period.

The share of fixed costs is higher in capital-intensive industries, such as mining and heavy industry, due to the nature of their activities. The nomenclature of fixed costs cannot be uniform for all sectors of the economy and should be specified taking into account the specifics of activity, composition of production costs and the order of their attribution to the cost of production. The increase in fixed costs is associated with the growth of production capacity and occurs at the expense of capital investment and additional attraction of working capital. Decrease in absolute value of fixed costs is achieved on the basis of production rationalization, reduction of expenses on management, sale of surplus fixed assets.

An important aspect of the analysis of fixed costs is their division into useful and useless (idle). The concept of useless costs was introduced by O. Bradt. This division is associated with a jump change in the majority of production resources. For example, if the machine is idle, then the useless costs are 100%, and the value of useful costs is 0. As the machine load increases, the useless costs will decrease, and useful costs will increase. When the machine is fully loaded, the useful costs will be 100% and the idle costs will be 0.

Under the conditions of increasing scientific and technological level of production, frequent change of products, increasing their qualitative parameters under the influence of competition and other market

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factors, the share of the fixed part in the total production costs increases due to the use of new equipment, accelerated depreciation, etc. A high share of fixed costs in their total amount may also indicate a weakening of the flexibility of the enterprise. If the enterprise's income decreases, fixed costs are difficult to reduce. And if the company decides to diversify production, to move to another area of activity, it will be quite difficult both organizationally and financially.

Variable costs in total change in direct proportion to changes in the level of business activity, but calculated per unit of production remain unchanged

From the point of view of assessing the financial and economic activity of the enterprise variable costs should be considered as costs that characterize its business activity. The higher the business activity of the enterprise, the higher the value of variable costs. Fixed costs, as a rule, are irrelevant (insignificant). However, there may be situations when fixed costs may have the character of relevant, that is dependent on the decisions taken. For example, if a firm leases premises to sell its products, it must make certain rental payments during the term of the lease agreement, regardless of what decisions on prices, volumes, and other aspects of activity will be made. In this case, the rent acts as a non-relevant cost. However, at the end of the lease term, its terms will be renegotiated in terms of rent amount, lease area, if management concludes that the rent price is too high for the sales volume of the products produced in the leased space. It may even be decided that it is inexpedient to produce these products and, accordingly, refuse to rent. Thus, fixed costs in the form of rent will change depending on the chosen option of management decision. The share of variable costs in the manufacturing industry is quite high due to the peculiarities of their activities. Variable costs arise with the beginning of the production process and are reduced to zero when it ceases, in contrast to the fixed costs that exist since the creation of the enterprise, regardless of the production and sale of products.

Thus, variable costs characterize the cost of the product itself, and constant costs characterize the cost of the enterprise.

Semi-variable costs, as a rule, have in their composition both fixed and variable cost components. This means that some of these costs change with changes in production volume, while the other part remains unchanged. An example is the cost of telephone services, where one part includes the subscriber fee (fixed costs) and the other part includes the number and duration of long distance and international calls (variable costs). For management accounting purposes semi-variable costs are analyzed by their components in variable and fixed costs. In practice, it is desirable to conduct a more in-depth specification of the variable costs of the enterprise. It is necessary to allocate the following variable costs: production; general production costs; general business costs; commercial costs, etc.

Variable costs, as a rule, are relevant (essential). At the same time it is possible situations when variable costs act as irrelevant. For example, an enterprise has previously purchased inventories of materials that cannot be sold and are not used in production. This means that regardless of whether or not a product is produced, the amount of material costs already incurred will not change.

Many types of expenses may be considered variable for some enterprises and constant for others, e.g. the wages of production workers in one organization may be charged for the time worked (fixed costs), and in another - for the amount of work performed (variable costs). The same can be observed with respect to advertising costs. These costs for a particular product will be direct costs for that product, while enterprise advertising costs are indirect costs for the various products of that enterprise. The list of variable and fixed costs is different for each enterprise, but the criterion of classification is the same - the dependence, or independence from the value of production volume. Moreover, based on the

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changing conditions of activity, it is necessary to review the costs each time, because even for a single enterprise it is impossible to make a list of variable and fixed costs once and for all. For example, even if the enterprise does not work, it still has to pay interest on borrowed capital (these are fixed costs). These same costs will already be variable if the decision-making situation changes, let's say the sale of the enterprise is contemplated.

The basis for estimating cost behavior is based on assumptions. In particular:

- cost behavior is analyzed in the relevance domain;
- the linear function adequately reflects the dynamics of costs in the relevance area;
- fluctuations in the overall level of costs are caused by changes in a single variable.

In the theory of cost classification into fixed and variable, there are two approaches to the study of their behavior: microeconomic and accounting .

The majority of Russian and foreign authors, who develop the topic of cost behavior, highlight these very methods.

It should be noted that the most practical and popular in the activities of enterprises is the accounting approach. The microeconomic approach implies the consideration of many factors. A simplified division of costs into the above groups and graphical representation in the form of a straight line is unacceptable. The cost line according to this approach is a curve. As notes S.A. Nikolaeva, researches of behavior of expenses from positions of microeconomic analysis have mainly theoretical character, and by virtue of complexity and small practical applicability they have not received wide circulation.

Differences between accounting and microeconomic approaches to the behavior of production costs are significant when it comes to the cost line from zero to maximum production volumes. If one is concerned with cost changes within the practical limits of changes in production volume, the differences are minimized here, since for practical purposes the cost curve at each site can be viewed approximately as a straight line. In this approach, the graph and the cost line lead to a subdivision of all costs into constant and variable parts.

Cost behavior analysis is a process involving the following steps:

- selecting the dependent variable y focuses on its future use in decision making. Suppose the goal is to predict the indirect costs of the production unit. In this case all costs collected in account 25 "General production costs" are combined in y, if all components of the dependent variable have similar relationships with independent variables;
- selection of independent variable x (production volume);
- formation of the database. This stage is rather complicated, as the creation of such a database should be based on the results of a large number of observations under unchanged technology and economic conditions, leveling the influence of inflation;
- selection of method of differentiation of expenses on constant and variable parts;
- total amount of production costs is divided into variable and fixed costs. In this case it is necessary to determine variable (depending on the needs of the organization and the range of products) and fixed (based on their share in the whole) costs by product groups, by products, per 1 ruble of market prices, etc;

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- graphic representation of data. It reveals the relationship between the dependent and independent variables, sifts out uncharacteristic data, clearly defines the boundaries of the relevant area of the cost function. Along with this, the graphical method of cost behavior provides accessibility of perception; interpretation of forecast and other data necessary for planning;
- drawing up a cost equation, which determines the dependence of changes in total costs on changes in production volume.

As we can see, the arsenal of methods for differentiating costs into fixed and variable is very diverse, and it is difficult to give clear preference to any one method. In this case we should proceed from the specific circumstances and opportunities, as well as the disadvantages and advantages of each of the above methods.

Proponents of the development of the classification of costs into fixed and variable are based on the position that the errors arising from the conventionality and relativity of this division are much smaller than the information losses that can be incurred by ignoring it.

The practical usefulness of dividing costs into fixed and variable is in their application for management purposes, and, above all, for assessing the efficiency of an enterprise, analyzing its break-even, flexible financial planning, and making short-term management decisions.

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