

Methods of Calculating the Cost Of Products and the Possibility of Their Application In the Modern Economy of Uzbekistan

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Abstract. The article explores the traditional methods of costing in comparison with advanced foreign methods of cost accounting and costing. Particular attention is paid to the features of the organization of accounting and costing in industries. The influence of cost accounting and calculation methods on the formation of the market (contractual) price of enterprise products is studied. Scientific suggestions and practical recommendations on improving the rational organization of cost accounting and accurate calculation of production costs are given.

Keywords: Calculation of the cost of production, methods of calculating the cost of production, job-order method, process-based (cross-cutting) method, normative method, Standard-costs method, Direct-costing method, Just in time method.

I. INTRODUCTION

Scientific basis of cost accounting - is a prerequisite for the correct pricing of products, which are the most important economic means of influencing and production development and increasing its economic efficiency.

Product cost determination is interconnected with the organization of cost accounting for production and is an integral part of planning production expenses.

The calculation of the cost of production for pricing should provide the most complete and accurate reflection of the costs of living and materialized labor for each type of product, a separate account of all those costs and payments that are included in the cost of production, but not the actual production costs, do not have direct costs to them relations, full comparability of the composition and content of cost elements in different industries and at different enterprises.

Calculation of expenditures and cost accounting of products (works, services) should be based on advanced standards equipment load, consumption of raw materials, fuel, energy, and labor costs and rely on production program of this enterprise productivity enhancement.

II. LITERATURE REVIEW

The English scientist Drury K. believes that the choice of one or another calculation method depends on the cycle and production technology. In this regard, in his work, special attention is paid to accounts in the system of order-based costing and post-process costing of production costs [1].

Scientists-economists Kerimov V.E., Selivanov P.V., Kryatov M.S. investigated the organizational aspects of management accounting according to the Standard-cost system [2].

Schuplova M.A. in his scientific works pays particular attention to the general and particular features of the Standard-cost system and the normative method of accounting for production costs [3].

Theoretical issues of Applying of artificial intelligence in the textile industry were researched by Ergashxodjaeva, S. J. and et.al. [8], Yuldashev N.,Tursunov B. [9] and others.

Methodological principles for the development and improvement of assessment methods were investigated by Ibragimov, I. U., & Tursunov, B. O. [10] and others. Features of Investment in Mutual Fund were investigated in works of Burkhanov Aktam and others [11].

III. ANALYSIS AND RESULTS

The economic essence of the category of “calculation” consists not only in accounting and analysis of aggregate total costs, but also in calculating the cost of the whole production and unit of product. In addition, the calculation of the cost of production requires the organization of cost accounting for production processes, types of products and cost centers (unit, team, site). In this case, special attention should be paid to the reliable accounting of costs and the assessment of work in progress, to spoilage in production, as well as to waste and by-products. All this is achieving by the right choice of systems and methods of cost accounting and output cost determination.

Practice shows that while the calculating the cost of production, the actual costing data is compared with the planned indicators of the business plan or the production program of the enterprise. At the same time, the actual costing is the necessary information for calculating the planned cost of production and budgeting for production costs, i.e. as a benchmark in the future.

In all industries, the object of calculation is the products of these industries. Features of the technological process of production affect to the formation of cost objects and determination to the method of product calculation.

The calculation object covers the entire volume of the various product ranges, and the calculation unit accounts for the distributed costs of only this product.

By frequency calculations can be grouped into the following types: planning and reporting. Planning cost estimates have several varieties, such as design, estimated and normative cost estimates, which are compiled before production. Reporting cost estimate is usually making after the release of finished products.

In the calculation process, the choice of one or another method of calculating cost is important. The calculation method is a set of various techniques and methods used to determine the cost of specific products of the enterprise units, taking into account the characteristics of technological conversions and processes.

In mass and batch serial productions, the selection of calculation method depends on the object of cost accounting (by parts, products, groups of homogeneous products, processes, repartitions), in individual and small-scale production - by orders.

Until now, there is no generally accepted classification of methods for calculating the cost of production in the sectors of the country's economy; moreover, there are no branch instructions (internal standards) for describing one or another method of calculating the cost of production, which necessitates the immediate development of such important regulatory documents for the purpose of market pricing and strengthening financial situation of enterprises. Experience in the application of calculation methods shows that mainly in practice, enterprises use the following methods cost calculation: standard, alternate, customized, processes and direct costing.

According to Drury K., the process of cost formation in the order calculation system involves the distribution of costs for each individual customer's order, since each order is unique and requires different labor, material and overhead costs.

The system of process-based calculation of production costs is used in industries with serial production of products, when identical products go through a certain sequence through all stages of production, called processes, for example, in the chemical, cement, oil refining, paint and textile industries [1]

Professor Pardaev A.Kh., recognizes the existence of traditional methods of calculation and also notes the usage in some foreign countries of the methods of weighted average cost and ratios. [4]

The normative method of accounting for production costs and calculating the cost of production is used in manufacturing industries with mass and serial production. The essence of the method is as follows: certain types of costs of production are taken into account according to current standards provided by regulatory estimates; separately keep operational records of deviations of actual costs from current norms, indicating the place of occurrence of deviations, the reasons and perpetrators of their formation.

The actual cost of production is determined taking into account deviations from current standards and changes in current standards:

$$C_a = N_c + D + C_h, \quad (1)$$

where: C_a — actual cost of production;

N_c — standard costs;

D — deviations from standard costs;

C_h — changes in standard costs.

Using this formula, we can calculate the actual cost of production without waiting for the end of the reporting period, thereby making it possible to influence the formation of cost in the current process, which is an important factor in managing costs. Deviations from the norms and changes in the norms can be attributed to a specific type of product directly, if they are similar.

In our opinion, introduction of the normative method for calculating the cost of production requires a properly organized and well-established normative base, which should include approved norms and standards, estimates, standards, reference books, tariffication, laboratory measuring instruments, etc.

It should be noted that in accounting studies there are interpretations of comparing customized, processed and regulatory calculations.

American scientists Horngren C.T., Foster J. consider the relationship of calculation methods, especially, aspects of the JIT accounting system used in Hewlett-Packard. At the same time, they note the absence of a separate “Materials” account, the lack of orders and detailed accounting for the movement of basic materials, and labor costs for operations. They argue that the Standard-Cost method is widely used in practice together with any system in calculating the cost of production [5].

Currently, the direct costing method is applied at industrial enterprises of the Republic of Uzbekistan, which involves the separation of costs into variables and fixed. The essence of the Direct Costing method is that the cost is planned and taken into account only in terms of variable costs. Fixed costs are calculated for all products and under the name "Costs of the period" are accumulated in a separate synthetic account. They are not included in the calculation and are debited by the total amount to financial results to account 9100 “Accounts for the cost of sales of goods (goods, works, services)”.

In 1936, the American economist D.Ch. Harrison developed the Direct Costing system. It began to be used in the USA in 1953, after the recognition and publication of the description of this method by the American Association of Accountants. This directive recommends the attribution of variable (direct) costs to cost, and fixed (indirect) costs to the financial results of the company. Hence the name of the system — Direct-Costing-System (direct cost accounting system). [6]

The practical application of the Direct Costing method at oil refinery in an extracted form is shown in Tables No. 1 and No. 2

Table 1 Analysis of expenditures and production costs at

LLC Ferghana Oil Refinery (UZS)

№	Indicators	2016	2017	2018	2019
1.	Production cost of production	376 286 573	1 182 216 504	3 263 675 281	966 125 251
	Including:				
2.	Production material costs (net of returnable waste)	346 206 668	1 016 284 907	3 107 270 111	876 350 238
3.	Of which: raw materials and materials (purchased)	318 377 105	916 277 817	2 950 106 898	774 949 697
4.	Of which: materials	11 492 351	35 581 670	46 149 830	21 858 721
5.	Work and services of a production nature performed by third parties	1 436 455	6 158 706	21 275 397	8 659 518
6.	All kind of purchased energy	24 837 094	88 741 688	129 368 759	88 408 260
7.	Labor costs of a production nature (without per diem)	8 665 002	62 283 264	58 417 579	36 854 166
8.	Social security contributions related to production	2 174 763	15 439 058	14 572 594	9 171 670
9.	Depreciation of fixed assets for industrial purposes	5 366 949	28 999 792	28 275 682	12 548 586

10.	Other production costs	13 868 884	59 185 008	55 124 910	31 195 399
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Source: Developed by the author according to the financial and statistical reporting of Ferghana Oil Refinery LLC. [7]

Analysis of the data in table No. 1 shows that the production cost of manufactured products for four years were uneven. In comparison with the base year 2019, the production cost amounted to the following share: in 2016, 2.6 times; 81.7% in 2017; in 2018, 29.6%. In the composition of production costs, a large share is occupied by production material costs, the share of which varies over the years from 92% -90.7%.

Labor costs of a production nature have a tendency to uneven growth, for example, in 2016 amounted to 2.3%; in 2017 5.3%; in 2018, 1.8%; in 2019 3.8% of production costs.

Table 2 “Report on the organization’s expenses” (form No. 3) for 2019 for Fergana Oil Refinery LLC (UZS)

Indicators	Line code	For quarter	Since the beginning of year
A	B	1	2
Other production costs (sum of lines 118, 119 from 121 to 126)	117	17 786 971	31 195 399
including: compulsory and voluntary insurance of production workers and production assets	118	105 938	210 042
business trip	119	29 061	53 116
of which: per diem	120	20 577	36 025
non-departmental, fire and watch guard	121	13 729 287	23 325 865
payment of benefits for temporary disability of production workers	125	1 246 202	2 532 889
other costs related to the manufacturing process	126	2 676 483	5 073 487

Source: Developed by the author according to the financial and statistical reporting of Ferghana Oil Refinery LLC. [7]

Examining the data in table No. 2, we can conclude that under the item “Other production costs” for the quarter amounted to 17 786 971 thousand UZS, and by the end of 2019 amounted to 31 195 399 thousand UZS, i.e. these costs increased by 175.4%. Among the other expenses that have been deciphered, the main amount is the article “Extra-departmental, fire-fighting and watchdog security.” It, as of the end of 2019, has a 74.8% share in other expenses. It seems to us that the costs reflected in the statistical reporting (form No. 3-finance) in the section “Other production costs” should be shown in form No. 2 “Report on financial results” on the line “Expenses of the period” from account 9430 “Other operating expenses” to the enterprise. This circumstance is due to the fact that, by their economic nature, these costs (insurance payments, travel expenses, daily expenses, maintenance of extra-departmental and fire protection) relate to fixed expenses of a general managerial nature.

IV. CONCLUSION AND SUGGESTIONS

In the process of research, progressive methods of cost accounting and calculation of production expense’s, used in domestic and foreign practice, were studied. Particular attention is paid to the most common calculation methods and their relationships in the accounting and analytical process.

In general, the analysis of the production cost of production at the analyzed enterprise showed that the production material costs constitute a significant part of the cost of production, which indicates the material consumption of the product. At the same time, it is necessary to note an insignificant share of expense’s in the cost of labor for production workers. The authors recommend reducing material costs and raising wages at the enterprise, which can be effectively implemented with the help of modern technologies and equipment in the context of economic modernization, which will increase the motivation and material interest of employees.

It is proposed to improve the statistical reporting forms for calculation purposes, especially assigning part of the overhead costs to the financial results of the enterprise, which will ensure the feasibility and validity of the costs incurred.

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