

ARTICLE

# METHODOLOGY OF SPECIFIC ACCOUNTING OF FINANCIAL AND ECONOMIC ACTIVITY RESULTS

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## ABSTRACT

The final result of the activity of an industrial enterprise, the amount of production costs and added value are created by the structural divisions performing the main production process. Therefore, the emphasis in creating a system of specific accounting of the results of financial and economic activities should be made precisely on the core production, which determines the need for the implementation of specific financial results calculation as a management accounting tool in the practice of an industrial enterprise. In order to improve the efficiency of enterprise management, it is necessary to introduce new management technologies that will provide a quick response to changes in the operating conditions and contribute to the optimization of the final parameters of the business entity. The research is aimed at development of a proposal for the implementation of specific accounting of the results of financial and economic activities in the context of structural divisions of the core production of an industrial economic entity. The currently existing methods allow identifying individual aspects of studying this issue; however, a holistic approach to the problem of specific accounting of the results of financial and economic activities in the context of structural divisions has not yet been formed. The situation for a conditional industrial enterprise, the core production of which has a standard structure consisting of  $n$  number of workshops and workshop sections, is simulated in the research. The existing methodology for calculating and assessing the results of financial and economic activities, deterministic relationships of the studied financial parameters, as well as the use of the method of specific indicators have allowed developing a methodology for accounting the specific results of financial and economic activities of structural divisions of an economic entity. An experimental calculation of specific economic parameters in the context of structural divisions of the enterprise has been carried out. The research has proved that the organization of specific accounting of the results of financial and economic activities provides for timely identification of particular negative trends and optimization reserves of both divisions and the enterprise as a whole.

## KEY WORDS

business and financial performance indicators, specific economic indicators, weighted-average accounting of financial performance, direct-costing method

## INTRODUCTION

An industrial enterprise is a complex production system consisting of many structural divisions. Accounting of business and financial performance in the aggregate for the entire economic entity is considered in the Russian Accounting Standard (RAS) being generally accepted [1]. But if a complex production system has auxiliary and service divisions that conditionally affect the financial result of the entire enterprise, then the divisions of the main production turn the input of the system into an output, and can differentially affect the final total financial result [2]. This can be expressed in both costs of resources involved and financial results. Therefore, it seems necessary to implement a differentiated approach with due account of business and financial performance indicators for individual divisions of core production [3]. The relevance of the research topic lies in the fact that the organization of weighted-average accounting of financial performance allows detecting particular downward trends and optimizing reserves of the divisions and the entire enterprise in general.

In order to efficiently manage enterprises, it is necessary to introduce new management technologies that will provide a quick response to changes in the operating conditions and contribute to the optimization of the final parameters of the object's activity. The performance of management functions is provided by one of the main tools - management accounting. A management system means both a set of management objects and a set of implemented management functions in relation to these objects. The complexity of the functioning and versatility of business entities and the variety of implemented management functions predetermine the absence of standard management system and management accounting. An individual, necessary list of objects and management functions is formed in each management system [4].

The information system that meets the needs of the enterprise management for the development and adoption of management decisions is management accounting. Management accounting is a kind of approach to the existence of an information system of an economic entity, focused on a specific user. The purpose of management accounting is to assist the organization's management in developing and making effective management decisions. Management accounting assumes information support of all management functions and is based on the use of a variety of methods of operational and strategic planning, analysis, accounting and statistical accounting, which allows performing comprehensive study of the past, present and future general and particular processes of a multidisciplinary production system [5].

The complexity of business entities determines the need to assess the financial performance of each division. The relevance of the implementation of the method of specific indicators lies in the fact that the organization of specific accounting of the results of financial and economic activities allows eliminating the results of the functioning of the structural elements of a complex business structure. The application of weighted-average accounting of financial performance should begin with accounting for actual costs and production (work performance) volumes in the context of structural divisions [6]. To accurately determine the cost of production (work) and identify reserves for its reduction, it is necessary to carry out cost

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accounting using the direct-costing method, when costs that directly fluctuate under the influence of production volumes are attributed to variables, while costs related to a certain reporting period but independent of production volumes are treated as fixed quantities [7]. The capabilities of direct-costing include the calculation of gross (marginal) profit and marginal rate of return both in general for the enterprise, and its divisions, products, and lines of activity [8]. It also becomes possible to determine the break-even point, the profit (loss) zone size for the particular division, as well as the entire enterprise in general. Calculation of the critical product price, threshold values of fixed and variable costs allows finding the most favorable combinations of price, cost, and volume [9].

The main result of the activity of an industrial enterprise, the amount of production costs and added value are created by structural divisions performing the main production process. Therefore, the emphasis in creating a system of specific accounting of the results of financial and economic activities (as an element of management accounting) should be placed on the core production. The general view of the structure of the core production of an industrial economic entity is shown in [Fig. 1] [2].

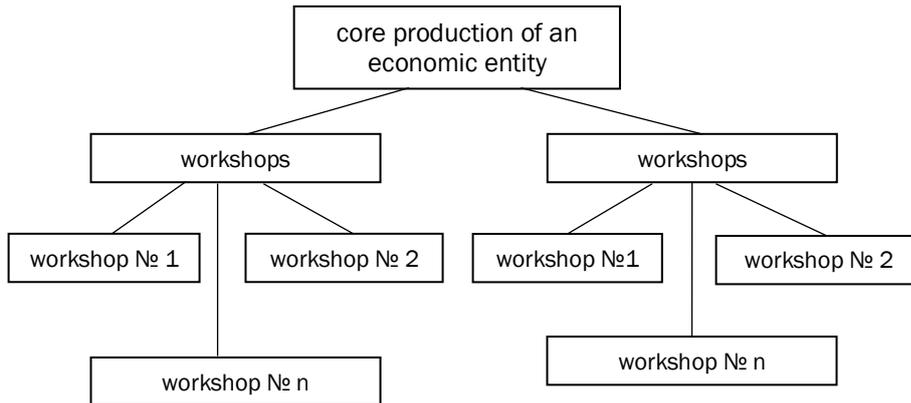


Fig. 1: General view of the structure of the core production of an industrial economic entity

The research is aimed at development of a proposal for the implementation of specific accounting of the results of financial and economic activities in the context of structural divisions of the core production of an industrial economic entity. This work allows conducting individual studies of specific aspects of enterprises' activities, identifying the most significant factors in the formation of an integral indicator [10]. The situation for a conditional industrial enterprise, the core production of which has a standard structure consisting of N number of workshops and N number of workshop sections (for example, with 8 structural divisions) will be simulated in the research.

**METHODS**

**Methodology for organizing specific cost accounting as the main object of management accounting**

Since it is the costs that are recognized as the primary object of management accounting, the implementation of the methodology for the specific accounting of the results of financial and economic activities must begin with accounting for costs and volumes of production (work performed) in the context of structural divisions of the core production [11]. Cost accounting is experimentally simulated. Let us assume that the main structural divisions generate the following types of costs. All costs are classified in [Table 1] according to the capabilities of the enterprise's accounting policy and the direct-costing method.

**Table 1:** Costs classified by the activities of workshops and workshop sections of the core production of an industrial enterprise (experimental simulation)

No.	Cost items	Cost accounting by divisions of the core production	Cost type
1	Wages	separately for each workshop and workshop section	Variable costs
2	Insurance premiums		
3	Materials		
4	Transport services		
5	Transfer services of workers		
6	Maintenance and upkeep		
7	Rental of engineering equipment		
8	Depreciation deductions		
9	Engineering support	in general, for the core production	Fixed costs
10	General production costs		
11	General economic expenses		

Variable costs are determined and accounted separately for each workshop and workshop section. They include the cost of wages and insurance premiums, the cost of transport and transfer services of workers, maintenance, and upkeep, as well as rental of engineering equipment [12]. Fixed costs are proposed to be taken with regard to the core production in general. They include depreciation deductions for equipment, engineering support costs, general production costs, and general economic expenses [13].

The organization of the specific accounting of financial results by workshops and workshop sections will be carried out according to the following rules:

- item-by-item cost calculation according to the specifics of the work performed by the workshops and workshop sections;
- classification and cost accounting using the direct-costing method;
  - semi-variable costs are accounted for in account 20 "Core production",
  - semi-fixed costs are accounted for in account 25 "General production costs" and account 26 "General economic expenses ", as well as account 02 "Depreciation of fixed assets" [14];
- only variable costs are taken into account individually for each workshop section, while fixed costs are taken into account for the core production;
- quantitative accounting (physical units of measurement: tons, standard hours, meters, etc.);
- ability to calculate financial results (revenue, variable costs, marginal profit, the marginal rate of return) for each workshop and section;
- ability to calculate revenue, costs, profit from sales, full profitability (since fixed costs are taken into account) for the core production as a whole;
- item-by-item accounting allows determining indicators of the efficiency of using various resources (specific labor productivity of division, specific material consumption) by workshops and workshop sections, as well as by the core production as a whole [15].

**Methodology of specific accounting of the results of financial and economic activities**

Let us develop the rules for the implementation of the methodology for the specific accounting of the results of the financial and economic activities of workshops and workshop sections, as well as the core production in general.

**Table 2:** Rules for the implementation of the methodology of specific accounting of the results of financial and economic activities

No	Rule	Individual workshop sections	Entire VPGC Service Division
1	Item-by-item cost calculation according to the specifics of the work performed	Yes	Yes
2	Direct-costing method (classification of costs into variable and fixed costs)	Only variable costs	Yes
3	Quantitative accounting	Standard hour	Standard hour
4	Accounting of the workshop section's income (revenue)	Yes	Yes
5	Calculating the marginal profit of the workshop section	Yes	Yes
6	Calculating the marginal rate of return of the workshop section	Yes	Yes
7	Calculating the sales profit of the workshop section	-	Yes
8	Calculating the full rate of return of the workshop section	-	Yes
9	Calculating the break-even point, and the safety zone of workshop section	-	Yes
10	Weighted-average accounting of financial performance per one standard hour (cost, variable costs, income, and profit per one standard hour)	Yes	Yes
11	Calculating performance indicators of using workshop resources (labor productivity, and material consumption)	Yes	Yes

It is proposed to conduct an item-by-item cost calculation according to the specifics of the work performed for all workshop sections and the entire core production.

Implementation of the direct-costing method, i.e. the division of all costs into variable and fixed costs [16] has been conducted. At that, for the workshop sections, only variable costs are taken into account, while for the entire core production – variable and fixed costs are considered. Quantitative accounting, i.e. accounting for the volume of work performed in natural units of measurement, is carried out in standard hours.

Accounting for variable costs and income separately for each workshop section allows determining the marginal profit and marginal rate of return of each object [17]. Accounting for all costs also allows determining the sales profit and the overall rate of return of the entire core production. This means that industrial enterprise management has the ability to assess the rate of return of each division and make timely specific managerial decisions.

Conducting quantitative accounting and weighted-average accounting of financial performance also makes it possible to determine the specific indicators of costs, income, and financial results, i.e. the value of these indicators per one standard hour. Dividing expenses into the variable and fixed costs makes it possible to use the margin analysis method when performing analytical calculations, and thereby calculate the break-even point and the safety zone of the entire core production performance (it is not applied separately for workshop sections, since fixed costs are not taken into account when calculating). Item-by-item calculation allows identifying certain types of costs separately for each workshop section, thereby calculating the efficiency indicators of resource use by a particular workshop section [18].

### Methodology for calculating the specific results of financial and economic activities

The existing methodology for calculating and assessing the results of financial and economic activities [19, 20], the authors' knowledge of the essence of the financial parameters under study and their deterministic relationships, as well as the use of the method of specific indicators allow developing a methodology for calculating the specific results of financial and economic activities of structural divisions of an economic entity [Table 3].

Specific indicators are considered as secondary, i.e., specifying the indicators of the first order, which are volumetric parameters. The specific indicator is a relative value derived from the corresponding volumetric indicator, characterizing in its essence the degree of occurrence of the phenomenon in a certain environment. The method proceeds from the assumption that there is a direct proportionality between the dependent indicator and the parameter argument.

**Table 3:** Methodology for calculating the specific results of financial and economic activities

No.	Indicator	Formula	Comments, information sources
1	Hours (H)	-	accounts and records of structural division
2	Revenue (R)	-	accounts and records of structural division
3	Amount of variable costs (Cvar)		accounts and records of structural division
4	Marginal profit (MP)	$MP = R - Cvar$	Line 2 – Line 3
5	Marginal rate of return (MR)	$MR = MP / R * 100\%$	Line 4 / Line 2*100
6	Revenue per one standard hour	$R \text{ 1 st.h.} = R / H$	Line 2 / Line 1
7	Cost of one standard hour	$C \text{ 1 st.h.} = Cvar / H$	Line 3 / Line 1
8	Profit per one standard hour (P 1st.h)	$P \text{ 1st.h} = MP / H$	p.4 / p.1
9	Number of employees of the workshop section (NE)	-	accounts and records of structural division
10	Labor productivity at the workshop section (LP)	$LP = R / NE$	Line 2 / Line 9
11	Specific consumption of materials (CM)	$CM = MC / R$	Material cost (accounts and records of structural division) Line 2

## RESULTS AND DISCUSSION

Experimental calculation of the specific results of financial and economic activities of organization's structural division

Table 4 presents experimental calculations for one of the structural divisions of the core production of an industrial enterprise.

**Table 4:** The results of financial and economic activities of the structural division (SD) of the core production No. 1

No.	Cost items	Value, thousand rubles		Cost structure, %		Variation		
		conditional year 1	conditional year 2	conditional year 1	conditional year 2	Absolute, thousand rubles	Relative, %	In structure, %
1	Wages	2,343.6	2,430.0	33.6	30.8	86.4	3.7	-2.8
2	Insurance premium	703.1	729.0	10.1	9.2	25.9	3.7	-0.8
3	Materials	1,908.1	2,581.4	27.4	32.7	673.3	35.3	5.4
4	Transport services	526.5	584.5	7.6	7.4	58.0	11.0	-0.1
5	Transfer services of workers	223.6	249.6	3.2	3.2	26.0	11.6	0.0
6	Maintenance and upkeep	421.6	436.9	6.0	5.5	15.3	3.6	-0.5
7	Rental of engineering equipment	846.8	878.6	12.1	11.1	31.8	3.8	-1.0
8	Total production costs (variable)	6,973.3	7,890.0	100.0	100.0	916.7	13.1	-

According to [Table 4], in 2017, the total amount of variable costs attributable to the workshop section No. 1 was 6,973.3 thousand rubles, of which the main shares were accounted for wages and insurance premiums – a total of 43.7%, or 3,046.7 thousand rubles, as well as material costs for 1,908.1 thousand rubles with a share in the total cost of 27.4%.

In 2018 there was an increase in all cost items, and their amount increased by 13.1% amounting to 7,890 thousand rubles at the end of the year. Because the increase in the volume of works (standard hours) was 9.6%, the overall increase was due to the increase in costs per standard hour. The largest increase from 1,908.1 to 2,581.4 thousand rubles (by 35.3%) was noted in material costs. Besides, the transport and transfer services of workers increased by 11%. Consequently, the reason for the faster increase in costs was primarily an increase in material costs, and secondly – transport and transfer services of workers. The increase in labor costs at a constant number of employees of the workshop section No. 1 was associated with an increase in the average monthly wages. The cost of maintenance and rental costs also increased, not having to outpace the growth in work volumes.

**Table 5:** Results of financial and economic performance (workshop section No.1)

No.	Indicator	Unit of measurement	of conditional year 1	conditional year 2	Absolute variation	Relative variation, %
1	Hours	Standard hour	2,141	2,347	206	9.6
2	Revenue	Thousand rubles	8,097.2	9,287.8	1,190.6	14.7
3	Amount of variable costs	Thousand rubles	6,973.3	7,890.0	9,16.7	13.1
4	Marginal profit	Thousand rubles	1,123.9	1,397.8	273.9	24.4
5	Marginal return	%	13.88	15.05	1.2	8.4
6	Revenue per one standard hour	Thousand rubles	3.782	3.957	0.175	4.6
7	Cost of one standard hour	Thousand rubles	3.257	3.362	0.105	3.2
8	Profit per one standard hour	Thousand rubles	0.525	0.596	0.071	13.5
9	Number of employees of the workshop section	Employees	9	9	0.0	0.0
10	Labor productivity at the workshop section	Thousand rubles	899.7	1032.0	132.3	14.7
11	Material consumption at the workshop section	Ruble/Ruble	0.236	0.278	0.042	17.9

In conditional year 1, the working time of structural division No. 1 was 2,141 standard hours, while in conditional year 2, with an increased rate of 8.6%, the working time increased to 2,347 standard hours. An increase in the time worked had led to an increase in the revenue of the structural division performance. The amount of variable costs in conditional year 1 was 6,973.3 thousand rubles, while in conditional year 2 they increased to 7,890 thousand rubles. Revenue increased faster and more than costs, which led to an increase in margin profit from 1,123.9 to 1,397.8 thousand rubles. The need to determine the marginal values of profit and revenue was because only variable costs were taken into account in the financial results of the structural divisions.

Taking into account only variable costs and calculating marginal profit make it possible to estimate the marginal rate of return of structural division. In conditional year 1, 13.88 kopecks of profit were received from each ruble of revenue. In conditional year 2, the growth of the indicator to 15.05% characterized the increase in the performance efficiency of workshop section No. 1. The reason was the outpacing growth of revenue and profit relative to variable costs.

The method of weighted-average accounting of financial performance makes it possible to calculate and analyze financial indicators per one standard hour of work. In conditional year 1, each working hour of structural division No. 1 generated average revenue of 3,782 thousand rubles, while in conditional year 2, this indicator increased to 3,957 thousand rubles. During conditional year 2, the costs of one standard hour had increased from 3,257 to 3,362 thousand rubles. The main reason was the increase in material costs and wages with deductions. In conditional year 1, the unit cost exceeded the unit revenue by 0.525 thousand rubles, i.e. the profit per one standard hour was 0.525 rubles. In conditional year 2, the revenue exceeded the prime cost that had led to an increase in the unit profit to 0.596 thousand rubles per one standard hour.

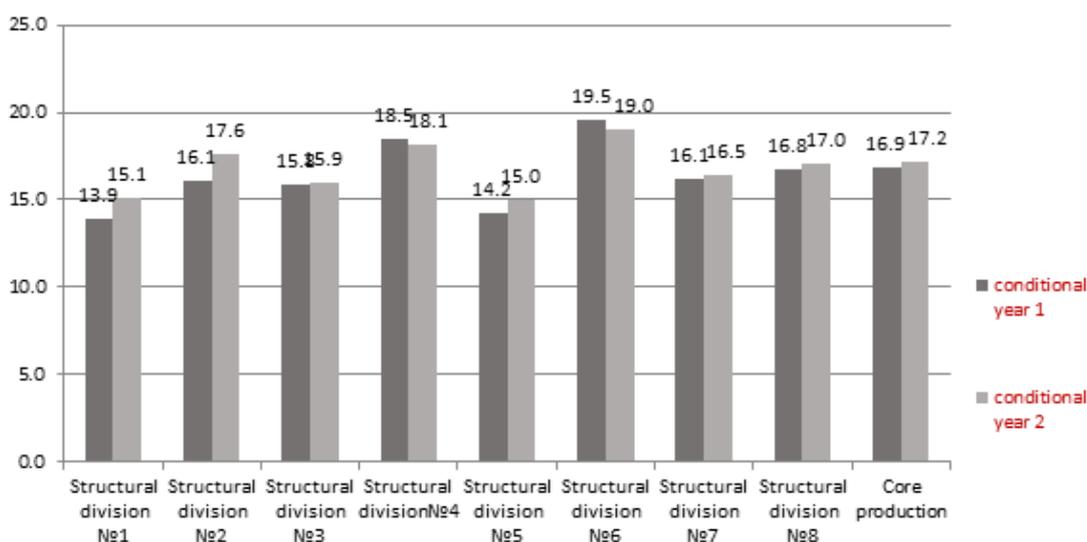
Also, the method of weighted-average accounting of financial performance makes it possible to calculate indicators of resource efficiency at the workshop section. In conditional year 1, the labor productivity of structural division No. 1 was 899.7 thousand rubles, i.e. the average revenue received from performing works amounted to 899.7 thousand rubles per each employee. In conditional year 2, the efficiency of workforce management had increased to 1,032 thousand rubles due to revenue growth at a constant number of workers in structural division No. 1.

The efficiency of using material resources is determined by the indicator of material intensity. Thus, the material consumption in conditional year 1 was 0.236 rubles, i.e. to get one ruble of revenue one needed to commit material costs for 0.236 rubles. In conditional year 2, the growth of material costs outstripped the growth of revenue that had led to a decrease in the efficiency of using material resources at structural division No. 1. This was caused by an increase in material consumption to 0.278 rubles.

**Experimental implementation of the method of specific accounting of the results of financial and economic activities of structural divisions of the organization**

Performing trial accounting and calculations for eight structural divisions of a conventional industrial enterprise allows determining the marginal profit of each division and draw conclusions about individual trends and the reasons for its change.

All structural divisions were characterized by making a profit during two years; therefore, in general, the activities of the core production were profitable. The smallest profit values were obtained for structural divisions No. 1 and No. 5. The highest marginal profit values were obtained for structural divisions No. 2, 4 and 6. An increase in profit was observed for all divisions during conditional year 2, which was based on the excess of the absolute increase in revenue over costs. The ratio of the marginal profit indicators for the workshop sections corresponded to the ratio in the volume of work performed. The highest values of workload and profit were determined for structural division No. 6, the lowest ones – for structural division No. 5.



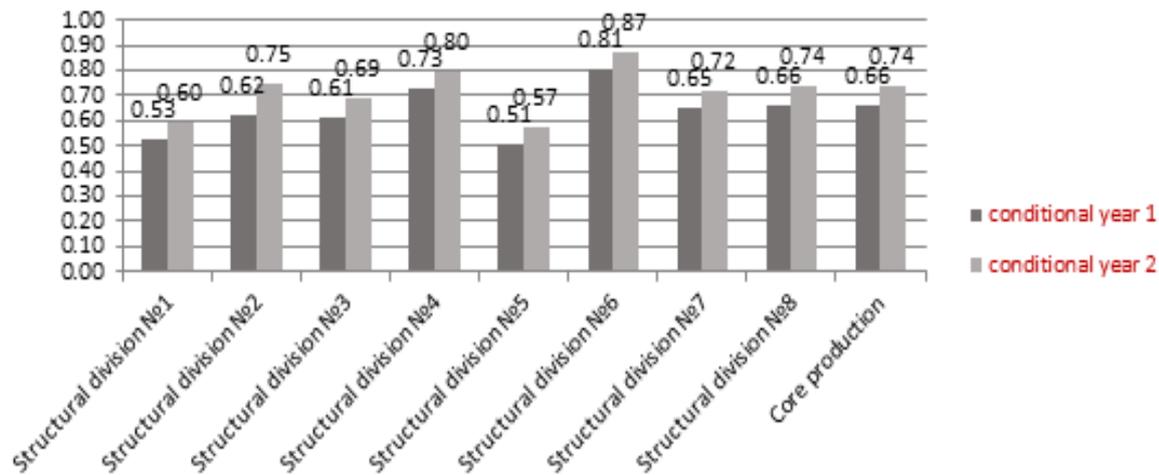
**Fig. 2:** Marginal profitability of structural divisions, %.

The calculation of the marginal profit allows assessing the efficiency of the activities of structural units based on the indicator of marginal profitability.

Since the activities of all structural divisions were defined as profitable, the profitability had positive values. Structural divisions No. 4 and 6 had the highest values of marginal profitability; however, unlike other structural divisions, their margins were decreasing. The reason was the outstripping pace of changes in costs relative to the increase in revenue and profit. For all other structural divisions, marginal profitability was growing due to outstripping growth of marginal profit relative to revenue and costs. The calculation of the marginal profitability in general for the core production had shown that the share of profit in the proceeds of the main production was 16.9% in conditional year 1; in conditional year 2, it rose to 17.2%. The profitability determined for the entire core production was a kind of averaged indicator of the marginality for all structural divisions. While on the whole it was increasing for the core production, negative trend was outlined for structural divisions No. 4 and 6. In these situations, it is necessary to apply the methodology of specific (item-by-item) accounting of the results of financial and economic activities [21], since general indicators revealed positive dynamics of marginality, and the specific indicators allowed identifying problem objects of the core production.

Methodology of specific accounting of the results of financial and economic activities of structural divisions of the organization allows the calculation of the following indicators:

- specific revenue (per 1 standard hour) of a structural division,
- specific prime cost (1 standard hour) of a structural division,
- specific margin profit (per 1 standard hour) of a structural division.



**Fig. 3:** Specific marginal profit (per 1 standard hour) of workshop sections, thousand rubles / standard hours

In general, with regard to the entire core production, the marginal profit gained from one standard hour was 0.66 thousand rubles during the conditional year 1, and during the conditional year 2, its value had increased to 0.74 thousand rubles, which was caused by faster increase in revenue relative to the growth of costs. The most profitable was the performance of workshop sections No. 4 and 6, while the lowest values of specific profit were typical for workshop sections No. 1 and 5.

## CONCLUSION

Specific accounting of the results of financial and economic activities in the context of structural divisions has not been considered in the literature, which determined the relevance of the research. The research included studying the following methods:

- method of economic analysis of the results of financial and economic activities by G.V. Savitskaya [9]: description of the methodology for the marginal analysis of the general parameters of activities, the allocation of specific variable costs, the calculation of the marginal profit of the product;
- direct-costing method by A.V. Ilyina, N.N. Ilysheva [4] used for the system of accounting: unconventional calculation of costs was considered, taking into account the specifics of direct costing;
- method for calculating deviations from cost standard in the direct-costing model presented in the works of V.E. Kerimov [18].

The work performed has proved the need to implement the calculation of specific financial results as a tool for management accounting in the practice of an industrial enterprise. The proposed methodology has revealed the feasibility of switching to the accounting of specific results of financial and economic activities, which allowed timely identification of particular negative trends and optimization reserves of both divisions and the enterprise as a whole. Accounting the specific results of financial and economic activities by the structural divisions of the core production has revealed that the lowest financial indicators were typical for structural divisions No. 1 and No. 5; and for structural division No. 3, financial indicators were determined to be below average by the divisions of the core production. Therefore, it was necessary to start searching for reserves for optimizing the activities of both the entire economic entity and the core production precisely from structural divisions No. 1, 3 and 5. Thus, the application of accounting for the results of financial and economic activities in the context of workshop sections has allowed calculating specific indicators of the financial condition of structural divisions, which will further allow making specific economic decisions to optimize the situation at the enterprise.

### CONFLICT OF INTEREST

There is no conflict of interest.

### ACKNOWLEDGEMENTS

None.

### FINANCIAL DISCLOSURE

None.

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