

“Control and cost analysis in the process of management decision making for the commodities assortment”

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Vladimir Osipov (Russia)

CONTROL AND COST ANALYSIS IN THE PROCESS OF MANAGEMENT DECISION MAKING FOR THE COMMODITIES ASSORTMENT

Abstract

The relevance of this work is determined by the further development of the management system and its information support that improve the economic entity's activity and increase the competitiveness.

The goal of this research is to develop a method for the most optimal commodities assortment formation, which makes it possible to increase the efficiency of the enterprise in the existing production conditions. Previously applied methods were oriented only to one of the methods of determining the commodities assortment, which prevented managers from choosing the most optimal option. The method of the optimal commodities assortment formation was proposed for the first time in this article while comparing the methods of its determination on products profitability and the limiting factor.

The object of research is resource consumption in relation to certain commodities assortment manufactured by the enterprise operating in the measuring devices production sector. The article is focused on the methods of the integrated management cost analysis aimed at implementing the concept of the most complete and timely information support for the resource consumption control and regulation. General scientific and special research methods are used for the purpose of its implementation. The use of special methods of economic analysis made it possible to develop the economic model of costs estimation in the process of the most optimal commodities assortment formation.

Conclusions and results of the research show that the efficiency of the industrial enterprise largely depends on rational resource consumption. The successful solution of this task largely depends on the correct commodities assortment formation. In view of this, methods for determining the commodities assortment based on the analysis of its profitability and assessing the impact of the limiting factor, taking into account the full load capacity, are proposed to be used.

Keywords costs, profit, efficiency, analysis, commodities assortment

JEL Classification M11, M41

INTRODUCTION

The effectiveness of resource consumption is largely determined at the stage of management decision making, which necessitates their preliminary control.

Preliminary control involves all internal and external factors study that determines resource consumption in accordance with the expected production and marketing output. At the same time, special attention is paid to assessing the unproductive resource consumption possibility as a result of unfavorable development.

In the process of decision making management, the range of particular products is of particular importance for optimizing resource consumption and it ensures a high level of production efficiency. For this

purpose, the cost of production is calculated, and their profitability is determined. The managers of an enterprise can refuse, based on the results of its analysis, to make inexpensive or low-cost products. However, this decision cannot be justified without further research. To a large extent, and if the enterprise wants to make more profitable products, there should be a corresponding market situation with a low activity of competitors. In addition, the enterprise must have the necessary quantity of specialized production capacities and resources.

The current practice of the commodities assortment formation involves an assessment of product profitability under the influence of a limiting factor. Currently, these methods are used without their effect comparing on the effectiveness of the commodities assortment adopted for production. This approach to the problem of optimizing the commodities assortment solution in order to improve the efficiency of resource consumption does not ensure its full solution. This is due to the fact that the choice of products expected to be made largely depends on the full utilization capacity. Therefore, the planned commodities assortment using these methods of its determination should be guided by its maximum full load. Consequently, the above problem must be solved in a comprehensive way, that is, by comparing the individual solutions, calculated by using both methods of analysis.

The implementation of the integrated approach to the commodities assortment formation because of its positive impact on the efficiency of resource consumption is very urgent. Based on the above, the goal of the study is a system of resource consumption control and management decision making on the commodities assortment.

The subject of the study is the process of resource consumption in relation to a certain commodities assortment made by an enterprise.

The main task of preliminary control is to find ways to increase the efficiency of resource consumption and profit maximization. Therefore, a large number of control and analytical calculations are carried out in the process of its implementation, carrying out a thorough and multifaceted study of the circumstances that determine the activity of the enterprise in the future. The optimal range of production output under the certain production and economic conditions of the economic entity is very important when solving this problem. For this purpose, the cost of production is calculated, and its profitability is determined. The managers of an enterprise can refuse, based on the results of its analysis, to make inexpensive or low-cost products. However, this decision cannot be justified without further research. To a large extent, and if an enterprise wants to make more profitable products, there should be a corresponding market situation with a low activity of competitors. In addition, the enterprise must have the necessary quantity of specialized production capacities and resources. The refusal of non-profitable products making and a reduction in the total production output will result in the profit reduction received by an enterprise while redistributing fixed costs for more profitable products.

From the above, it follows that the scientific hypothesis of the research presented is to determine the most optimal range of the production output in order to minimize costs and increase the amount of profit.

1. LITERATURE REVIEW

According to the work of leading specialists in the field of management accounting, control is its most important component aimed at optimizing managerial decisions and increasing cost-effectiveness (Drury, 2013; Horngren & Foster, 1987;

Ivashkevich, 2015; Kondrakov & Ivanova, 2013; Macintosh, 1997; Vachrushina, 2012). At the same time, most authors consider only current and subsequent control, by which they believe it is most possible to ensure management decision making and achieve the planned ratio of production costs and profits (Gray, 1982; Higgins, 2011; Ivashkevich,

2015; Kerimov, 2016; Paliy, 2009). Particular attention in this connection is paid to the responsibility centers formation, calculation and management reporting, the standard cost accounting maintenance, the budget assessment for profit in various management accounting systems, etc.

This control procedure has become the most widely used in most countries of the world and is described in sufficient detail in the literature (Drury, 2013; Horngren & Foster, 1987; Ivashkevich, 2015; Sharemet, 2017; Walkar, 1999). However, to ensure the most efficient use of resources, this only procedure is not enough. The preliminary cost control, which supposes a large number of analytical calculation implementation, plays a great role in management decisions making which determines the resource consumption. In the specialized literature on management decision making, this process is considered as an element of the planning system (Khan, 1997), not related to the control function performed by management accounting. Meanwhile, management accounting has a developed method of control and analytical calculations carried out in the process of management decision making. In the course of their preliminary control, most attention is paid to the assessment of production and commercial risks, which are directly related to the return of production resources expanded during the activities of the enterprise (Knight, 1985). The appearance of these risks causes high probability of various kinds of losses and profit decrease.

The uncertainty of the emerging situation is big threat, which is due to the lack of the ability to more or less correct further develop the events related to production and marketing output. According to Knight (1985), if we want to understand the existing economic system, we need to analyze the meaning and essence of uncertainty and, as a result, determine the nature and behavior of our own needs.

The above approaches to control costs and assessing their role in ensuring high production efficiency illustrate the need for their further improvement. A wider use of preliminary control in the process of management decision making, involving a thorough analysis of the emerging situation, is very important for solving this problem.

2. METHODS

When carrying out this research, general scientific and special methods are used. The general scientific methods used in the study include observation, measurement, experiment, formalization, analysis, synthesis, generalization, modeling, etc. These methods have made it possible to determine the general scheme of this research work.

Special methods used in the process of monitoring and analysis are: comparison, control measurements, arithmetic verification of calculations, tracking, factor analysis, analytical groupings, etc. Through these methods, a methodology was developed to assess the impact of the range of the production output on cost effectiveness. With its help, preliminary control of management decisions on the commodities assortment was made, which allowed to optimize costs and maximize profit at the enterprise, operating in the measuring devices production sector.

The preliminary control procedure of the product output influence on cost effectiveness is based on the general methodology for the formation of information in management accounting, which requires compliance with the requirements of its completeness, timeliness and reliability. In accordance with these methodological fundamentals of information management in the enterprise, the preliminary costs control is intended to provide managers with a comprehensive and correct description of resource consumption for various decisions on production and marketing output. Achieving this goal is only possible with the use of economic analysis methods, which is an important part of management accounting.

Having carried out the experiment, it was established that the existing practice of the commodities assortment formation does not provide for reasonable and rational resource consumption and, accordingly, the highest possible production efficiency. This is largely due to the use of a simplified method of selecting products included in the production program when solving the above problem. As the study of current practice and literature has shown (Bourne, 2014; Ezerskay, 2013; Liekweg, 2014; Ostaev, 2015; Walke, 2000), this approach to control significantly impedes the development of enterprise management.

So, the essence of the experiment is as follows.

First of all, it should be noted that the content, depth, sequence and timing of the analysis at the stage of preliminary control of management decisions is determined by the management of the economic entity and its structural units. They are established depending on the state of the economic situation in the enterprise and beyond. At the same time, the analysis of resource consumption is carried out in conjunction with other processes taking place at the enterprise. The main task of this analysis is to estimate the efficiency of prospective expenses and search for ways of its increase. As the internal and external business is deteriorating, the importance of the cost analysis increases, which makes it necessary to increase the diversity and depth of analytical research by applying the most advanced method for its implementation. Particular attention at the stage of preliminary control is given to the possibility to implement reserves for more rational resource consumption identification and assessment.

The cost analysis, carried out in the process of preliminary control of management decisions, is conducted on the basis of certain methodological principles, which include:

1. Systematic and complex analysis, meaning its implementation, taking into account the interconnection and interdependence of individual elements that make up resource consumption.
2. Costs study in the dynamics, that is, by comparing the data on the enterprise's costs for a number of reporting periods, which allows to analyze the changes that take place in a temporal aspect.
3. Formed indicators reliability, which provides managers with objective information about resource consumption, calculated on the basis of data obtained from reliable sources.
4. Effective results of the economic analysis, achieved by timely management informing of the company about existing shortcomings, which can cause inefficient resource consumption in the future.

5. The analytic effectiveness, expressed in prerequisites for the formation of optimal management decisions, through which the most rational resource consumption and the growth profit received by the enterprise are achieved. This growth, due to cost analysis, indicates its effectiveness.

The experiment carried out on the above principles, illustrates specific results, which are given below.

3. RESULTS

The analysis method, carried out in the process of preliminary control of management decisions on the commodities assortment, will be considered in a specific context. In addition to the author's publications, the analysis method given below in other literary sources has not been considered.

Calculations will be performed on the basis of the accounting data of JSC "Saransk Instrument Making Plant", which makes the following measuring devices: blood pressure meter, electricity meter and hot water meter. The total production capacity of the enterprise is 6,400 machine-hours.

3.1. Determination of the commodities assortment and production output considering the limiting factor

Table 1 shows that the first of the products listed in it has the lowest marginal revenue per unit of output and is the least profitable of all products. However, its marginal revenue for one machine-hour and the entire production output is higher than that of the other items under consideration.

The decision options analysis for the commodities assortment shows that it is more profitable for the enterprise to make the product – blood pressure meter. At the same time, the total refusal to make products – electricity meter and hot water meter – will not be correct, because in the case of a sharp drop in demand for blood pressure meters, the company risks suffering significant losses.

Table 1. Analysis of management decisions on the range of products

Indicators	Blood pressure meter	Electricity meter	Hot water meter
Profitability, % (profit / cost price)	4.7	5.6	5.3
Price per unit, rubles	2,800	3,500	1,800
Variable costs per unit, rubles	2,450	3,050	1,400
Marginal revenue per unit, rubles	350	450	400
Number of units of output, made for 1 machine-hour	10	6	8
Marginal revenue for 1 machine-hour, rubles	3,500	2,700	3,200
Marginal revenue for 6400 machine-hours, rubles	22,400,000	17,280,000	20,480,000

Increasing the output of the product – blood pressure meter – with the stable production output of other types of products is limited in the short term by the total capacity of the enterprise, which is the limiting factor. Therefore, according to this method of the commodities assortment formation, the most appropriate solution is to make products under research – blood pressure meter and hot water meter.

3.2. Determining the commodities assortment and production output by product profitability

High cost efficiency can also be ensured by applying the optimal commodities assortment formation method, which involves calculating the product profitability and the break-even point. The product profitability is determined by dividing the profit from sales by the full cost of sales.

Determination of the total production cost assumes the distribution of fixed costs for products. As a result of the calculations, poorly profitable products can be identified that do not bring significant revenue to the enterprise, so its management should determine the feasibility of its further production. The analysis based on the use of the above method will be carried out using the example of

the enterprise that makes measuring devices. The information necessary to conduct this analysis is presented in Table 2.

Table 2 shows, that the greatest marginal revenue per unit of output comes from selling electricity meter – 450 rubles, and the smallest – blood pressure meter – 350 rubles. Consequently, according to the calculation, it can be concluded that the product called blood pressure meter is the least profitable.

In order to determine the product profitability and the break-even point, their total cost is calculated, and a statement of distribution of fixed costs is drawn up.

The variable of expenses per unit of product, necessary for calculating the profitability and the break-even point of certain types of products, is indicated in Table 2.

Break-even point (*BP*) is calculated by the formula:

$$BP = \frac{C}{P - V}, \quad (1)$$

where *C* – fixed costs, *P* – unit price, *V* – variable costs per unit.

Table 2. Indicators of the enterprise's activity in the reporting year

No	Indicators	Blood pressure meter	Electricity meter	Hot water meter	Total
1	Sales revenue, units	8.500	21.300	14.000	43.800
2	Unit price, rubles	2,800	3,500	1,800	–
3	Revenue, rubles (line 1 – line 2)	23,800,000	74,550,000	25,200,000	123,550,000
4	Variable costs per unit, rubles	2,450	3,050	1,400	–
5	Marginal revenue per unit, rubles (line 2 – line 4)	350	450	400	–
6	Aggregate marginal revenue, rubles (line 1 – line 5)	2,975,000	9,585,000	5,600,000	18,160,000
7	Fixed costs, rubles	–	–	–	11,877,850

Table 3. Calculation of indicators necessary to develop the commodities assortment manufactured by the enterprise

No	Indicators	Blood pressure meter	Electricity meter	Hot water meter
1	Sales revenue, units	8.500	21.300	14.000
2	Variable costs per unit, rubles	2,450	3,050	1,400
3	Fixed costs per unit, rubles	224	264.5	310
4	Total cost, rubles	2,674	3,314.5	1,710
5	Unit price, rubles	2,800	3,500	1,800
6	Gross profit, rubles	126	185,5	90
7	Profitability, %	4.7	5.6	5.3
8	Break-even point, units	5.440	12.520	10.850
9	Financial safety margin, units edge of financial safety, units	3.060	8.780	3.150

Table 3 shows that the most cost-effective product is called electricity meter.

Its profitability in the analyzed period was 5.6%.

The production of blood pressure meter is the least profitable – 4.7%. However, in order to reach the break-even point of the first product, it is necessary to make only 5,440 units of it, while the second and third products need 12.250 and 10.850 units, respectively. Despite this, the financial safety margin, calculated as the difference between sales and the break-even point, of the product called electricity meter is higher up by 5720 units (8.780 – 3.060) than the product called Blood Pressure Meter, and it is higher by 90 units (3.150 – 3.060) than the product called hot water meter. This is mainly due to the prevalence of demand for the last two products and their rather high profitability. Low financial safety margin of the product called blood pressure meter makes it production risky. It follows that, according to the analysis method of the optimal commodities assortment-formation, the enterprise should refuse to make the product called blood pressure meter, as it has a small margin and the lowest financial safety, which causes a high level of entrepreneurial risk and the probability of losses at the enterprise.

3.3. Determining the commodities assortment and production output in the case of a refusal to make low-profitable products

The resources, released after the decision on refusal to make the product called blood pressure meter, can be directed to increase an output of the product called electricity meter. At the same time, the demand for this product should

be taken into account. Due to freed capacities (8500: 10 = 850 m/h), the enterprise can additionally make and sell 5,100 (850 x 6) electricity meters. Indicators characterizing the activity of the enterprise when it decides to make only two products (electricity meter and hot water meter) are presented in Table 4. The amount of fixed costs, while compiling the table, remained unchanged (see Table 2).

The table below illustrates that the profit in case of refusal to make the product called blood pressure meter will decrease by 680,000 rubles (6,282,150 – 5,602,150). It will take place in case of fixed costs redistribution between the two remaining products.

Thus, the decision on refusal to make the product called blood pressure meter while maintaining the same amount of fixed costs will not be correct. It will make sense only if fixed costs decrease more than the amount of the decrease in profit (680,000 rubles). This is possible when carrying out measures for conservation or sale of equipment is not involved in production, reducing overheads, administrative and commercial expenses, etc.

The management decision on refusal to make the product called blood pressure meter is also possible in case when the production output and prices for the remaining products are at the same level. In this situation, in order to achieve the previously obtained profit (6,282,150), fixed costs should be the amount determined by the following formula:

$$C = S - R - V, \quad (2)$$

where C – fixed costs, S – sales revenue, R – sales-profit margin, V – variable costs.

Table 4. Information characterizing the activity of the enterprise in case of refusal to make the product called electricity meter

No	Indicators	Blood pressure meter	Hot water meter	Total
1	Sales revenue, units	44.000	14.000	58.000
2	Unit price, rubles	2,800	1,800	–
3	Revenue, rubles	123,200,000	25,200,000	148,400,000
4	Variable costs per unit, rubles	2,450	1,400	–
5	Marginal revenue per unit, rubles	350	400	–
6	Aggregate marginal revenue, rubles	15,400,000	5,600,000	21,000,000,000
7	Fixed costs, rubles	–	–	11,877,850
8	Gross profit	–	–	9,122,150

According to the calculations made, the amount of fixed costs for the considered management decision should be reduced to 8,902,850 rubles ($99,750,000 - 6,282,150 - 84,565,000$), which is 75% of their original value ($8,902,850/11,877,850$). To address this issue, it is also necessary to carry out certain organizational and technical measures aimed at reducing these costs. However, the scope of these events will be much wider, as the amount of fixed costs in this situation will need to be reduced by 2,975,000 rubles ($11,877,850 - 8,902,850$).

3.4. Comparative characteristics of methods determining the commodities assortment and production output taking into account the limiting factor and product profitability

Comparison of the analysis results, obtained with the use of two different methods of the commodities assortment formation, shows the significant differences between them. In accordance with the first of the methods studied, which is based on the assessment of marginal revenue per machine-hour of equipment operation for individual types of products, it is more preferable to make products called blood pressure meter and hot water meter. The second of the considered methods, assuming the calculation of product profitability and the break-even point, recommends to make product called electricity meter instead of the product called blood pressure meter.

In order to establish the most acceptable method of the commodities assortment formation, it is advisable to calculate the indicators characterizing the activity of the enterprise according to the com-

modities assortment recommended by the first of the considered methods (Table 5). The amount of profit calculated for these products should be compared with the profit obtained using another analysis method used in the formation of the commodities assortment expected to be made. When drawing up Table 5, we will keep in mind that the released production capacities are involved in the process of making the product called blood pressure meter.

Thus, the management decision on refusal to make the product called electricity meter and replacing it with blood pressure meter is the most correct one. In comparison with the initial commodities assortment, it allows to increase the profit by 2,840,000 rubles ($9,122,150 - 6,282,150$). Regarding the method based on the calculation of product profitability and the break-even point, profit will increase by 3,520,000 rubles ($9,122,150 - 5,602,150$).

There could be not fully use of production capacities while applying the first of the analysis methods considered in the formation of the commodities assortment.

This situation occurs when the level of prices and output remain at the same level. The output of the product called blood pressure meter because of its low demand will be 8.500 units, and the price for it, for the same reason, will be equal to 2,800 rubles. Fixed costs (11,877,850 rubles) will not be changed either, which is due to the company's lack of significant reduction (Table 6). In the instrument-making industry in Russia, this is largely due to a decline in the production output in this branch of engineering. For example, at the beginning of the economic crisis in Russia, the production output

Table 5. Information characterizing the activity of the enterprise at the current production output and prices for products called blood pressure meter and hot water meter at the same level

No	Indicators	Blood pressure meter	Hot water meter	Total
1	Sales revenue, units	8.500	14.000	22.500
2	Unit price, rubles	2,800	1,800	–
3	Revenue, rubles	23,800,000	25,200,000	49,000,000
4	Variable costs per unit, rubles	2,450	1,400	–
5	Marginal revenue per unit, rubles	350	400	–
6	Aggregate marginal revenue, rubles	2,975,000	5,600,000	8,575,000
7	Fixed costs, rubles	–	–	11,877,850
8	Profit	–	–	–3,302,850

of such meters as water consumption meters decreased by 13% in 2013 compared to 2012. A similar situation was observed with other measuring devices (Statistical compendium, 2014).

As Table 6 shows, in this case the enterprise will receive a loss in the amount of 3302850 rubles. Consequently, the refusal to make the product called Electricity Meter in the conditions of not fully loading production capacity will not be correct. In order to obtain a profit corresponding to the initial commodities assortment (6,282,150 rubles), the enterprise must have fixed costs of 2,292,850 rubles ($49,000,000 - 6,282,150 - 40,425,000$). This indicates the need to reduce these costs by 9,585,000 rubles ($11,877,850 - 2,292,850$) or 80.7% ($9,585/11,877,850$). It is obvious that such a reduction in fixed costs is not possible both for technical and economic reasons. In this regard, if the full production capacity is not fully loaded, the commodities assortment determined according to the second method considered above is more profitable, since in order to achieve the initial level of profit (6,282,150 rubles) in this case, a lower decrease in fixed costs is required in the amount of 661,000,000 rubles ($9,585,000 - 2,975,000$). To make the conclusion more convincing, we will

compare the amount of profit calculated with not full capacity by both analysis methods used in the process of the commodities assortment building. For this purpose, we calculate the indicators characterizing the activity of the enterprise with the incomplete use of capacities for a limited commodities assortment selected according to the second analysis method under consideration (Table 7).

As follows from Tables 6, 7, with the full use of production capacities, the commodities assortment proposed by the second analysis method under consideration is more profitable. Instead of a loss (–3,302,850 rubles) for the commodities assortment recommended by the first analysis method, it will bring profits in the amount of 3,307,150 rubles.

Not full use of production capacity can be the result of wear and tear of some equipment; as a result, it cannot ensure the sufficiently high-quality output; lack of the necessary quantity of materials; actions of competitors, etc. In this regard, the enterprise will have to choose limited commodities assortment, which will bring the maximum possible profit in this situation. In the process of solving this issue, it is advisable to use the analysis meth-

Table 6. Information characterizing the activities of the enterprise at the current production output and prices for products called electricity meter and hot water meter at the same level

No	Indicators	Electricity meter	Hot water meter	Total
1	Sales revenue, units	21.300	14.000	35.300
2	Unit price, rubles	3,500	1,800	–
3	Revenue, rubles	74,550,000	25,200,000	99,750,000
4	Variable costs per unit, rubles	3,050	1,400	–
5	Marginal revenue per unit, rubles	450	400	–
6	Aggregate marginal revenue, rubles	9,585,000	5,600,000	15,185,000
7	Fixed costs, rubles	–	–	11,877,850
8	Profit	–	–	3,307,150

od proposed above, designed to ensure the most rational use of resources and efficient operation of the enterprise.

4. DISCUSSION

The analysis of scientific views carried out during this research has shown that the majority of authors (Drury, 2000, Horngren & Foster, 1987, Ivashkevich, 2015, Sharemet, 2017, Vachrushina, 2012) adhere to the concept of separate use of methods for selecting the commodities assortment and determining the production output. At the same time, often, the capacity rate is not taken into account, which prevents optimization of costs and maximization of profit. Meanwhile, to increase the profitability of the enterprise and ensure its further development, a comprehensive solution to this problem is needed. In this regard, it is especially important to strengthen the diversity quality of economic analysis at the stage of developing operational management decisions.

According to numerous works in the field of management accounting (Etrill & McLeini, 2012; Ivanov & Chan, 2013, Kaverina, 2016, Macintosh, 1997; Manyeva & Fadeeva, 2014; Paliy, 2009; Voronova, 2016), it is defined as the most impor-

tant method to control the activity of the economic entity. Through the analysis, the in-depth assessment of the situation inside and outside the enterprise is carried out, and reserves for its further development are identified. In this regard, conclusions and recommendations made on the basis of the analysis, carried out in the preliminary analysis, should be clear, specific and logically consistent. The qualitative cost analysis will ensure that the enterprise receives additional profits in the future by eliminating negative phenomena that cause over expenditure. A very important role in the solution of this problem is played by the preliminary analysis conducted in the process of the products range building. Through its implementation, products that can bring maximum profit to the enterprise under the existing production conditions, current market conditions and taking into account the risk of losses are identified. With this purpose, the article illustrates methods for making decisions on the commodities assortment on the basis of the profitability analysis and how the limiting factor influences the commodities assortment. At the same time, it is recommended to carry out calculations with various options for use of production capacities. This aspect of the management decision for the product was not considered in other studies.

CONCLUSION

Costs along with the price of products are the most important factor determining the amount of profit received by the enterprise. Therefore, their monitoring is very important. It should cover all stages of management decision making. A special role in ensuring rational resource consumption is played by preliminary control, which determines the cost effectiveness in the future. Economic analysis is the most effective method for its implementation. With its help, the in-depth study of the internal and external situation associated with the process of resource consumption is carried out. By means of the analysis, the most optimal range of manufactured products is formed, which makes it possible to ensure high cost effectiveness in the forthcoming period.

Based on comparative analysis methods of the commodities assortment building, it was established that resources released after making decision on refusal to make the product called blood pressure meter can be used to increase the production output of the product called electricity meter. Due to freed capacities ($8500: 10 = 850 \text{ m/h}$), the enterprise can additionally make and sell 5100 (850×6) electricity meters. However, the calculation showed that the profit in case of refusal to make the product called blood pressure meter will decrease by 680000 rubles ($6282150 - 5602150$). This is due to redistribution of fixed costs between the two remaining products. The amount of fixed costs for the considered management decision should be reduced to 8902850 rubles ($99750000 - 6282150 - 84565000$).

The two methods of the commodities assortment building show that there are certain differences between them. According to the first of the considered methods, based on the assessment of marginal revenue for one machine-hour equipment in the context of individual types of products, the products called blood pressure meter and hot water meter are the most preferable. The second method, which involves calculating product profitability and the break-even point, chooses the product called electricity meter instead of blood pressure meter.

In order to choose the most acceptable method of the commodities assortment building, profit is calculated according to the first of the considered method, and, in the future, it is compared with its value established with the application of another analysis method, used in the commodities assortment building. In this case, it means that released production capacities will be used while making the product called Blood Pressure Meter. The analysis showed that the management decision on refusal to make the product called Electricity Meter and to begin making the product Blood Pressure Meter is more correct. In comparison with the previously released commodities assortment, the profit will increase by 2840000 rubles (9122150 – 6282150).

In case of not full machine loading, the situation will be reversed. As follows from the calculations carried out, with not full use of production capacities, the product proposed by the second analysis method under consideration is more profitable. Instead of a loss (–3302850 rubles) for the commodities assortment, recommended by the margin analysis method, taking into account the limiting factor, it will bring the enterprise profits in the amount of 3307150 rubles.

Thus, in order to optimize the commodities assortment and its production output to increase the efficiency of resource consumption, the enterprise should choose the method of its formation correctly. The comparative analysis method, carried out in the process of preliminary control of management decisions on the commodities assortment, will solve this problem to a great extent.

REFERENCES

1. Bourne, M., & Bourne, P. (2012). *Handbook of Corporate Performance Management* (352 p.). N.Y.: Wiley & Sons. Retrieved from <https://www.wiley.com/en-us/Handbook+of+Corporate+Performance+Management-p-9780470669365>
2. Drury, C. (2000). *Management and Cost Accounting* (5th ed.) (910 p). International Thomson Business Press.
3. Drury, C. (2013). *Management account for business-decisions* (655 p.). Translation from English. Textbook. Moscow: UNITI. Retrieved from https://www.abeebooks.co.uk/servlet/BookDetailsPL?bi=22595152171&searchurl=tn%3Dmanagement%2Band%2Bcost%2Baccounting%26sortby%3D17%26an%3Ddrury%2Bcolin&cm_sp=snippet-_-srp1-_-title1
4. Etrill, P., & McLeini, E. (2012). *The financial management and Management account for leaders and businessmen* (648 p.). Translated from English B. of Ionov. Moscow: Alpina Publisher.
5. Gray, J., & Ricketts, D. (1982). *Cost and Management Accounting* (768 p.). New York: McGraw – Hill.
6. Higgins, R. (2011). *Analysis for Financial Management* (10th ed.) (415 p.). Paperback.
7. Horngren, C. T., & Foster, G. (1987). *Cost Accounting. A Managerial emphasis* (6th ed.) (416 p.). Prentice-Hall, Inc., Englewood Cliffs, NJ.
8. Ivanov, V. V. (2013). *Управленческий учет для эффективного менеджмента [Upravlencheskiy uchet dlya effektivnogo menedzhmenta]* (208 p.). Moscow: INFRA-M.
9. Ivashkevich, V. B. (2015). *Бухгалтерский управленческий учет: учебник [Bukhgalterskiy upravlencheskiy uchets: uchebnik]* (3rd ed.) (448 p.). Moscow: INFRA-M.
10. Kaverina, O. D. (2016). *Управленческий учет: учебник и практикум [Upravlencheskiy uchets: uchebnik i praktikum]* (3rd ed.) (389 p.). Lyubertsy: Yurayt.
11. Kerimov, V. E. (2016). *Бухгалтерский управленческий учет: учебник [Bukhgalterskiy upravlencheskiy uchets: uchebnik]* (Rev. 3rd ed.) (400 p.). Moscow: Dashkov i Ko.
12. Khan, D. (1997). *Планирование и контроль: концепция контроллинга [Planirovaniye i kontrol: kontseptsiya kontrol-linga]* (800 p.). Moscow: Finansy i statistika.

13. Knight, F. N. (1985). *Risk, uncertainty and profit* (381 p.). Chicago and London: University of Chicago Press.
14. Kondrakov, N. P., & Ivanova, M. A. (2013). *Бухгалтерский управленческий учет: учебное пособие [Bukhgalterskiy upravlencheskiy uchët: uchebnoye posobiye]* (352 p.). Moscow: NITS INFRA-M.
15. Kotler, P., & Keller, K. (2012). *Marketing Management* (14th ed.) (657 p.). Pearson Education, USA. Retrieved from <https://www.pearson.com/us/higher-education/product/Kotler-Marketing-Management-14th-Edition/9780132102926.html>
16. Liekweg, A. (2014). Fraud avoid through Controlling and Internal Revision. *Controlling & Management Review*, 5, 20-27. Retrieved from <https://www.springerprofessional.de/en/fraud-vermeiden-durch-controlling-und-interne-revision/6405106>
17. Macintosh, N. B. (1997). *Management accounting and control systems* (281 p.). New York: John Wiley and Sons. Retrieved from <https://www.wiley.com/en-us/Management+Accounting+and+Control+Systems%3A+An+Organizational+and+Sociological+Approach%2C+2nd+Edition-p-9780470714478>
18. Manyeva, V. A., & Fadeeva, A. A. (2014). Formation and assessment of the internal control of the economic entity. *Bulletin of Samara State University of Economics*, 9, 81-85. Retrieved from <http://vestnik.sseu.ru/index.php?cnt=1&idv=243>
19. Ostayev, G. Ya. (2015). *Управленческий учет: учебник [Upravlencheskiy uchët: uchebnik]* (272 p.). Moscow: DiS.
20. Paliy, V. F. (2009). *Managerial accounting of costs and revenues* (279 p.). Moscow: INFRA-M.
21. Rosstat (2014). *Russian statistical annual bulletin* (693 p.). Moscow.
22. Sheremet, A. D. (2017). *Analysis and diagnosis of financial and economic activities of the enterprise: textbook* (374 p.). Moscow: INFRA-M.
23. Vakhrushina, M. A. (2012). *Управленческий учет: учебник [Upravlencheskiy uchët: uchebnik]* (3rd ed.) (576 p.). National Education.
24. Voronova, E. Yu. (2016). *Управленческий учет: учебник [Upravlencheskiy uchët: uchebnik]* (3rd ed.) (428 p.). Lyubertsy: Yurayt.
25. Walkar, J. (1999). *Cost Accounting* (128 p.). London: CIMA.
26. Walke, J. (2009). *Management Accounting Fundamentals* (427 p.). London: CIMA.
27. Yezerskaya, T. A. (2013). *Управленческий учет в промышленности: учебно-методическое пособие [Upravlencheskiy uchët v promyshlennosti: uchebno-metodicheskoye posobiye]* (272 p.). Minsk: Izdatel'stvo Grevtsova.