

METHODICAL AND PRACTICAL ASPECTS OF PRODUCTION RESOURCES' ANALYSIS ON ENTERPRISE

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Abstract

The specific features of resources cost estimation methods which are characterized by firmness and lightness of error correction and untypical operations processing are explored. A primary purpose is enterprises production resources record-keeping method perfection to provide their effective forms of economic activity and operations management. The planned capitalization influencing decline calculations on expenses in production are carried out. Balance estimations of production resources are examined, those coincides with estimations liquidating types and in ordinary terms correspond to the material unit minimum cost. The research consists of founding to use expedience of resources cost estimation methods characterized by firmness and lightness of error correction and untypical operations treatment in the enterprise registration policy also.

Key words: method, estimation, calculation, raw material, standard cost, arithmetic cost, price

Introduction

Economic and social transformations in society require from the enterprise to increase production efficiency and products competitiveness. Successful enterprise activity depends on the management of material streams as inalienable attribute of production processes continuity. An enterprise independently determines the necessary amount of production resources on the stage of products purchase, production and realization. There is a necessity in development of effective registration mechanism able to co-ordinate the processes of the production resources use. This mechanism covers application of resources cost estimation optimum methods in the enterprise registration policy.

Raising of problem

The tasks of production capacities expansion are put before enterprises. It is necessary to choose variants that help to multiply the goods production volumes at the minimum materials expenses. One variant can be attractive by the low materials cost, other by the developed infrastructure. The problem solving is possible by methodical approaches which give possibility to give up «capacious» resources cost estimation methods and to be saved from fictitious income in accounting. «Exactly in market environment necessity in methodical approach, multiple search on multicriterion basis, rating estimation, alternative comparisons is determined to a great extent» [1, p. 55].

Analysis of the last researches and publications

Among the industrial and economic problems of enterprises the important role is taken by production resources cost estimation. In researches of domestic economists – Butinets F.F., V.G. Gerasimchuk, Dorofienko V.V., Zagorodnij A.G., Kuzhelnij M.V., Pavlenko A.F., Sopko V.V., Khomiak R.L. [2-9] and many others – a lot of questions related to methodical approaches to material resources estimation are explored. But quite a bit questions remain not exposed. Among them there are low efficiency of pastry production, its high material and power capacity, absence of structural changes concerning the problems of rational resource providing in theoretical-methodology and just in practical plan. The necessity of the outlined problems scientific development predetermines the article actuality.

Purpose of the article

A primary purpose is enterprises production resources record-keeping method perfection to provide their effective forms of economic activity and operations management.

Task of research

- to carry out the calculations of capitalization planned decline influence on expenses in production;
- to seize balance estimations of production resources which coincide with the liquidating types of estimations, and in ordinary terms correspond to material unit minimum cost;
- to found use expedience of resources cost estimation methods characterized by firmness and lightness of error correction and untypical operations treatment in the enterprise registration policy.

Research methods

Scientific research methodology is based on the use of methodical approaches to the evaluation of resources cost. For realization of the put tasks the methodical receptions, technical-economic calculations, analytical groupments, analysis, generalization were used.

Basic material of research

There are situations at enterprises, when realization of forward measures either does not bring the planned results or their problems solving can exceed the expenses of raw material and materials in indexes are generated. It is predetermined by low efficiency of domestic production, high him material- and power capacity, absence of structural changes in relation to the problems of the rational resource providing.

The methods of estimation of cost of supplies to a certain extent do not take into account principles of exactness and objectivity of record-keeping (account of operations of returning) [10, c. 178]. But without regard to absence of references to principles of account, by an author the done attempt to give estimation to exactness of forming of financial result. Calculating the index of financial result (income), an accountant regulates registration information (charging amortization). Adjusting changes an income. Capitalization, as reception, adjusting gives

possibility to represent expenses which will bring profits in subsequent periods not in a report about gains and losses, and in an asset or passive voice of balance. Accumulation of reserves on the losses or depreciations of supplies is the example of passive capitalization of material account [11, c. 56]. It is thus expedient to consider the method of average sliding cost, method of cost average for period, FIFO, method of calculation of cost of unit of supplies, method of standard cost, method of grade cost, method of taking cost of inventory, method of arithmetic cost.

For calculations we will enter indexes: s it is sum, q is amount, p is price. For sums, amount and costs of receipt we use the overhead index of «+», for expenses is overhead index «-». By a lower index we mark a period, time, number of operation. For initial and eventual balance we enter an overhead index a and b . Under unit of supplies we understand physical unit of measuring of amount of materials.

Method of FIFO and method of calculation of cost of unit of supplies similar to the method of part account. In the methods of part account after every purchase party of materials the individual cost of unit of supply is kept. We will assume that k is number of party, i is number of unit of supply. Then purchase prices are kept for every made index (i, k) . «Reproduction» of production supplies in accordance with the order of receipt of party of materials is thus carried out. The difference of methods consists in treatment of expense operations, in particular operations of vacation. After the method of FIFO supplies are released in accordance with the order of their receipt: the first copy off the more «oldest» materials. The casual number of cost from party of materials, which is released in production, gets out pursuant to the method of calculation of cost of unit of supplies.

We will consider the method of sliding average cost. For every type of materials we enter a middle price which we transfer after every operation of purchase of materials:

$$p = s / q \quad (1)$$

At receipt of party of materials in a sum s_i^+ , by an q_i^+ amount a middle price is evened:

$$p_{i+1} = \frac{s_i + s_i^+}{q_i + q_i^+} + \frac{s_{i+1}}{q_{i+1}} \quad (2)$$

During realization of materials we calculate their cost after a formula:

$$s_i^- = q_i^- p_i = q_i^- \frac{s_i}{q_i} \quad (3)$$

At released materials after the method of sliding average cost the middle cost of unit of supplies does not change to a certain extent. Operations from the receipt influence on the middle cost of unit of supplies.

Table 1 Register of materials receipts and expenses

m - period I - operation	Initial remain	Receipt	Expenses	Eventual remain
	Initial balance	Debiting appeal	Credit appeal	Eventual balance
Sums	$s_m^a = s_{m-1}^b$	$s_m^+ = \sum_i s_{m,i}^+$	$s_m^- = \sum_i s_{m,i}^-$	$s_m^b = s_m^a + s_m^+ - s_m^-$
Amount	$q_m^a = q_{m-1}^b$	$q_m^+ = \sum_i q_{m,i}^+$	$q_m^- = \sum_i q_{m,i}^-$	$q_m^b = q_m^a + q_m^+ - q_m^-$

At the use of method of cost average for period a middle price is transferred on beginning or end of period and does not change during a certain period. In the Internal revenue code of Russia in the method of calculation of cost average for period a middle price is calculated on the end of period taking into account all receipt of materials. Such approach to a certain extent is inadvisable, as it is needed to calculate the prime price of shipping of every party of materials, and also during a period it is needed to expect the middle prime price of materials. This there can be a middle price on beginning of period, or middle price, that is expected by the method of sliding average cost, or in general some conditional value of cost. In addition, at the end of month, taking into account the receipt of materials, it is required to calculate a «actual» middle price, to transfer the prime price of the realized materials during a period and carry out correction of wiring [12, c. 57]. At application of method of cost average for period a price can be formed on beginning or end of period. If a middle price settles accounts on beginning of period, she doesn't change during a period and the deferred incomes influence only on the middle cost of a next period. If a middle price is calculated on the end of period, the deferred incomes influence on the middle cost of current period and it settles accounts upon termination of period. For the calculation of middle price we suggest to use a table – register (table1), where information about a sum and amount of supplies on beginning and end of period accumulates, sums and amount of receipts of materials and expense.

Cost of resources unit:

$$p_m = \frac{s_m^a}{q_m^a} \quad (4)$$

Cost of release:

$$s_{m,i}^- = q_{m,i}^- p_m = q_{m,i}^- \frac{s_m^a}{q_m^a} \quad (5)$$

Middle cost of unit of material on the end of period:

$$p_{m+1} = \frac{s_m^b}{q_m^b} = p_m + \frac{\delta_m}{q_m^b} \quad (6)$$

As at the calculation of middle cost of rejection insignificant, it is expedient to enter the standard cost of unit of supplies. The standard cost of receipt is calculated as sum of acquisition in standard prices. Thus there is a question, namely: to take into account rejection in a lump sum or distribute the lump sum of rejections on every unit of supplies; how to copy off the accumulated rejection on a financial result.

We will designate o is deviation from a standard cost, indexes at variables are similar, p is standard cost, z is cost of purchase. Rejection and standard cost of purchase we expect:

$$o_i^+ = z_i^- - q_i^+ p \quad (7)$$

$$s_i^+ = q_i^+ p \quad (8)$$

Copying off rejection is possible both after every operation and non-permanent at the end of certain period. If we copy off rejection in account of certain period (month), the sum of rejection needs to be accumulated in a certain register, above all things on the certain account. Consequently, if m is period, the accumulated rejection for period is evened:

$$o_m^+ = \sum_i o_{m,i}^+ = \sum_i (z_{m,i}^+ - q_{m,i}^+ p) \quad (9)$$

Sum of rejection, which we copy off on a financial result we expect by a few methods, namely: 1 method - fully we copy off rejection: $o_m^- = o_m^+$; 2 method - we copy off positive rejection, negative - we fix on the account: $o_m^- = o_m^+$, $o_m^+ > o$; 3 method - we copy off rejection proportionally to part of the realized materials. If for period the receipt was not, we expect a coefficient as attitude of initial balance toward a credit turn (expenses): $\gamma_o = \frac{s_m^-}{s_b^a}$. At the receipt of materials and their partial vacation, we go into detail a coefficient taking into account acquisition: $\gamma_1 = \frac{s_m^-}{s_m^a + q_m^+ p}$ or $\gamma_2 = \frac{s_m^-}{s_m^a + z_m^+}$, where z_m^+ is actual cost of receipt.

$$\gamma_3 = \frac{q_m^-}{q_m^a}, \gamma_4 = \frac{q_m^-}{q_b^a + q_m^+}.$$

We expect the sum of rejection after a formula:

$$o_m^- = \gamma(o_m^a + o_m^+) \quad (10)$$

4 method. We copy off rejection to the level of importance $\left| \frac{o_m^+}{s_m^a + s_m^+} \right| > \varepsilon$. The level of importance $\varepsilon > o$ is to be about 5% in accordance with the sum of assets or sum of tailings. Thus, if the remain of materials on composition is small, we copy off rejection fully. On condition of far of materials on composition of rejection we expect: $\frac{o_m^+}{s_m^a + s_m^+} > \varepsilon$, than

$$s_m^+ + \sum_j q_{m,j}^+ p_{m,j}^+ . \quad (11)$$

On condition of correct calculation of standard price rejection hesitates near a zero. Thus positive rejections of receipts of supplies are compensated negative and account balance of rejections approaches a zero. On occasion the average cost of purchase undertakes for a standard cost. A standard cost can come forward a price reference point. For purchase departments she represents the standard of prices of purchase of materials, for sales departments - minimum cost of release of materials. In practice it is expedient to take the liquidating value of supplies for a standard cost. A standard cost must be looked over not more frequent once on a year, as the method of cost average for period, which is «encumbered» with procedure of calculation of rejections, is actually used here. It costs to recommend to use on an enterprise the method of middle price, after which a middle price does not change the protracted period. Possibility of influence on the level of capitalization of expenses at the purchase of materials is advantage of method of standard cost.

The method of grade cost of supplies complements the method of standard cost of supplies, but at his introduction conditional denotations are used. Applying the method of writing of rejections, we will enter the fixed numbers of costs. For a standard prime price we will accept: 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000,.... We will fix the index of standard cost in the codes of classification groups of production supplies. It is not thus expedient to keep information about the cost of every unit of supplies. If cost of material 1, it is here possible to give up quantitative registers, as a sum register is actually quantitative. Calculation of quantitative and sum registers:

$$o_m^+ = z_m^+ - s_m^+; \quad (12)$$

$$o_m^- = (o_m^a + o_m^+) \frac{q_m^-}{q_m^a + q_m^+}; \quad (13)$$

$$s_m^b = s_m^a + s_m^+ - x_m^- \quad (14)$$

where j is number of the proper grade of cost of material, in particular, $q_{m,j}^+$ is amount of materials of grade j , which acted in a period m , $q_m^+ = \sum_j q_{m,j}^+$.

It costs to notice that rejection in the method of grade cost can exceed the absolute value of grade cost. If rejection is copied off on a financial result, at small prices it is expedient to account the cost of supplies on the prime price of release of materials on the measure of their receipt. In the method of taking cost of inventory the cost of the realized products is calculated by the decision of balance equalization: $s_m^b = s_m^a + s_m^+ - x_m^-$,

from equalization swims out: $x_m^- = s_m^a + s_m^+ - s_m^b = s_m^+ - (s_m^b - s_m^a)$.

The sum of ware-house remain of materials on beginning and end of current period settles accounts. During taking of inventory is determined the amount of materials on composition. The cost of material can coincide with the certain real price in the moment of the last purchase. She can be a conditional or middle price, standard or standard cost. We will designate through p - cost of unit of material and we will get inequality for account balance from the account of materials: $s_m^a = q_m^a p$; $s_m^b = q_m^b p$.

The method of taking cost of inventory contains the principle fixed in basis of method of standard cost (normatively set cost of unit of supplies). We will compare these methods and their influence on a financial result.

We will assume that p is standard cost, z is purchase cost, q^a is initial remain of materials on composition, α is particle of the realized materials from composition in the analysed period in accordance with an initial remain on composition, αq^a is amount of the realized materials, β is particle of purchases of materials in the analysed period pursuant to an initial remain on composition, βq^a - amount of the acquired materials. A registration register is following (table 2):

Table 2. Registration register

	Beginning of the period	Receipt	Expenses	End of the period
Quantitative account	q^a	βq^a	αq^a	$q^a(1 + \beta - \alpha) = q$
Sum account	$p q^a$	$z \beta q^a$	$x = (\beta(z - p) + \alpha p) q$	$p q^a(1 + \beta - \alpha) = p q^b$

At $x < o$ prime price of vacation is negative. We explore at what terms $x < o$. We will get inequality: $z < p(1 - \frac{\alpha}{\beta})$.

A coefficient α / β characterizes attitude of the acquired materials toward the amount of released. The reverse relation β / α shows the amount of periods of the realized materials. At $\alpha \geq \beta$ cost of release of materials more of zero. At $z > p$ purchase cost of supplies more of

standard cost. If $z < p$ the cost of release of materials will be negative. Exceeding (diminishment) of cost of vacation of materials above a standard cost makes: $\Delta = q^a \beta(z - p) = q^+(z - p)$.

We use the method of arithmetic cost in default of natural (in units) account of production supplies. We will assume that is w_m profit of m - 20 period. We will set a percent, in particular certain normative part of prime price from a profit. A coefficient $1 - p$ answers a margin. Consequently, the prime price of realization of supplies and sum of ware-house tailings is determined: $s_m^- = pw_m^-$; $s_m^b = s_m^a + s_m^+ - pw_m$.

Conclusion

Research of different resources cost estimation methods gives possibility to make such conclusions. According to this method, the greater is part and positive rejection and the earlier it is copied, the less is capitalization incident degree. A situation changes conversely for negative rejection. The method of grade cost at the correct price grades setting is able to deprive capitalization to a certain extent. For this purpose it is necessary that the grade cost is less than purchase and basic part of cost rejection from the grade copied in the receipt period. Consequently, expenses capitalization causes the income tax increase. Tax base and accordingly income tax diminishes at the capitalization decline. If to ignore fiscal aims of account, for estimation of directly enterprise activity it is expedient to diminish the capitalization degree, as it will provide «equivalent» income estimation [13, c. 189]. Thus it is needed to take into account other peculiarities of methods. Among them there are material resources economy, registers calculation complication, firmness of methods to the errors, lightness in the reflection of untypical operations (operation of materials returning). In the section of inventories account it is necessary to include recommendations which determine the methods of reflection and production recourses cost estimation variants at different registration situations. Taking into account all advantages, the methods of standard, grade and arithmetic cost are more expedient.

References

1. Mnih E. Contemporary economic analysis and question of methodology and organisation // Record-keeping and audit. - 2006. - № 1. - P.55-61. (in Ukrainian)
2. Butinets F.F. Book-keeping dictionary. – Zhitomir: «Ruta», 2001. (in Ukrainian)
3. Economy and organization of production: Textbook / after redaction of V.G. Gerasimchuk, A.E. Rosenplenter. - Kiev: Knowledge, 2007. - 678 p. - (Higher education of XXI age). (in Ukrainian)
4. Dorofienko V.V., Kolosiuk V.P. Operating management: Textbook. - Donetsk: «AGE», 2006. - 418 p. (in Ukrainian)
5. Zagorodnij A.G., Vozniuk G.L. Taxes, collections, obligatory payments. Terminology dictionary. 2th ed., corrected and complemented. - Lvov: National university «Lvov Politechnika» (Informatively-publishing center «Intellect+» Institute of postgraduate education), «Intellect - West» 2003. - 192 p. (in Ukrainian)
6. Kuzhelnij M.V., Linnik V.G. Theory of record-keeping. - Kiev: KNEU, 1998. – 448 p. (in Ukrainian)
7. Pavlenko A.F., Chumachenko M.G. Transformation of course «Economic analysis of enterprise activity»: Scientific lecture. - Kiev: KNEU, 2001. - 88 p. (in Ukrainian)
8. Sopko V.V. Record-keeping. - Kiev: KNEU, 2001. – 334 p. (in Ukrainian)
9. Record-keeping in Ukraine. Train aid. Normatively-practical materials. After red. R.L. Homiak. - Lvov: National university «Lvov Politechnika» (The informatively-publishing center «INTELLECT» - Institute of postgraduate education), «Intellect - West», 2001. - 728 p. (in Ukrainian)
10. Usach B.F. Audit on international standards. - Kiev: Knowledge, 2005. - 247 p. (in Ukrainian)
12. Sokolov Ya.V. Bases of record-keeping theory. - Moscow: Finances and statistics, 2000. - 496 p. (in Russian)
13. Getge I. Balansovedenye. - Moscow: Record-keeping, 2000. - 454 p. (in Russian)