

## **Approaches on Apposite Costs in Decisional Options Analysis**

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### **Abstract**

*This article aims to present the link between cost analysis and course of action in a company. The activity undergone by company management is represented by a diversity of managerial inter-dependent decisions, through which the company sets its objectives, courses of action and ways to meet them, this way being financially stable. Through studies, certain types of costs have been calculated and a benchmark has been made for profitability margins for products, which companies use to decide regarding product portfolio.*

**Keywords:** *decisions; relevant costs; apposite costs; cost-analysis*

**JEL Classification:** *D24; M21; M41*

### **Introduction**

The cost measures the usage of the allocated resources for the production of a certain product or activity and is representative in determining the performance registered in the usage of set resources. For managers, the price is an element which forms on the market and does not have to do with the internal management, while cost is an internal element which is formed by management decisions.

The importance of knowing the costs must be analysed through the functions they have<sup>1</sup>:

- setting the price reduction limit which can be accepted;
- stock evaluation;
- determining product profitability;
- performance analysis of some under-products;
- determining and eliminating bad costs;
- the discovery of losses or ineffective activities.

Problems while taking a decision can occur because of the economic reality which forces managers to give correct answers to the following<sup>2</sup>:

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<sup>1</sup> Pîrvu, C., Costurile și gestiunea întreprinderii, *Gestiunea și contabilitatea firmei*, no. 5/2004, pp. 34.

<sup>2</sup> Dumitrana, M., Decizii prin costuri, *Gestiunea și contabilitatea firmei*, no. 6/2000, pp. 2.

- What to manufacture?
- How much to manufacture?
- What production methods to use?
- To manufacture or to buy certain components?
- What price to bear?
- Should they accept new orders? At what price?

Some decisions regard the current operation: supply, sale, orders. Others, such as investment, finance decisions or even the launch of a new product range, require an evaluation of the consequences of the importance which the financial risks the company takes.

These decisions regard the insurance of profitability of the activity's resources, as appreciates Bobocea and Iov.<sup>3</sup>

For this purpose companies use different strategies: the penetration strategy on current markets through diversification, repositioning or the strategy to win over new markets.

Fixing the price can be tricky in two ways<sup>4</sup>:

- approaching the market having in mind product value (usage value, innovation value, brand value) as well as consumer and competitor behaviour;
- a cost approach which consists in determining the cost of expenses incurred for a product plus its margin.

It is considered that the accounting decision represents the process of choosing a variant of action from several possible, starting from complete, relevant and real accounting information and also the forecast built on the basis of achieving a maximum useful effect with minimal costs.

Costs represent evaluations. The cost can be considered as the future usage chances, thus having a different value for each person<sup>5</sup>. The analysis and adjusting of an activity through costs is done with financial information regarding stocks, revenues, expenditures and profit. As appreciates Iov<sup>6</sup>, performance is a result obtained after carrying out an activity, a continuously followed object.

The controlling system is anchored in this operational organisation and it must answer the following questions<sup>7</sup>:

- Is it known what products bring profit and where are losses generated?
- Is it known how certain factors can influence the outcome?

<sup>3</sup> Bobocea, M., Iov, D. R., *General Budget of the Manufacturing Costs*, International Conference „Challenges of Contemporary Knowledge-Based Economy”, “1 Decembrie” University of Alba Iulia, noiembrie 2008, Proceedings, pp. 323-328, [www.uab.ro/sesiuni\\_2008/economics2008/acceptate.php?l=en](http://www.uab.ro/sesiuni_2008/economics2008/acceptate.php?l=en)

<sup>4</sup> Pîrvu, C., Costurile și gestiunea întreprinderii, *Gestiunea și contabilitatea firmei*, no. 5/2004, pp. 33.

<sup>5</sup> Jianu, I., *Evaluarea, prezentarea și analiza performanței întreprinderii: o abordare prin prisma Standardelor Internaționale de Raportare Financiară*, CECCAR Publishing House, Bucharest, 2007, pp. 468.

<sup>6</sup> Iov, D. R., *Considerations on the concept of economic performance*, Academia Comercială Satu Mare, The Proceedings of the International Conference „Sustainable Development in Conditions of Economic Instability”, June 2010, pp. 215-221, <http://conferinta.academiacomerciala.ro/Quality%20access%20to%20success.pdf>, in *Calitatea - acces la success*, vol. 11, no. 113 Special

<sup>7</sup> Horváth & Partners, *Controlling. Sisteme eficiente de creștere a performanței firmei*, C. H. Beck Publishing House, Bucharest, 2007, pp. 4.

- Taking into consideration the business principles of the company, is it known how the result looks like, without tax dissecting or balance?
- Are the success oriented objectives included in the company planning and are resources assigned suitably?
- How fast can we find out if we are going according to plan or have we lost control?
- Are decisions taken in time and are the needed measures taken?
- Can the company's strategy be transposed in result-oriented plans?
- Are the factors which increase indirect costs known?

## Pertinent and Relevant Costs

There are many aspects which have to be taken into consideration before making a decision. Some are measurable, some are not<sup>8</sup>:

- supply control;
- the alternative use of resources;
- legal/ social matters (regarding employees and business partners).

Emphasis must be put on the relevance of the calculus and not on its precision.

A cost is *relevant* if it corresponds with user needs and is determined in time, with satisfactory precision. A cost is never absolute because it results from a series of independent factors<sup>9</sup>.

It is appreciated that a relevant cost is a future cost that will be changed by a decision. This is an alternative cost and represents the difference in future cash flows in the given conditions and the cash flow in the event of taking a decision<sup>10</sup>.

Cost analysis is the main reason for outsourcing some activities, choosing suppliers and production methods and managing links between various activities.

The comparative analysis of profitability margins for products and services is the main basis for the company's product portfolio. The manufacture costs shall be determined and using these costs the manager can determine the selling price in order to make a profit<sup>11</sup>.

## Comparison of Alternative Projects Using Marginal Analysis Technique

Marginal analysis is used for comparing different alternatives through highlighting the differences between their income and expenditure forecast<sup>12</sup>.

For this purpose a report is prepared to help company management decide which installation to buy, X or Y.

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<sup>8</sup> Dumitru, M., Calu, D., *Contabilitatea de gestiune și calculația costurilor*, Contaplus Publishing House, Ploiești, 2008, pp. 156.

<sup>9</sup> Jianu, I., Costul și prețul ca structuri calitative în definirea profitabilității și competitivității întreprinderii, *Gestiunea și contabilitatea firmei*, no. 10/2006, pp. 40.

<sup>10</sup> Dumitru, M., Calu, D., *Contabilitatea de gestiune și calculația costurilor*, Contaplus Publishing House, Ploiești, 2008, pp. 45.

<sup>11</sup> Jianu, I., Costul și prețul ca structuri calitative în definirea profitabilității și competitivității întreprinderii, *Gestiunea și contabilitatea firmei*, no. 10/2006, pp. 40.

<sup>12</sup> Dumitru, C.G., Ioanăș, C., *Contabilitatea de gestiune și evaluarea performanțelor*, University Publishing House, Bucharest, 2005, pp. 101.

The accountant has gathered the following cost estimates regarding sales and exploitation for the two installations:

**Table 1.** Annual cost estimation regarding sales and exploitation for the production facilities (lei)

|   | <b>Installation X</b> | <b>Installation Y</b> |
|---|-----------------------|-----------------------|
| Revenue Growth                          | 34,000                | 42,500                |
| Increase in annual operating costs      |                       |                       |
| Direct raw materials                    | 5,100                 | 5,100                 |
| Direct workforce                        | 3,400                 | 4,250                 |
| Variable expenses                       | 2,550                 | 3,230                 |
| Fixed expenses (including depreciation) | 6,800                 | 6,800                 |

Source: Processing on Dumitru, C.G., Ioanăș C. (2005), author's own calculations

A marginal analysis will show the increase or decrease in revenues and costs which result from the two alternatives.

Because direct raw materials and fixed expenses are equal for the two alternatives, they are included in other analysis.

Assuming that the purchase price and the lifetime of the two installations are equal, the marginal analysis in the above example as follows:

**Table 2.** Marginal Cost Analysis (lei)

|                                   | <b>Installation X</b>     | <b>Installation Y</b>     | <b>Difference in favour of Y</b> |
|-----------------------------------|---------------------------|---------------------------|----------------------------------|
| Revenue Growth                    | 34,000                    | 42,500                    | 8,500                            |
| Exploitation Costs Growth         |                           |                           |                                  |
| Direct Labour                     | 3,400                     | 4,250                     | 850                              |
| Variable Expenses                 | 2,550                     | 3,230                     | 680                              |
| Total increase in operating costs | $3,400 + 2,550 = 5,950$   | $4,250 + 3,230 = 7,480$   | 1,530                            |
| Changes in resulting income       | $34,000 - 5,950 = 28,050$ | $42,500 - 7,480 = 35,020$ | 6,970                            |

Source: Processing on Dumitru, C.G., Ioanăș C. (2005), author's own calculations

The above analysis reflects the fact that installation Y generates 6.970 lei more income than installation X.

Therefore, the decision based on this analysis would be to buy installation Y.

Because it focuses on the differences between the alternatives, marginal analysis puts emphasis on the benefits and drawbacks of each installation.

A financial decision based on the marginal analysis reduces the time in which a decision is taken and gives the best course of action.

## **Comparative Study on the Optimal Solution from Several Possible Costs Based on Relevance**

Choosing the best possible solution, while having in mind the relevance of various types of costs, is shown by the following situation<sup>13</sup>:

A company produces and sells three types of products: X, Y and Z.

<sup>13</sup> Processing on Budugan, D., Georgescu, I., Berheci, I., Bețianu, L., *Contabilitate de gestiune*, CECCAR Publishing House, Bucharest, 2007, pp. 407-411.

After restatement of the monthly operating expenses and the quantity analysis of sold products the following data is obtained:

**Table 3.** Elements of calculation

| No. | Explanations                   | Total   | Products |       |       |
|-----|--------------------------------|---------|----------|-------|-------|
|     |                                |         | X        | Y     | Z     |
| 1   | Sold Quantity                  | x       | 5,000    | 3,125 | 3,750 |
| 2   | Uniform proportionate expenses | x       | 20       | 25    | 30    |
| 3   | Fixed expenses                 | 356,250 | -        | -     | -     |

\* Initial Data

For the optimal solution there are three variants of action:

*Option 1:*

In order to calculate the selling prices of the three products and their given results the following situations are needed:

- A) Allocation of fixed costs in proportion to the quantities produced and sold of each product;
- B) Allocation of fixed costs in proportion to variable costs of each product;
- C) Allocation of fixed costs in equal proportions for the three products.

The calculations for determining the full cost for each situation are presented in Table 4.

Sales prices estimated for each situation, considering a margin of 15 % of the full cost, are presented in Table 4.

After the calculations in Table 4 we have to note that the obtained values are not significant, the cost calculation system being approximate:

In case A, if production is homogenous, the proposed solution will generate a pertinent cost.

In case B the higher material consumption (variable costs) in the cost structure makes the proposed solution generate a pertinent cost.

In case C the proposed solution, namely to allocate fixed costs in equal shares, will generate a simple system for calculating the cost.

**Table 4.** Determining the full costs and selling prices

| No.    | Explanations                       | Products   |            |            |
|--------|------------------------------------|------------|------------|------------|
|        |                                    | X          | Y          | Z          |
| 1      | Sold Quantities (pcs.)             | 5,000      | 3,125      | 3,750      |
| 2      | Variable expenses (lei)            | 100,000    | 78,125     | 112,500    |
| Case A |                                    |            |            |            |
| 3      | Fixed expenses (lei)               | 150,000    | 93,750     | 112,500    |
| 4      | Complete cost (lei)                | 250,000    | 171,875    | 225,000    |
| 5      | Full uniform cost (lei/pcs.)       | 50         | 55         | 60         |
| 6      | Estimated selling price (lei/pcs.) | 57.5       | 63.25      | 69         |
| Case B |                                    |            |            |            |
| 7      | Fixed expenses (lei)               | 122,580.65 | 95,766.13  | 137,903.22 |
| 8      | Complete cost (lei)                | 222,580.65 | 173,891.13 | 250,403.22 |
| 9      | Full uniform cost (lei/pcs.)       | 44.52      | 55.65      | 66.77      |
| 10     | Estimated selling price (lei/pcs.) | 51.20      | 64         | 10.02      |
| Case C |                                    |            |            |            |
| 11     | Fixed expenses (lei)               | 118,750    | 118,750    | 118,750    |
| 12     | Complete cost (lei)                | 218,750    | 196,875    | 231,250    |
| 13     | Full uniform cost (lei/pcs.)       | 43.75      | 63         | 61.67      |
| 14     | Estimated selling price (lei/pcs.) | 50.31      | 72.45      | 70.92      |

Source: Processing on Budugan, D. et al. (2007), author's own calculations

*Option 2:*

Calculations have convinced the company management to consider more closely the nature of fixed costs in order to allocate more just.

Following the analysis performed it is found that some of the fixed costs can be identified within products (75,000 lei for X, 131,250 lei for Y and 87,500 lei for Z), and the difference of 62,500 lei (356,250 – 293,750) is the common expenses of the manufacturing process and can be considered general costs (indirect).

Table 5 presents calculations determine the margins on variable costs and the calculation of the real outcome.

**Table 5.** Real Outcome calculation (lei)

| No. | Explanations          | Total   | Products |         |         |
|-----|-----------------------|---------|----------|---------|---------|
|     |                       |         | X        | Y       | Z       |
| 1   | Turnover              | 691,875 | 275,000  | 203,125 | 213,750 |
| 2   | Variable Expenses     | 290,625 | 100,000  | 78,125  | 112,500 |
| 3   | Variable Cost Margin  | 401,250 | 175,000  | 125,000 | 101,250 |
| 4   | Fixed Direct Expenses | 293,750 | 75,000   | 131,250 | 87,500  |
| 5   | Specific Costs        | 107,500 | 100,000  | - 6,250 | 13,750  |
| 6   | Common fixed expenses | 62,500  | -        | -       | -       |
| 7   | Outcome               | 45,000  | -        | -       | -       |

Source: Processing on Budugan, D. et al. (2007), author's own calculations

Analysing calculations, it appears that the product Z, with a margin of 13,750 lei on specific cost, can cover not only their fixed costs, but also 22% of common fixed costs.

Product Y, unlike product Z, does not release a margin on variable cost (125,000 lei) large enough to cover the fixed costs it generates (131.250 lei)

The removing from manufacture of the product Y is proposed because, if its manufacture is dropped, the result will increase from 45,000 lei to 51,250 lei, and the fixed costs related to it, 131 250 lei, will disappear.

*Option 3:*

The company distributes fixed costs in proportion to the quantities produced and sold, but due to greater competition, sales prices are 57 lei for X, 67 lei for Y and 58 lei for Z. Quantities sold are in line with the forecast.

The calculation of real earning for the three products is presented in Table 6.

**Table 6.** Actual calculation of earnings (lei)

| No. | Explanations       | Total   | Products |         |         |
|-----|--------------------|---------|----------|---------|---------|
|     |                    |         | X        | Y       | Z       |
| 1   | Unit selling price | -       | 57       | 67      | 58      |
| 2   | Turnover           | 711,875 | 285,000  | 209,375 | 217,500 |
| 3   | Variable Expenses  | 290,625 | 100,000  | 78,125  | 112,500 |
| 4   | Fixed Expenses     | 356,250 | 150,000  | 93,750  | 112,500 |
| 5   | Outcome            | 65,000  | 35,000   | 37,500  | - 7,500 |

Source: Processing on Budugan, D. et al. (2007), author's own calculations

After determining the actual result it is concluded that:

- The overall result is favourable (65,000 lei) and represents 9.13 % of the turnover of the company;
- Three products have different profitability margins, respectively, 12.3 % for product X, 17.9% for product Y, while product Z has registered a major loss (7,500 lei), being sold at a lower price (58 lei) than its actual unit cost (60 lei).

Following this analysis, it appears that the production of product Z is not profitable and requires either stopping production or selling the product at a price higher than the complete unit cost.

## Conclusions

It is considered that in decision taking managers should take into account only future costs and must use those costs that are relevant to making the decision.

The Information System provides an analysis of the costs associated with the financial performance of an organization's processes and activities. Management decisions are directed in particular to variable expenses and long-term decisions use hidden costs, opportunity costs and marginal costs. The costs diversity shows the diverse decisions that have to be taken in a company.

The partial cost system is based on the fact that in cost only a relevant part of the company's expenses is included. To assess proposed projects (replacing of existing equipment or stopping the manufacture of a certain product) special studies are performed to determine relevant costs and revenues, resulting from the project.

Calculating partial costs results in the decision of eliminating or developing products and analysing the expenses that appear because of these decisions. The choice of method depends on the degree of analysis that aims to be achieved so that the results obtained are significant. As a result of the decision making, management actions with real cost reduction influences represent an essential element of an efficient economic activity.

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