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## Costs, Productivity, Profit, and Efficiency: An Empirical Study Conducted Through the Management Accounting

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### Abstract

This article highlights the author's attempt to test the hypothesis upon which the study is based taking into account the connection that exists among cost, productivity, profits and efficiency and trying to prove that this can be confirmed by a simple and efficient method of calculation used by the management accounting, namely the Direct Costing method. The article also presents a methodological case study designed to highlight the modifications of the results taking into account the changes of the variables met in the current business environment. The obtained results will be presented and discussed by the author herself whose conclusions about the benefits offered by the Direct Costing method will end the article.

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*Key words:* cost, efficiency, management accounting, productivity, profit.

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### 1. Introduction

The progress of any society depends, to a crucial measure, on the efficiency with which the human, natural, and financial resources it owns are used. People have always tried, that in each field of work with reference to human resources or money spent, to ensure the greatest possible growth of the volume and quality of production, to obtain greater amounts of goods and services, because only on such a basis an intense economic growth, the creating of an advanced economy and implicit conditions having in view the material and spiritual welfare of the population, can be assured. Thus, one can define the hypothesis on which this study is based upon, a hypothesis according to which there is a connection between costs, productivity, profits and efficiency. In this article the author tries to test this hypothesis through the means of the management accounting by using the Direct-Costing method.

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## 2. Research methodology

The research techniques and procedures used have been chosen according to the aim and the type of information meant, as it follows:

According to the intended purpose of the research, we will identify:

- the exploratory research that aims to identify the hypotheses which are investigated in the present study are;
- the instrumental research conducted with the help of the indicators calculated according to the statistical and mathematical model;
- the descriptive research which aims to prove the description and evaluation of the cost, profit, productivity and efficiency indicators;
- the explanatory research which has as purpose the study of the causes that explain the evolution in time and space of the cost, productivity, profit, efficiency indicators;
- the conclusive or confirmation research (Cătoi, 2002) which aims to test the author's hypothesis.

From the perspective of the type of information resulting from the research, this study has assumed the observance of some rules and principles characteristic of the mixed research methodology, which points out that this article is a qualitative research combined with quantitative elements.

### Chapter 1 The Analysis of the Terms Involved

To sustain the hypothesis formulated, the author moves to the analysis of the terms involved.

**Cost.** One of the main objectives of the management accounting is the calculation of the cost of the production. The cost of the production is the sum of the expenditure incurred by the production and sale of an asset, the execution of a works or the provision of a service.

**Productivity.** In the process of combining the factors of production, their consumption takes place, yielding economic assets. The Manager will keep on comparing the results obtained with the production factors used. This is achieved especially through productivity, calculated as the ratio between the economic assets obtained and the production factors involved in their achievement. In the economic theory and practice there are two acknowledged forms of productivity: the partial productivity and the global productivity (Briciu, 2010).

*The partial productivity* expresses the efficiency of a single factor of production; according to circumstances, we can distinguish among the following: the work productivity, the capital productivity and the land productivity. Our study deals with the partial labour productivity, more precisely the labour productivity of a section or the labour productivity at the level of the economic entity. The average labour productivity or effectiveness expresses the fruitfulness with which a certain amount of work is spent and it can be measured either by the quantity of products obtained in one unit of time, or by the labour expenses per unit of product. The labour used rationally is a decisive factor in the permanent increase of the fruitfulness of work and obviously of the labour productivity.

*The global productivity* expresses the efficiency of all the factors of the production involved in the achievement of a result.

**Profit.** The share which is obtained as income above the cost of production irrespectively this income is, the product of some factors of production hired or as a result of the competition on the market, is the economic profit. While the accounting profit is the excess of cost over the net revenue, the economic profit is the difference between the total income of the economic entities and the opportunity costs of all inputs (factors) used by this in a certain period of time. (Bebeșelea, 2010).

**Efficiency.** As a whole, it represents the correlation between effects and efforts. From the point of view of the quantity, it is expressed by indicators of efficiency which usually takes the shape of a mathematical relation between effect and effort. The economic calculation, the operation and development of the activity on the principle of efficiency, take into account the relationship between the cost and the selling price of every goods, a relationship viewed from the viewpoint of both the part and the whole. The cost (C) designates only a portion of the sale price (P), namely the costs incurred by the operators, and the excess of the price (more than the cost of production) represents the profit (pr) or the benefit. Thus, for each unit of product, the following ties are valid:  $P = C + pr$ ; and the economic entity as per total turnover  $CA = C + pr$ .

## Chapter 2 Cost, Productivity, Profit, Efficiency and the Management Accounting

The converging concerns and studies of the accounting professionals in the field with those in other related fields such as marketing, management, etc., have led to a real revolution in the methodology of the systems of the calculation of the cost. Thus, the manner of the achievement of products knows drastic changes in the utilization of the advanced manufacturing technologies that includes the automated production technology, the computer-aided design and production, robotics, the flexible manufacturing systems, the total control of quality, the entire quality management etc. According to the accounting professionals, the traditional costing systems those of the measuring of the results are virtually incompatible with the use of the advanced manufacturing technologies. Considering the radical plea for the exclusion of the traditional systems of practice, we'd like a better appreciation of the patchy resource consumption (Tabără, et al, 2012). Thus, there emerges the need for some costs that concern primarily, generally speaking, the management of the resources and the behaviour of the officials involved. These efforts of the specialists resulted in the Direct-Costing calculation.

### The Direct Costing Method Axiology

The Direct Costing method is a method of a subdirectory calculation which takes into account the unit cost only as the variable costs.

The essence of the method consists in the separation of the production and distribution, with respect to their character variations in the volume of production and sales, in variable and fixed expenses, and taking into account the calculation of the unit cost per product, making reference only to variable costs. The fixed expenses are treated as expenses of the period and are to be deducted from the gross financial result of the economic entity. The method focuses on the boosting of the sales in that the size of the fixed costs are not allocated on the stocks (of execution in progress, finished products, goods shipped but not received), but they should be covered by the sales period.

### The Direct Costing Method Indicators

The Direct Costing method is both a method of calculation and a method of analysis regarding the adoption of some decisions concerning the manufacturing or the production of a product. With reference to an economic entity, the volume of activity is in a full correlation with the price and the variable expenditure and, on the other hand, the workloads with the production capacity and implicitly the fixed expenses. These are in correlation with the wearer's cost (product) which, on the one hand, generates costs dependent on them and, on the other hand, generates the necessity of the existence of a certain production capacities. This correlation is expressed by the means of the following indicators characteristics of the Direct-Costing method, such as: the break-even, the coverage factor, the safety factor, the safety range (Fătăcean, 2009).

#### 2.1. The break-even threshold or the point of equilibrium

The break-even threshold or the point of equilibrium is that point where the profit is equal to zero or, otherway said, the revenues are equal to the expenses. Knowing the break-even point of balance helps us know the point from which you need to start an entity in order to get profit and to cover its fixed and variable expenses.

The balance can be expressed in different ways:

- quantitatively (per product), meaning that respectively the quantity of products which is to be manufactured and sold in order that the expenditure should be equal to the income (in order to cover all the expenditures). It is the expression and the main relation of the equilibrium point;

$$\frac{Qe}{Pe} = \frac{CF}{P_{Vu} - C_{Vu}} = \frac{CF}{Cbu} \quad (1)$$

- valuedly (per total entity), meaning respectively the turnover (the critic) criticism, namely CA at the point of equilibrium;

$$\frac{CA}{Pe} = Q_{(Pe)} * Pvu \quad (2)$$

- percentagely; it shows how much of a percentage of the total production produced by the economic entity is needed, in order to arrive at the point of equilibrium.

$$\% Pe = \frac{Q_{(Pe)}}{Q_{vi}} * 100 \tag{3}$$

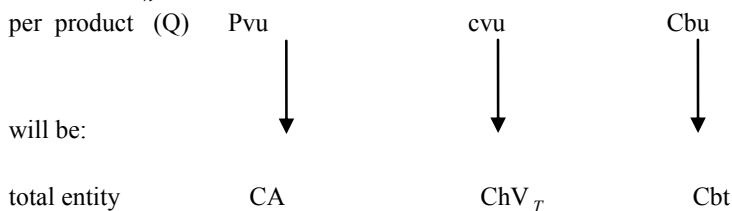


Fig. 1 Elements of point of equilibrium per product and total entity

- P - profit
- Pvu - unit selling price
- Ch.T - total expenses
- ChV<sub>T</sub> - total variable expenses
- ChF<sub>T</sub> - total fixed expenses
- Cvu - variable costs per unit
- Cbu - gross contribution per unit
- Cbt - gross total contribution
- CA = Turnover
- Q<sub>Pe</sub>* is *Pe* expressed quantitatively.
- Ch.T= ChV<sub>T</sub> + ChF<sub>T</sub>
- Cbt = CA - ChV<sub>T</sub>
- Cbu = Pvu – Cvu
- P = Cbt- ChF<sub>T</sub> = CA - ChV<sub>T</sub> - ChF<sub>T</sub>

2.2. The coverage factor or the margin contributory.

This indicator underscores the extent to which a product or an order is profitable (a) for an economic entity, in terms of the degree of coverage of the expenses and of the achievement of the profit. The higher the coverage factor, the higher the contribution of the product to profit. The *margin contributory* or the coverage factor per order is counted according to the relationship:

- on the basis of the gross contribution and CA:
- the calculation per product

$$Fa = \frac{Cbu}{Pvu} * 100 \tag{4}$$

- total products

$$Fa = \frac{Cbt}{CA/Pe} * 100 \tag{5}$$

- on the basis of the fixed costs and a CA at the level Pe

$$Fa = \frac{ChF_T}{CA/Pe} * 100 \tag{6}$$

Using the Direct Costing method you can identify those products that cannot cover their expenses and are unprofitable to the economic entity.

### 2.3. The coefficient of the dynamic safety

The coefficient of the dynamic safety shows how much sales can drop relatively in order that the economic entity should reach the equilibrium point. Any decrease over this coefficient will cause the economic entity which enters into the losses. Therefore, all the decisions concerning the sales should be made taking into account the margin of the coefficient of the dynamic safety. You have to count taking into consideration the following relation:

$$K_s = \frac{CA - CA/Pe}{CA} * 100 \quad (7)$$

### 2.4. The safety range represents

The safety range represents in absolute sizes, how much the sales can decrease so that the economic entity does not enter into the losses. You have to count taking into consideration the following relation:

$$I_s = CA - CA/Pe \quad (8)$$

$I_s = CA$  turnover (Total Sales) - The break-even threshold on the whole economic entity (Sales at steady level point of equilibrium).

The direct costing method is both a calculation method and a method of analyzing the decisions relating to the manufacture or production of a product.

An economic entity produces and sells the product A. Starting from the initial state of affairs, there can appear the following situations:

1. the growth of the volume of the production by 10%, of the total variable costs by 10%.
2. the price increase occurs for the sale of the products with 10%, the decrease of the total variable costs by 5% and the decrease of the number of the products with 10%.

Table 1. The Specific Indicators of the Direct-Costing Method, the Productivity and Efficiency in the Initial Situation and in the Cases 1, 2

Calculation of indicators	Initial situation			Case 1			Case 2		
	Quant	Pv	Total	Quant	Pv	Total	Quant	Pv	Total
1. Turnover	20.000	6,5	130.000	22.000	6,5	143.000	18.000	7,15	128.700
2. Material expenses			36.000			39.600			34.200
3. Salaries expenses			64.000			70.400			60.800
4. Total variable expenses			100.000			110.000			95.000
5. Gross total contribution (5 = 1-4)			30.000			33.000			33.700
6. Total fixed expenses			16.000			16.000			16.000
7. Profit (7= 5-6)			14.000			17.000			17.700
8. Point of equilibrium			69.336			69.336			61.106
9. Coverage factor			23,07%			23,07%			26,18%
10. Coefficient of safety			46,6%			51,5%			52,5%
11. Safety of range			60.664			73.664			67.597
12. Labour productivity			3,2			3,2			3,37
13. Efficiency			12%			13,49%			15%

Source: Projection made by author

### 3. Results and Discussion

The cases presented and analyzed (cases 1-3) led us to the following findings:

1. After having analysed the above situations, one would be able to notice a significant increase of the product, the labour productivity and the economic efficiency but just in case 2.
2. The controlled percentage growth (a certain percentage) of the price of sale of the product leads to: the loss of the balance, the increase of the coverage factor, the increase of the coefficient of the dynamic safety, the increase of the profits, while there is a labour productivity growth, respectively of the economic efficiency.

3. The quantitative growth of the physical volume of production leads to: the maintenance of the balance and coverage factor, the increase of the coefficient of reliability and safety of the range, the increase of the profits, the labour productivity growth, respectively of the economic efficiency.
4. The reduction of the costs of the uniform variables will lead to: the growth of the coverage factor, of the coefficient of safety and of the range of safety, the loss of the balance, the increase of the profits, the labour productivity growth, respectively of the economic efficiency.

#### 4. Conclusions

Summarizing the advantages of the applicable Direct-Costing method, we can conclude the following:

- it allows decision-making in terms of efficiency with respect to the waiver of the manufacture of certain products;
- it easily ensures the control of the amount of the product which are to be sold in order to get a certain predetermined benefit;
- it allows the knowledge of the conditions under which one can accept a lower variable cost price because one can easily count the effect on the profit or loss.

*As a conclusion we'd like to underline that the hypothesis that the connection between cost-productivity-profit-efficiency can be tested through the management accounting using the Direct-Costing method, proves true.*

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#### References

- Bebeșelea, M. (2010). *The accounting and financial flow of taxes in Romania*. Cluj –Napoca: Alma Mater Publishing House
- Briciu, S., Căpușneanu, S., Roș, L.M., Topor, D. (2010). *Accounting and management control. Tools for evaluating performance*. Alba-Iulia: Aeternitas Publishing House
- Căpușneanu, S., Briciu, S. (2011). Cost control and analysis based on results account of the ABC method, *International Journal of Academic Research in Business and Social Sciences*, 1(3), 137-154
- Cătoi, I., et al. (2002). *Marketing research*. Bucharest: Uranus Publishing House
- Tabără, N., et al. (2012). *Actualities and prospects of accounting and management control*. Iași: TipoMoldova Publishing House