THEORETICAL AND PRACTICAL CONSIDERATIONS REGARDING THE COST CALCULATION USING DIRECT COSTING

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Abstract: *The definition of the cost of production as applied to inventories refers to the acquisition and production cost, and its determination involves many considerations. This article emphasizes a comparative approach of the calculation of production cost under direct costing and absorption costing, and examines the impact of using these calculation systems on the financial performance of the companies presented in the income statement.*

Key words: *cost of production, direct costing, absorption costing, variable costs, fixed costs, income statement*

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1. Introduction

The cost of a product or the cost of providing work or services includes several elements, like as material costs, labour costs and other costs related to fabrication process (Chadwick, 1998). Considering the extent of expenses inclusion in the cost of production, which may be larger or more restricted, there are many differences between the cost calculation systems, the most used being the full cost accounting (e.g. job order cost system, process cost system), and the partial cost accounting (e.g. direct costing, variable costing).

This article has as its starting point the major differences in the structure of the production costs under the two calculation systems (full and partial cost accounting). The specific methodology of each calculation system is exemplified and it is demonstrated that considering only certain operating costs leads to different results on the cost of production. Since the "cost" information is used for valuation of inventories, important indicators in the balance sheet (like as "Inventories") and in the income statement (like as "Cost of goods sold") will affect the financial position and the financial performance disclosed to the users of the financial statement. In this context, the article presents the income statement under the partial and the full cost accounting.

Additionally, there are emphasised the advantages of using partial cost accounting for internal information needs in order to ensure efficient management of the entity.

2. Theoretical issues on cost calculation under full and partial cost accounting

In order to measure the cost of production, the costing theory has adopted two significant systems for the cost calculation: full cost accounting (absorption costing) and the partial cost accounting.

The full cost accounting requires that valuation of a company's total inventory has to include all the manufacturing costs incurred to produce those goods, respectively the direct and indirect costs (Epuran et al, 1999). Călin and Cârstea (2002) define the direct costs as those costs that can be identified specifically with a particular product at the time of fabrication; the indirect costs are those costs that cannot be identified readily and specifically with a particular product, being incurred for the whole manufacturing process.

According to the partial cost accounting the unit cost of production includes those costs which are directly related to product fabrication (Epuran et al, 1999).

The partial cost accounting is the basis of direct costing method, known as the

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variable costing method, according to which the cost of production includes only those costs that vary depending on a company's production volume. This method is based on the classification of costs by their behaviour, depending upon response to the changes in the production volume or activity levels (Briciu et al, 2010). Based on this criterion, costs are variable and fixed.

The variable costs vary depending on a company's production volume or activity level (Needles et al, 2000). Examples of variable costs are: direct materials, direct labour, and the variable portion of manufacturing overhead.

The fixed costs are those whose absolute value remain relatively unchanged or change insignificantly with increasing or decreasing output. Examples of fixed costs are: depreciation, rent for the equipments, wages for management personnel of production facilities being paid per month and the social security contributions, maintenance costs and so on (Călin and Cârstea, 2002).

The direct costing method includes only the variable manufacturing overhead in the unit cost of a product. The entire amount of fixed costs is expenses in the year incurred and, like as the selling and administrative expenses, is always treated as period cost and deducted from revenues as incurred.

3. The cost calculation under direct costing and absorption costing and the impact on the financial performance

To illustrate the calculation of unit product costs both under direct and absorption costing, I shall consider the following example: Company A that produces a single product, production of 10,000 units, has the following cost structure:

- variable costs per unit: direct materials RON 5, direct labour RON 9, variable manufacturing overhead RON 2 and variable selling and administrative expenses RON 5;
- fixed costs per year: fixed manufacturing overhead RON 60,000 and fixed selling and administrative expenses RON 30,000.

Company A sells 8,000 units with the selling price of RON 40 per unit.

Under direct costing all variable costs of production are included in product costs. In case of Company A the unit product cost under the direct costing method means the total amount of variable costs per unit:

- direct material RON 5

(+) direct labour RON 9
(+) variable manufacturing overhead RON 2
(=) production cost per unit RON 16

The fixed manufacturing overhead and the selling and administrative expenses will be charged off against income as period expenses.

Under absorption costing all production costs, variable and fixed, are included when calculating the unit product cost. In case of Company A the unit product cost under the absorption costing method is computed as follows:

- total amount of variable production costs RON 160,000

(variable production costs per unit RON 16 × 10,000 production units)
(+) fixed manufacturing overhead RON 60,000
(=) total cost of production RON 220,000

The unit production cost is RON 22, which is the total cost divided by the total production units of 10,000.

Comparing the two cost calculation systems, the cost of production is higher under the absorption costing than in direct costing. The difference is RON 6 per unit, which is exactly the amount of the fixed overhead rate (the total amount of fixed overhead of RON 60,000 divided by the production units of 10,000).

Computing the cost of production under direct costing and under absorption costing will affect the financial position disclosed in the balance sheet through the cost of ending inventory (which is lower under direct costing). The unsold units of 2,000 will be carried as inventory on the balance sheet at RON 16 each under direct costing or at RON 22 under absorption costing.

Also the difference will affect the financial performance presented in the income statement through the cost of goods sold (which is lower under direct costing).

The income statements prepared under the direct costing and the absorption costing produce different net operating income figures. Considering the same example, the condensed income statements are presented with specific figures for both calculation methods.

Table 1. Income Statement under direct costing

	RON
• Sales (8.000 units × RON 40 per unit)	320.000
(-) Cost of goods sold (8.000 units × RON 16 per unit)	128.000
(-) Variable selling and administrative expenses (10.000 units × RON 5 per unit)	50.000
= Contribution Margin	142.000
(-) Fixed expenses:	
- Fixed manufacturing overhead	60.000
- Fixed selling and administrative expenses	30.000
= Net operating income	52.000

Under direct costing, the net operating income is RON 52,000 being influenced by the amount of cost of goods sold, explicitly by the cost of production of RON 16 per unit. Still, the income statement prepared under direct costing allows the calculation of "contribution margin" based on which a company determines the profitability of individual products. The contribution margin is the difference between sales revenues and the total amount of variable expenses related to a given volume of production (Needles et al, 2000). Contribution margin analysis is a useful tool for the company's management to evaluate financial performance and to make investment decisions (Tsui, 2011). As a performance indicator, it is useful in Cost-Volume-Profit (CVP) analysis, especially break even analysis.

The absorption costing system makes no distinction between fixed and variable costs; therefore, it is not well suited for CVP analysis, which is important for planning and control. To generate data for CVP analysis, it would be necessary to spend considerable time reworking and reclassifying costs on the absorption statement (Anonymous, a).

Table 2. Income Statement under absorption costing

	RON
• Sales (8.000 units × RON 40 per unit)	320.000
(-) Cost of goods sold (8.000 units × RON 22 per unit)	176.000
= Gross Margin	144.000
(-) Selling and administrative expenses:	
- variable selling and administrative expenses (10.000 units × RON 5 per unit)	50.000
- fixed selling and administrative expenses	30.000
= Net operating income	64.000

The net operating income under absorption costing is RON 64,000 being influenced by the amount of cost of goods sold, explicitly by the cost of production of RON 22 per unit.

Analyzing the income statement presented in table 2, the conclusion is that under absorption costing some of the fixed manufacturing costs of the current period are not

appear on the income statement as part of cost of goods sold, being deferred to a future period and carried on the balance sheet as part of the inventory account. Under direct costing method the entire amount of fixed manufacturing overhead costs is treated as an expense of the current period, although a part of goods has not been sold yet.

Based on the figures from the above example, during the current period 10,000 units have been produced but only 8,000 units have been sold, leaving 2,000 unsold units in the ending inventory. RON 6 was assigned to each unit produced as fixed overhead cost; which means a total amount of RON 12,000 for 2,000 units. When these units will be sold and, therefore, taken out of inventory, the deferred fixed manufacturing overhead cost will be presented in the income statement as the cost of goods sold.

In summary, under direct costing method the entire amount of RON 60,000 that is the fixed manufacturing overhead costs has been treated as an expense of the current period. Under absorption costing, from the total amount of fixed manufacturing overhead costs, only RON 48,000 (8,000 units × RON 6 per unit) has been included in the cost of goods sold. The remaining RON 12,000 (2,000 units not sold × RON 6 per unit) has been deferred in inventory to the next period. From this point of view, Putra (2010) emphasizes the advantage of direct costing which solves the main problem of absorption costing regarding the time lag between incurring a cost in the current period and its recognition as an expense in the income statement in a future period.

4. Conclusions

As it can be seen, there are major differences between the cost structure under partial and full costing calculation systems. Under direct costing the cost of production includes direct material, direct labour and variable manufacturing overhead and the period costs are the fixed manufacturing overhead, variable and fixed selling and administrative expenses. Under the absorption costing, the cost of production includes direct materials, direct labour and the variable and fixed manufacturing overhead manufacturing overhead and the period costs are variable and fixed selling and administrative expenses (Anonymous, b).

The international, European and Romanian accounting regulations require using the absorption costing method in the calculation of the cost of production.

The International Financial Reporting Standards (IFRS) require that a company allocate indirect costs to its inventory asset for external reporting purposes. In other words, direct costing is not accepted for external reporting. According to International Accounting Standard (IAS) 2 “Inventories”, the costs of conversion of inventories include costs directly related to the units of production, such as direct labour. They also include a systematic allocation of fixed and variable production overheads that are incurred in converting materials into finished goods.

In Romania, according to the provisions of Minister of Public Finance Order no. 3055/2009 the production cost includes the purchasing price of the raw materials and consumables and the costs directly attributable to the product. The costs of conversion include costs directly related to the units of production, such as: direct materials and energy for productive uses, direct labour, the cost of designing the products, and also the reasonable proportion of the costs which are indirectly attributable to the product. Still, the Order of the Minister of Public Finance no. 1826/2003 for approving the Clarifications of several measures for organizing managerial accounting approves the use of direct costing as a method for calculation the cost of production.

The conclusion is that direct costing is not a generally accepted accounting procedure for external reporting purposes, as the exclusion of all overheads from inventory is not compliant with the definition of production cost.

Still, in terms of the internal management and the internal needs for accounting information, the advantages of direct costing have generally been well recognized. Direct costing may offer to the manager that information which is very important in decision

making regarding the future business. Thus, the method provides a solid basis for cost planning and for studying the effects of planned changes on the volume of production, determined by changes in economic conditions or specific managerial decisions, such as: selling price variation, increasing or decreasing inventories, promotional sales (Briciu, 2006).

The absorption costing methods are directed towards the selling price which should cover the direct costs and a "normal" part of indirect costs, rationally allocated to the cost of production (Chadwick, 1998; Epuran et al, 1999). Still, these methods lose their relevance due to some specific causes: the rapid changes in the production environment and technologies, the increasing importance of indirect costs and the significant efforts of gathering and processing the information. Additionally, Epuran, Băbăiță and Grosu (1999) point out that the time needed to prepare the data leads to information lacking in topicality and interest for users.

On the other hand, direct costing method is directed especially toward increasing the sales, as the fixed costs are not allocated to the inventories but they should be covered by the sales of the current period (Briciu et al, 2010).

As a conclusion, my opinion is that it should be no opposition between the partial and the full calculation systems, each of them being responsible to different but not contradictory interests. Direct costing method should be considered a complementary instrument for internal users, because taking into consideration the criterion of costs variability allows more operative and more suitable for planning analyses.

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