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The Importance of Cost Calculation Method in the Accounting and Management of Turkish Operating Costs: A Research within the Scope of TAS-2

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Abstract

The aim of calculating the costs more accurately with less deviation and managing the costs in businesses is increasing. This is more important in production businesses. Therefore, it is necessary to know the costs well and put them on product prices. The aim of this study is to compare business costs and the methods used in calculating these costs on the one hand, and tax laws and recognition within the scope of Turkish Accounting Standard (TAS-2) on the other hand. This standard explains what should be considered in determining costs. In addition, this standard shows what will be the production and stock cost calculation method and how they will be reported. As a result of the study, it is seen that there are different results when full cost and variable cost methods are used. It is seen that in full cost method all expenses are added to the cost. This complies with legal regulations however it causes to an increase in the calculated costs. On the other hand, while the occurrence of a legally unaccepted cost section in variable cost method reveals a deficiency; the lower costs compared to other method helps to give better price offers.

Keywords: Managerial Accounting, Costing, Cost Accounting, TAS-2

Introduction

In today's world, businesses have started operating in a wide range of areas in the process of global growth. With the increasing variety in operations, the business volumes of companies increased and developed significantly. The increase in the volume of activities and the complex structure of operations caused business administrators to focus more on the flow of information among different units of a business. Especially, following the business flow in production businesses and management of business processes have become important. Such business activities as financial accounting, corporate accounting, foreign trade accounting and cost accounting are used effectively in terms of recording, controlling and analyzing business activities. Accounting recording in Turkey started in 1850s after the Business Law was translated into Turkish. Financial information system is the sum of all system elements that form the required information for the control of assets and planning of the future as long as the business administrators continue their financial control function

(Bursal, 1993). Its impact was seen in French and German literature as of that year. Cost accounting practice, on the other hand, started with the foundation of Sumerbank in 1933. The foundations of cost accounting used today were set by The Commission of Reformation of State Economic Enterprises in 1964.

With the Law on Occupation no: 3568 in 1989 unified accounting system practitioners were organized. General communiqué on accounting system application dated December 26, 1992 officially entered into force as of January 1, 1994. In the Communiqué cost accounting accounts were demanded to be explained as 1-9 Type of Expenses and 10-99 Places of Expenses. In addition, approaches as 7/A and 7/B options and use of real predetermined numbers were brought cost accounting practice (Yukcu, 1998). While cost accounting is used for calculating the cost of goods and services produced, it also effects business decisions and contributes to price offers. Although costs do not have an effect on price formation in the short-term in the institutions, the fact that the cost of goods should not exceed the prices in the long-term increases the need for cost accounting. Cost accounting is the sum of the processes of identifying the types of costs based on the documents related to cost, allocating the costs to their relevant places of cost they belong to, calculating the real cost of the goods or services produced, recording, reporting and analyzing (Altug, 1996). When defining costs three points should be considered (Bursal, 1996): In order for this factor spending to be included in product cost, it should be carried out in order to obtain the product or service that the company is engaged in.

- It should be a value that can be measured by money.
- Production factors to be used in the production should be identified.

Cost accounting is used for realizing below given objectives in industrial businesses and service providing businesses (Bursal and Ercan, 2002).

1. Calculating the unit price of the good or service produced accurately,
2. To help controlling the activities of industrial businesses,
3. Providing the cost information required for the short and long term planning activities,
4. To help the decisions that the management in industrial businesses will take. The information that cost accounting produces can be used in taking certain business decisions.
 - a. Replacing an old machine with a new one or taking new investment decisions for buildings and facilities,
 - b. Making a change in the production technology used in the business,
 - c. Making a change in the production programme in the business, producing a new good or stopping the production of a good,
 - d. Accepting or declining an order below a normal price,
 - e. Making a choice between producing a good or service within the business or outsourcing it.

Cost Accounting – Financial Accounting Relationship

In the Uniform Accounting Plan which has started to be implemented since 1994. The class numbered 6 is for income table and class number 7 is for cost calculations. In the uniform accounting plan accounts with 700, which form the cost accounting section, are grouped under three groups (Akinci, 1995). These are:

- Expense accounts;
- Expense Reflection accounts;
- Variance accounts.

Cost accounts are divided into two as 7/A and 7/B. The 7/A option is for those industrial and service businesses with a certain production volume which are willing to keep cost accounting records in detail. And the 7/B option is for trade, small industrial and service businesses. Cost accounting receives the information required for pricing from financial accounting. These data and costs received are followed in the accounts that cost accounting has within its own system. The follow-up continues till the end of production process. In some big businesses there are sub-departments in line with the size of the business (warehouse accounting, accrued fee service etc.). Cost accounting should be in close relationship with these services (Haftaci, 1995). What is important for cost accounting is not time but unit, service or place of a good. Cost accounting particularly deals with the production phases of goods. There are four factors required for the occurrence of production activity. These are: nature, effort, capital and entrepreneur (Oguz, 1992). At this point, cost accounting finishes its work. And from this phase on, the decreases in the stocks (sales) are recorded again as financial accounting records. It is not possible to completely separate cost accounting from financial accounting (Bursal, 2002). Because cost accounting receives the necessary numbers from financial accounting. Here it is possible to say that cost accounting is related to the production phase of a good or service. When the good is in stock and service is in supply, it will be financial accounting that will be in charge (Yukcu, 1998). Financial accounting is for providing information for others (Altug, 1999). In today's businesses, financial accounting and cost accounting records changes according to the business mindset, size and commercial structure of the business. Some businesses are organized as a single service. This is mostly seen in businesses called SMEs. Big businesses which have formed their corporate structure, on the other hand, keep cost accounting as a separate department (Peker, 1978). Our study includes mainly six sections.

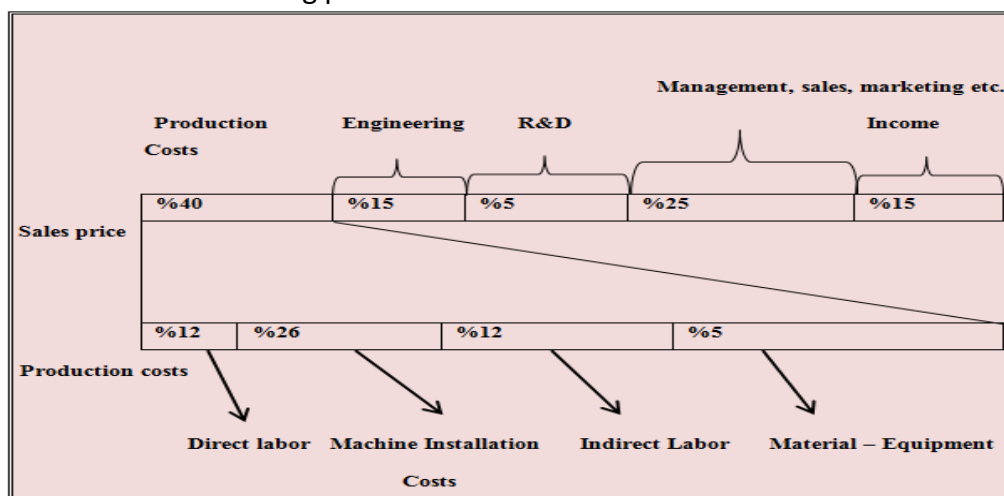
The Concept of Cost in the Literature and Accounting System

TAS-2 Stocks Standard suggests normal cost method in calculating the costs. Tax regulation, on the other hand, obligates full cost method (Yereli *et al.*, 2012). As part of accounting, the concept of cost is a calculation and record system (Karakaya, 2004). Studies towards cost management and accounting are as follows: Cemkut *et al* (2013) compared Normal Cost Methods in terms of Turkish Accounting Standards (TAS) 2 and Tax Procedural Law (TPL), Yukcu and Atagan (2013) discussed unit cost approach according to International Financial Reporting Standards (IFRS), TPL and other cost accounting systems and revealed similar and differentiating points. Celik and Kok (2013) discussed the validity of cost stickiness in Turkey and concluded that for consecutive periods it is only the cost stickiness that is valid in terms of the cost of sales. YildizTokatlioglu (2005) studied benefit-cost analysis, Wudhikarn (2012) studied quality costs; Farzaneh *et al* (2013) studied the cost of sales, Krol *et al* (2011) studies cost problems. On the other hand, Ocneanu and Cojocar (2013) studied the subject in terms of labor costs, Papaemmanouil *et al* (2013) studied improved benefit-cost analysis, Yang and Cho studied the minimization of working costs. And this study discusses the issue in terms of the functionality of the cost calculation methods. The aim of the study is to find out the feasibility of the methods in terms of best cost calculation and to find out what could be the accounting of costs?

Cost Elements

It is seen that there are three main types of expenses in business costs. These are: direct first material and equipment costs, direct labor costs and general production costs. Places of

cost occur related to these costs. These are main cost centers and subsidiary cost centers. Main cost centers are the places where production takes place and actual labor costs are carried out. For example, in furniture businesses the places where raw material cutting, banding and perforation are carried out are the main production centers. Subsidiary production centers are the places where technical support activities are carried out in order to make the production smoothly. Cost calculation methods are required for the calculation of the costs in these cost centers. Today traditional and modern methods are worked to be used together. In fact, it is difficult to say that traditional cost calculation method is accurately used in Turkish Furniture sector. While determining furniture costs, first the cost of raw materials and then the labor costs are calculated and the sales price is determined by adding a certain amount of profit share to the cost found. At this point, the amount of the general production costs that falls on costs cannot be fully calculated. (Tanritanir *et al.*, 2004) states that traditional cost accounting practices are insufficient.



Source: (Tanritanir *et al.*, 2004)-(Simulation und Logistik, Mateiralfluss)

As it is seen in the figure above the rate of main direct labor costs in production costs is 12%, while the rate of machine, equipment costs is 26%, the rate of indirect labor costs is 12% and the rate of material costs is 5%. On the other hand, when we examine total production costs, we see that it is made up of 40% production costs, 15% engineering, 5% R&D expenses, 25% management and sales costs. When determining the sales price, a 15% profit is added on the cost. Businesses also make product profitability and cost analysis while calculating such costs. Starting costs analysis from the suppliers and ending it at the sales phase lowers the degree of benefiting from the relationships established both with suppliers and consumers (Sakrak and Hacirustemoglu, 2002: 105).

The Aim and Scope of TAS 2

According to Turkish Accounting Standard 2 (TAS 2) the aim of standard is to explain the accounting transactions related to the stocks. The main issue related to the recognition of accounting stocks is determining the cost related to the recognizing the stocks as assets. This standard includes reducing stock costs to net realizable value and explains how to determine stock costs and turn them into expense. Standard also provides information on the formation and content of the stock costs as well as the valuation method to be used.

The stocks within the scope of the standard are as follows (Clause 6):

- (a) The assets kept for sales within the normal flow of business (within the scope of usual business activities);
- (b) The assets produced for sale or,
- (c) The assets that exist as first material and equipment to be used in the process of production or service delivery.

According to the 8th clause of this standard, stocks include commodities purchased in order to resell them. For example, commodities which are bought by retailers in order to resell and ready for sale, or lands and buildings which are bought to resell and ready for sale are within the scope of stocks as commodities. Stocks also include goods produced by the business or semi-products that are still in production and first materials and equipment waiting to be used in the production process.

There are exceptional cases in which TAS 2 cannot be implemented

1. Ongoing works within the scope of construction contracts (including service contracts directly related to these contracts). These are within the scope of TAS11: Construction contracts.
2. Financial instruments. These are within the scope of TAS 32: Financial instruments: Presentation in Financial Statements and Explanations and TAS 39: Financial Instruments: Recording and Valuation.
3. Agriculture and forest goods, mine and agricultural crop stocks if they can be measured from the net realizable value according to solid practices in certain industries.
4. Living beings related to agricultural activities. These are included in the scope of TAS 41: Agricultural activities.
5. Intermediaries, merchants who measure their stocks with their realistic values taking out the sales cost and who buy and sell commodities.

Costs and Cost Management in TAS 2

It is seen that managements spend significant efforts in controlling and management of business costs. Continuously changing market conditions bring important investment and business risks along. In this respect, defining cost factors and planning activities is significant for businesses (Yuzbaşıoğlu, 2004). It is necessary to manage costs on the one hand, and record the calculated costs to the accounting system on the other hand. TAS 2 Stocks standard assesses stocks with the lower one among cost and net realizable value.

Purchasing Costs

In its regulation on stock purchasing TAS-2 Stocks standard examined product cost and other purchasing expenses and brought the following regulation (Clause 11). The purchasing cost of stocks include purchasing price, import taxes and other taxes (excluding the ones that could be refunded to the company from the tax administration), transportation, loading and unloading costs; and other costs that could be directly linked to the supplying of goods, materials and services. Commercial discounts and such other discounts are subject to discount in determining purchasing cost. In short:

- i. Purchasing price,
- ii. Import taxes and other taxes,
- iii. Transportation, loading and unloading costs and

iv. Other costs related to procurement of the good will are added to the purchasing cost of stocks.

Costs of Conversion

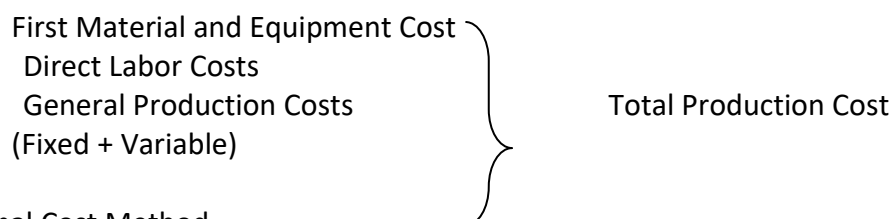
Costs of conversion can be defined as the sum of labor and general expenses that a business uses in its production activities. In the 12th, 13th and 14th clauses of Stocks Standards, TAS 2 clarifies the definition of stock and the content of stock costs. Above listed costs also include the amounts systematically distributed from fixed and variable general production costs beared in turning first material and equipment into product. Fixed general production costs are such indirect production costs as depreciation, the maintenance expenses of the factory building and equipment which remain relatively constant independent from the amount of production. Variable general production costs are such indirect production costs as indirect material and indirect labor which change in direct proportion to the amount of production. Distribution of fixed general production costs to costs of conversion is based on the assumption that production activities will be at a normal capacity. Undistributed general production costs are recorded as expense during the period they occurred and taken into the nominal accounts. During the periods in which there is high production, the share of fixed general production cost distributed to each production unit goes down, and thus, the stocks are not valued from a high cost. This standard also shows that cost distribution keys will be used in calculating product costs. The Standard also accepts that in cases when the production cost of each good cannot be separately identified, these costs will be distributed rationally and consistently among products. The steps followed in calculating the costs is as follows: If the results are close to the cost, such techniques as standard cost method related to the calculation of stock cost and retailing method can be used (Clause-21). In calculating the stock costs of businesses real part cost method and retail cost method are used.

Cost Calculation Methods

The main methods used in relating production related costs to the cost of the product are full cost method, normal cost method, variable cost method and direct cost method (Akbulut and Yanik, 2010). Business can choose one of the cost calculation methods that fit their commercial perception.

Full Cost Method

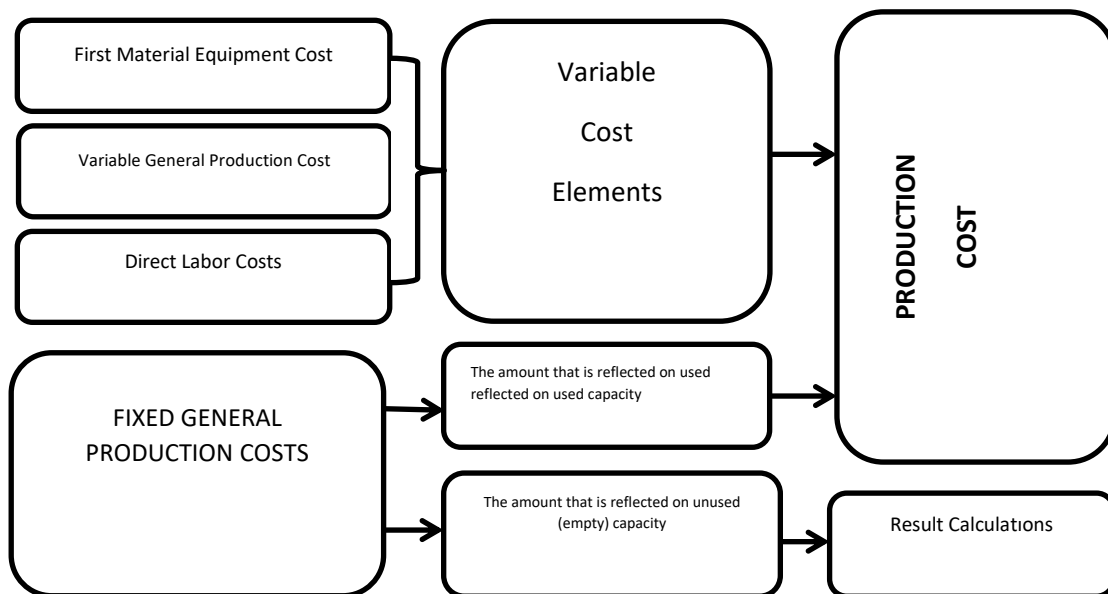
This method considers all expenses in calculating the cost of a product manufactured. In that, there are three things that make up the cost of a product. These are first material and equipment cost which has three main types, direct labor costs and general production costs (fixed and variable). All these costs are included in the total production cost in this method. According to the tax procedural law in Turkey, this method is used.



Normal Cost Method

This method calculates all direct first material and equipment cost, direct labor cost and variable general production costs and fixed general production costs according to normal

capacity and puts them on production cost according to loading rates (Karakaya, 2006, 553). In this method, unused capacity is directly put on period expense.



Source: Yereli et al (2012)

Variable Cost Method

This is a method that can also be used by businesses doing contract manufacturing in addition to their own production activities. In this method, fixed costs are not calculated in cost calculation. The cost of a product produced includes the following costs:

1. First material and equipment cost
 2. Direct Labor Cost
 3. Variable General Production Cost
- } Total Production Cost

Fixed general production costs which is not included is recorded as period expense. The main objective of using this method could be to give a better price offer in contract manufacturing. While a business is calculating the production cost in contract manufacturing, it might not include the building rent, which is one of the fixed costs, in production cost. In this case, the cost will be naturally low. However, this method is inconvenient in calculating the cost of normal business activities. Because although the rate of general production costs among total production changes, it is almost around 15-25%. In this rate, fixed costs are predominant. Therefore, they cannot be ignored while making calculations.

Direct Cost Method

In this method, direct expenses that make up the cost are considered. In other words, direct expenses are included in calculating the cost. General production cost is included in the accounts as period expense. As it is known, production costs cannot be turned into expense unless the product is sold. In this respect, in case we do not include general production cost in costs and show it directly as period expense, this rule will be neglected. The use of this method will bring significant tax differences in production businesses in which general production amount is high.

Implementation

Within the scope of the implementation two of the cost calculation methods will be compared. These are full and variable cost methods. These methods will be compared and the results of using these methods will be examined. TAS 2 adopts normal cost method in calculating costs. According to this standard, normal capacity will be based upon in calculating fixed general production costs. In case general production costs are not included in calculations two cases arise:

1. The cost problem that arises as a result of adding the variable part of general production cost to costs.
2. The tax problem that arises as a result of adding the variable part of general production cost to costs.

These results are examined. In forming the examples for comparing the account records and costs in the clause, the study of Akbulut *et al* (2010) is used.

According to the capacity report of MOBSAN Furniture Manufacturing Limited Company the normal annual capacity is manufacturing 50.000 unit wood chairs. The unit price of the products in the company is determined by full cost method. The company manufactured 50.000 chairs this year. The company outsources from the sector from time to time.

Direct Raw Materials And Supplies Costs	\$110.000
Direct Labour Costs	\$200.000
Manufacturing Overhead Costs	\$90.000
Variable Costs	\$50.000
Fixed Costs	\$40.000
General And Administrative Expenses	\$100.000
Production Quantity (Unit)	50.000

It is seen that fixed general production cost is \$40.000 while variable general production cost is \$50.000. The total production in this period is 50.000 and the total cost of this production is \$400.000

05.11.xxxx			
Direct Raw Materials And Supplies Costs	110.000		
Direct Labour Costs	200.000		
General Production Costs	90.000	400.000	
ACCOUNTS PAYABLE			
Product Costs			

05.11.xxxx			
WORK-IN-PROCESS	400.000		
Direct Raw Materials And Supplies Costs		110.000	
Direct Labour Costs		200.000	
General Production Costs		90.000	
Product Costs Applied			

05.11.xxxx		
FINISHED PRODUCTS	400.000	
WORK-IN-PROCESS		400.000
Totaling Costs to Finished Products		

	Variable Cost Method	Whole Cost Method
Direct Raw Materials And Supplies Costs	110.000	110.000
Direct Labour Costs	200.000	200.000
Manufacturing Overhead Costs		
Variable Costs	50.000	50.000
Fixed Costs	-----	40.000
Total Production Cost	360.000	400.000

When unit cost is calculated according to total cost method, it is found as \$8. According to total cost system;

Unit cost = Total production cost/unit cost = Direct Raw Materials and Supplies Expenses+ Direct Labour Expenses + General Production Expenses Variable Expenses + Fixed Expenses)/Production Quantity = 400.000/50.000 = 8\$/unit.

According to variable cost system;

Unit cost = Total production cost/unit cost = Direct Raw Materials and Supplies Expenses + Direct Labour Expenses + General Production Expenses (Variable Expenses)/Production Quantity = 360.000/50.000 = 7,2\$/unit.

Accordingly: 8\$/unit *50.000= 400.000\$ Total cost according to full cost method

7,2\$/unit *50.000= 360.000\$ Cost according to variable cost method

In this case, 400.000-360.000=40.000 \$ will be followed as debt in the idle capacity expenses and losses account as period expense (Code-680). Tax laws do not accept this expense (Akbulut *et al.*, 2010).When the product is sold, it is not cause to a problem because the amount that falls on expenses and shown as period expense will both turn into cost together (Akbulut *et al.*, 2010). However, the problem arises when the produced product is not sold. Because \$40.000 that should not be recorded as expense has been recognized as expense. This case is against accounting principles and tax laws. If the product produced is not sold the below given account records are made (Akbulut *et al.*, 2010).

11.11.xxxx		
NON ACCEPTANCETERMS	40.000	
OFTAXEXPENSES		
NONACCEPTANCETERMS		40.000
OFTAXEXPENSES RECEIVABLES		
ACCOUNT		

11.11.xxxx		
DEFERRED TAXASSETS	8.000	
		8.000

The tax effect record for the \$40.000 expense in the example above, which cannot be accepted in terms of tax, can be carried out in the following way: When the corporate tax is calculated as $20\% 40.000 \times 0,20 = \8000 tax cost/income is shown.

Discussion

That general production costs are not fully put on production costs in calculating production costs is an important cost problem (Tanritanir *et al.*, 2004). In fact, this case reveals that traditional cost accounting practices are insufficient.

Which cost method will be used by the practitioners in calculating production costs is not very clear. TAS 2 normal cost method has been adopted in calculating costs but on the other hand, according to this standard; normal capacity will be based on in loading fixed general production costs. However, there could be different cases and reasons in including general production costs in calculations. One of them is that the variable part of general production costs could not be added to the production costs. Thus, the cost is found lower and a better product price can be offered. Another case is including all costs in calculations without making a distinction. Including all costs in calculations in full cost method does not cause any problems in terms of accounting system in both cases when the product is sold in the period or when it is not sold. Only the unit cost is found higher in that case. On the other hand, while not including fixed costs in calculations in variable cost method gives lower unit price, it also causes to an uncertainty in terms of tax and accounting regulation. And that is under which item the fixed cost will be shown. In TAS 2 Stocks Standard it is explained that used fixed cost will be shown in production cost and unused fixed cost will be directly shown in period expense. Tax regulation shows fixed production costs that cannot be shown in production cost as unaccepted cost in terms of tax. The amount that arises as a result of implementing variable method is accepted as deferred tax assets and is followed in tax income account.

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